



CUMBERLAND  
CITY COUNCIL

# Engineering Services Guidelines

## AUTHORISATION & VERSION CONTROL

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## **PURPOSE**

The Cumberland Engineering Services Guideline is provided to support the Cumberland Engineering Services Policy. It informs all stakeholders on Council's requirements to deliver best practice engineering solutions and safety for the benefit of the Cumberland community.

## **AIMS OF THE GUIDELINE**

This Guideline aims to:

- a. Support Council's Community Strategic Plan goal to enhance the natural and built environment;
- b. Facilitate infrastructure improvements by Council or developers within Cumberland;
- c. Support traffic and transport requirements to meet the needs of the Cumberland community. These requirements includes traffic, public and private transport, active transport and pedestrian safety.
- d. Improve road safety for the community and road users;
- e. Mitigate flooding impacts within the Cumberland LGA; and,
- f. Ensure that the design of infrastructure meets local needs and relevant plans, policies, guidelines and codes.

## **STRUCTURE OF THE ENGINEERING SERVICES GUIDELINE**

This Guideline provides further information on the Scope outlined within the Policy regarding Road Reserve Approvals, Infrastructure Design, Stormwater and Floodplain Management, and Traffic and Transport. Standard Drawings are also provided as part of this Guideline.

Part A: Road Reserve Approvals (Pages 4 to 23):

- A1 Hoardings
- A2 Works Zones
- A3 Crane Permits
- A4 Road Occupancies
- A5 Rock Anchors
- A6 Road Opening Permit

Part B: Infrastructure Design (Pages 24 to 33):

- B1 Boundary/Street Alignment Levels
- B2 Driveway/Footpath Design
- B3 Kerb and Gutter
- B4 Vehicular Crossings
- B5 Public Domain Design
- B6 Public Street Lighting
- B7 Road Design
- B8 Cycleway Design

Part C: Stormwater and Floodplain Management (Pages 34 to 38):

- C1 Stormwater Discharge Connection to Council's System
- C2 Street Drainage Works
- C3 Drainage and Water Sensitive Urban Design (WSUD)
- C4 Floodplain Modelling
- C5 Construction Requirements
- C6 Flood Advice

Part D: Traffic and Transport (Pages 39 to 51):

- D1 Cumberland Local Traffic Committee
- D2 Traffic Facilities
- D3 Traffic Statutory Requirements

- D4 Public Transport
- D5 Walking and Cycling
- D6 Road Safety Audit
- D7 Filming
- D8 Road Closure for Events and Other Activities
- D9 Residential Parking Scheme
- D10 Heavy Vehicle Access
- D11 Driveway Line Marking
- D12 Safety, Speed and Red Light Cameras
- D13 Signage and Wayfinding

Part E: Standard Drawings (Pages 52 to 53):

- Standard Grated Gully Pit with Precast Concrete Kerb inlet and “Bicycle Safe” Grates
- Standard Multi-Grated Sag Pit
- Junction Pit
- Lobster and Lobster Back Bends Typical Set out and Ordering Requirements
- Surcharge Pit, Inlet Pit and Step Iron
- Standard Saddle Type Gully Pit Details
- Standard Multi Grated Pit at Vehicular Crossing
- Concrete Bulkheads
- Minor Drainage Details
- Concrete Headwalls for Double Pipe Culverts
- Concrete Headwalls for Single Pipe Culverts
- Rock Mattress Outlet Protection for Pipe Culverts
- Trash and Safety Barrier for Open Culverts
- Subsoil Drains
- Standard Floodway Warning Sign
- Fence Modifications to Permit Overland Stormwater Flow
- Standard Gully Pit Details
- Concrete Kerb & Gutter, Laybacks, Foot Paving, Mountable Kerb & Dish Crossing
- Concrete Kerb Ramps
- Concrete Vehicular Crossing
- Concrete Vehicular Crossing – Revision 1
- Standard Cycleway, Footway Crossing and Concrete Cycleway Paving
- Kerbs and Gutters
- Roof Water Outlet Connection
- Pedestrian Pathway Barrier
- Cycleway Barrier
- Medium Duty Vehicular Crossing Using Paving Units
- Typical Arrangement of Threshold Pavements and Intersections
- Pathway Steps
- Accessway Details
- Standard Indented Bus Bay
- Speed Hump Standard for Car Parks
- Rock Retaining Wall
- Sediment Control Structures
- Construction Traffic “Shake Down”
- Sediment Control Structures
- Filtration Controls to Surface Inlet Pits
- Sediment Control Structures
- Siltation Protection to Gully Pits
- Siltation Protection to Gully Pits
- Sediment Control Structures
- Block and Rock Drop Inlet Sediment Trap and Culvert Sediment Trap
- Sediment Control Structures

- Level Spreader, Diversion Bank and Channel and Rock Check Dam
- Sediment Control Structures
- Sedimentation Basin Features
- Standard Swing Gate
- "V" Grated Pit – Type 2

Please note that all relevant forms, certificates and checklists can be found on the following page on Council's website:

<https://www.cumberland.nsw.gov.au/forms-certificates-and-checklists>



## **PART A: ROAD RESERVE APPROVALS**

### **A1. HOARDINGS**

#### ***A1.1 Definitions***

For the purpose of this Policy and Guideline, the following definition applies:

Hoardings are structures erected on or adjacent to a property to form a barrier (separation) between building construction / demolition sites and the public domain. Hoarding structures can consist of fences; scaffolding or overhead structures as individual elements or integrated together.

A hoarding comprising a fence is known as a Type A, an overhead structure situated over footpaths as a Type B or Type C.

Hoardings erected on Council's land will attract a fee in accordance with Council's schedule.

#### ***A1.2 Application Process***

Businesses seeking to construct hoardings on Council's roads and footpaths must obtain prior approval from Cumberland City Council pursuant to the provisions of Section 68 of the Local Government Act and comply with all conditions of the approval and this policy document.

Information and advice can be obtained from Council, with relevant details provided on Council's website: [www.cumberland.nsw.gov.au](http://www.cumberland.nsw.gov.au).

#### ***A1.3 Application Requirements***

The following documents are to be submitted with an application for approval to construct a hoarding. Further details may be required in the submission, which can be sourced in the contents of this document.

- Evidence of Public Liability Insurance indemnifying the Cumberland City Council.
- Structural drawings prepared by a practising structural engineer and suitably endorsed for Class B and C types of Hoardings.
- Structural design intent certifications for the proposed Hoarding. The certification to be prepared by a practising structural engineer and with details of all standards and codes relied upon.
- Architectural plans drawn to a draftsman standard, to a suitable scale, detailing cross-sections, site plan, hoarding locations, footpath widths, utility services, trees, traffic lights and other detail as required by this policy.
- Traffic Management Plan / Traffic Control Plan where pedestrian or vehicle traffic is being modified due to the construction, operation or removal of the Hoarding.
- Completed application form and payment of the scheduled fee and associated bonds.
- Submission of details as required by the conditions of current development consent.
- A 24-hour Emergency contact details for emergencies with respect to the Hoarding.

#### ***A1.4 Certifications to be Submitted with the Application***

Applications for Hoardings are to be accompanied with design intent statements prepared by a structural engineer having regard to the minimum specifications below and the Work Cover Code of Practice for Overhead Protective Structures.

This design intent statement confirms to Council that the structure has been appropriately designed and documented to meet the appropriate standards and statutes.

#### ***A1.5 Application and Payment of Fees***

An application to erect a Hoarding, as required by Section 68 of the Local Government Act, is to be made on the prescribed form and accompanied by a fee as adopted by Council in its fees and charges schedule. The application form is to include all details necessary to enable Council to assess the application in conjunction with this Policy.

If the application to lease Council's land is refused by Council a full refund of the fees paid (excluding the application fee) is refundable to the applicant.

#### ***A1.6 Certifications to be Submitted upon Completion of Works***

No construction and or building works shall proceed on site until an inspection by Council and a written confirmation has been provided to the applicant that the Hoarding has complied with all conditions contained on the approval.

Upon completion of the erected hoardings the supervising structural engineer is to certify that the structures have been erected in accordance with the submitted design intent statement. Such documentation is to be submitted to Council prior to the commencement of development works.

Scaffolding utilised in Hoarding constructions must be certified as compliant when erected by the licensed scaffolder.

#### ***A1.7 Further Enquiries and Pre-lodgement Meetings***

Applicants are encouraged to contact Council to meet and discuss submission requirements prior to lodgement.

#### ***A1.8 Inclusion of Public Art on Hoardings for Construction***

Applicants may also consider the inclusion of public art, particularly for developments more than 12 weeks in duration. Developer Obligations regarding public art, such as conditions of development consent may also be a relevant consideration.

Public art in the public domain enriches the City's cultural life and visual opportunities. The construction of hoardings provides a unique opportunity to incorporate public art in all phases of development, while also improving the visual impact that hoardings have on the surrounding streetscape.

The inclusion of public art on hoardings is encouraged in town centres and employment zones as areas with higher volumes of people and to support activation in public spaces, subject to Council approval.

#### ***A1.9 Specific Requirements for Hoardings Construction***

##### *Type A Hoardings*



Image – Typical Type A Hoarding

All building sites are to be made secure to prevent unauthorised entry via the construction of a securely fixed Type A Hoarding. Fencing not on Council land may be of open cyclone mesh form with dust

preventative measures and must be a minimum of 2.0m in height.

Where construction dictates that a portion of Council's Road reserve is required to facilitate building works, a Type A Hoarding is to be erected on Council's road reserve (footpath).

The Type A structure on Council's reserve is not permitted to be of an open mesh style. To be constructed of solid timber panels, regular in size, a minimum of 16mm in thickness and 2.0m in height, securely fixed, with no protruding bolts and nails, the panelling fixed flush and evenly to a supporting timber or steel frame.

Solid metal fencing utilised in Type A Hoardings can be permitted only where it is new fencing, and it is constructed in a continuous form without open connection points and exposed sharp and jiggered edges.

The remaining footpath width is to be a minimum of 2000mm. Lesser distances can only be permitted in certain circumstances.

The minimum width of accessible footpath shall be 1200 mm or the existing footpath width (the greater of the two shall be adopted) to ensure continual pedestrian access.

The consistency of the pedestrian access provided is required to be of the same quality and standard as what was there prior to the hoarding being erected.

The supporting feet elements of the hoarding structure is to be visually obtrusive to ensure it is easily visible by pedestrians.

Gates associated with Type A Hoardings must swing inwards. Dispensation may be provided to the above requirements where the works are minor or short term in nature requiring temporary barricades.

Each request will be assessed on its merits.

### *Type B Hoardings*



Image – Typical Type B Hoarding

A Type B Hoarding must be erected where it is proposed to construct, carry out façade remedial works or maintenance to a building adjoining a public way, which is 7.5m or greater in height and less than 3.5 metres from the property boundary (street alignment).

Council can require Type B Hoardings to be erected together with Type C hoardings in circumstances above the said requirements based on the scale of the construction, risk assessment and work cover guidelines.

### *Type C Hoardings*



Image – Typical Type C Hoarding

A Type C Hoarding is a temporary movable mesh or chain-link fencing typically used to isolate development sites from the public domain. Fencing, including bracing and counterweights is to be located within the alignment of the development site. Base-plates and/or counterweights which could cause a trip hazard must not project into the pathway.

Type C Hoardings straddling the allotment boundary are to be combined with a Type A Hoarding a minimum of 2.0metres at the base.

Site perimeter fencing (Type C Hoarding) located wholly within a property allotment is not regulated through these Guidelines and does not require approval if associated with approved development or building activity that is exempt development. In these cases, fencing must comply with the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. Note: For exemptions on public lands owned by Council, refer to the State Environmental Planning Policy (Infrastructure) 2007

#### *Other Requirements for Type A, B and C Hoardings*

The Hoarding must be erected along the full length of all public domain boundaries and extend beyond the worksite boundaries to protect the adjoining sites as required prior to commencement of works.

The Class B Hoarding must provide a minimum head room height clearance of 3.0 metres measured from the lowest point of any structural bracing for pedestrians.

Hoarding post construction is to bear onto sole plates. Gates and other similar openings are not to open outwards across or over the roadway.

No superimposed loads are permitted on a hoarding unless shown on the certified structural plans submitted to Council.

The gap between the top of the two-metre-high fence and the underside of the Type B Hoarding (property boundary side) is to be completely enclosed for the entire length of the overhead protective structure by continuation of the timber panelling or by chain wire mesh of a maximum dimension of opening of 50mmx50mm and not less than 2.5mm wire diameter.

Full face scaffolding is to be enclosed with heavy duty meshed fabric reinforced from the outside with

heavy duty interlocking diamond patterned wire mesh.

The street side should be open for at least two-thirds of its height for the full length of the structure to prevent a “tunnel effect”.

A clear span of 1800 mm is required for continual pedestrian access at all times with a minimum 1.2m wide paved (Concrete / asphalt) footpath at the centre of the clear span.

When a hoarding is proposed along a Shared Pathway, the standard hoarding minimum clearances may not be applicable. In such cases, Council will evaluate hoardings and propose a solution to ensure functionality of both the shared pathway and proposed hoarding

For visibility requirements, the structure shall be painted white below the deck level

#### *Hoarding Requirements for Demolition Works*

Type B Hoardings must be constructed where it is proposed to demolish a building adjoining a public way. The footpath shall be covered by an overhead protective structure (Type B Hoarding) and the facing façade protected by heavy duty scaffolding, unless either:

- a. the vertical height above footpath level of the subject structure is less than 4 metres; or
- b. the least horizontal distance between footpath and the nearest part of the structure is greater than half the height of the structure.

The overhead structure shall consist of a horizontal platform of solid construction and vertical supports, and the platform shall:

- i. extend from the common boundary to the edge of the carriageway for the full length of the boundary;
- ii. have a clear height above the footpath of not less than 2.4m;
- iii. terminate at the edge of the carriageway with a continuous solid upstand projecting not less than 0.5m above the platform surface; and
- iv. together with its support, be designed for a uniformly distributed live load of not less than 7 kPa.

#### *Provision of Lighting to Type B Hoardings*

Lighting connected to mains power supply is to be provided in Type B Hoardings to ensure the enclosed passageway is well lit for pedestrians and equal to the levels and distribution pattern of the existing street lighting in the area. Where pedestrian hazards associated with the hoarding are present, significantly higher lighting levels are required. All lighting associated with Hoardings must not impact on surrounding traffic.

#### *Waterproofing and Drainage of Type B Hoardings*

In Type B Hoardings the underside of the deck is to be lined and be impenetrable to water. A suitable drainage system is to be provided discharging rainwaters to Councils drainage system or other approved discharge point. The roofs of sheds are to slope inwards to the site or be provided with appropriate drainage.

No waters will be permitted to discharge on to a footpath so as to cause a nuisance to pedestrians or to unretained excavated.

#### *Asbestos Removal*

No demolition works are permitted to commence on the site until all development consent conditions pertaining to demolition and asbestos removal have been complied with including the obtaining of appropriate work cover permits and licences. The hoardings are to be affixed with the asbestos warning

signs required in the conditions of the development consent.

### *Barrier Fencing*

Fencing required for a temporary period to protect open trenches, the construction of pathways, kerb and gutters, driveways, pipe laying and other relevant works is to be provided to protect the public from injury. Such barrier fencing or barricades are to be well constructed, lit and sign posted with warning and directional signs as required. These works are to be programmed to expedite completion and removal of the temporary fencing and barricades

### *Pipe Scaffolding*

Pipe scaffolding in Type B Hoardings is not permitted at footpath level. Council will only permit pipe scaffolding situated above the deck of a Type B Hoarding or when fully covered by solid timber panel sheeting at ground level with no profusions through the panel sheeting.

## **A1.10 Site Elements**

### *Materials Not Permitted in Hoardings*

Demountable open panel fencing (i.e. ATF fencing, reinforcing mesh or similar structures) and structures not permanently fixed shall not be permitted to form part of a Hoarding Structure situated on Council's road reserve.

All materials used in Hoardings must be solid in construction and provide a smooth finish to prevent injury to persons. The material used must enable appropriate fixing to secure against movement.

Other material such as roof sheeting, timber cladding and other building remnants cannot be used as materials to construct a Hoarding.

Metal fencing, which is not new and installed in a continuous manner without open connection points, is not permitted.

### *Maintenance of Structures*

The Hoarding structure is to be fully maintained as operational until removal. The site foreman or approved representative must ensure a daily inspection of the structure occurs to ensure continued compliance with this policy and the approval.

Detection of non-compliances or instances of disrepair must be rectified within 24 hours.

### *Site Fencing and Access*

Sites are to be fully enclosed to the street frontage or the public way with a Type A, B, or C Hoardings as required prior to the commencement of any site works. Sequencing or staging of the Construction of Hoardings is not permitted. Hoardings must remain fully in place until the construction or demolition of the building is completed.

Vehicle access gates must be of solid durable material, be affixed to an adequate frame, and remain closed if not in use.

Vertical posts at all entry points are to be suitably braced and reinforced to prevent dislodgment by reason of collision by trucks and vehicles. No entry is to be closer to end post than one metre and a minimum of two posts to be placed between entry and end of the overhead protective structure.

No gate, door or the like is permitted to swing outwards onto Council's pathway or roadway. The hoarding design may require recesses in the hoarding structure to facilitate openings.

### *Office Sheds*

All site office and work sheds are to be located onsite. Where this is not possible a Type B Hoarding is to be erected to facilitate this requirement. Sheds placed above Type B Hoardings are to be a minimum of 2.4 metres in height and are to be tied down to the deck by suitable structural fixings and certified by an engineer.

The Type B Hoarding is to be provided with a boarding material to conceal the office sheds from public vision. The boarding material is to cover the full face of the sheds, painted or displayed with suitable information.

### *Use of Cranes*

A crane must not be used to convey material over a public way unless a Type B Hoarding is in place and an appropriate approval has been obtained from Council.

The usage of cranes, hoists, and concrete pumps shall not be placed upon the public way unless prior approval has been obtained through a traffic management plan/ traffic control plan.

### *Restoration of the Public Way*

Upon removal of all hoardings Council's footpath, roadway and ancillary infrastructure assets such as litter bins, public seating and signage is to be restored fully to its original condition. The condition of Council's footpath will be assessed against the completed dilapidation report.

### *Protection of Council Street Trees*

All trees situated on Council's reserve or adjacent to the proposed hoarding are to be identified upon the plans submitted for approval. The design of the Hoarding such as location of posts, counterweights, crossings and overhead decking is to be designed to minimise impact on these trees.

No tree cutting, lopping or removal is permitted without the consent of Council to enable the construction of the Hoarding.

Where impact of trees is identified due to the Hoarding, preservation measures will be required depending on the circumstances. Such measures may include the provision of irrigation; tree protection measures and increased natural light through a modified hoarding design.

## **A1.11 Safety Elements**

### *Fire Safety*

Sheds situated above a Type B Hoarding are to be provided with at least one stair exit to the ground. For hoardings greater than 30 metres in length, two exits are to be provided. The distance to alternative exits must not be greater than 80 metres and comply with the Building Code of Australia (BCA).

The width of the corridors, passageways or stairs must be at least 750mm.

At least one easily accessible portable fire extinguisher must be provided in the site office.

### *Protective Footway Crossings*

Prior to the construction or demolition of a hoarding the footpath required for vehicle crossing shall be

protected with a timber crossing. The specification being a minimum of 4.5m wide and covering the full width of the footpath. The crossing is to be constructed of 200mm x 50mm timber planks with splayed edges and held together with a minimum of four hoop iron straps. The final built design must not cause a tripping hazard or danger to the public.

#### *Location of Utility Services*

Hydrants, utility services and sewer manholes etc. are not to be obstructed by the structures and are to have free access.

Consultation with the appropriate Authority is to occur to ensure no adverse bearing pressure will result from the proposed work.

Electrical hazards may result from the structure being in close proximity to overhead electricity wires.

Consultation must take place with the electrical authority if the structure is within two metres of wiring.

All electrical distribution boards required for site works are to be located within the site and not be attached externally to the structure.

#### *Provision for People with Disabilities*

Detours or alternative pathways required for pedestrians are to be designed to take into account accessibility issues for people with disabilities. These routes must provide for widths, levels, gradients, tactile indicators and colour schemes to assist people with disabilities in their movement.

Pathways are to be maintained at their original condition and repaired immediately if the pathway for pedestrians has been damaged and is putting safety at risk.

No obstruction to the footpath is to occur until Council approval has been obtained. This includes obstruction to the footpath resulting from a proposed concrete pour, laying of cables, conduits, drainage pipes or service lines necessary to facilitate work on the site.

Australian Standards detailing minimum design requirements are to be addressed in the application submission.

### **A1.12 Visual Elements**

#### *Provision of Required Signs*

Appropriate warning signs, occupational health and safety signs and builder's details as required by law and conditions of consent are to be affixed upon the Hoardings. Details are to include an after-hours emergency contact name and number. Public signage, such as signage for bus stops, construction zones, taxi ranks and, pedestrian crossings which may be obscured due to the construction of the Hoarding, are to be suitably moved to an interim location and position more appropriate.

Notices lettered in accordance with AS1319 and displaying the words "WARNING DEMOLITION IN PROGRESS", or similar message, shall be fixed to the fencing at appropriate places to warn the public.

Appropriate approvals may be required from the relevant authority or organisation. Existing signage is to be reinstated following completion of works.

#### *Advertising Posters*

The hoardings are to have all advertising material not associated with the development removed within



48 hours of detection or Council direction to remove.

A notice "Bill Posters will be Prosecuted" is to be affixed to the Hoarding structure at regular intervals.

Advertising upon the Hoarding is subject to a Development Application to Council.

In the event of non-compliance with these requirements to remove advertising posters, Council reserves the right to remove or paint over the posters and invoice the applicant for actual costs incurred by Council.

#### *Graffiti Prevention*

Graffiti is to be removed or painted over on all hoarding structures within 48 hours of detection or Council notification.

Hoardings must be provided with appropriate coverings to assist in graffiti removal or measures to reduce the occurrence of graffiti.

In the event of non-compliance with these requirements, Council reserves the right to remove or paint over the graffiti and invoice the applicant for actual costs incurred by Council.

#### *Treatment and Colour of Hoarding*

Hoardings shall be kept clean at all times. No advertisement of any kind to be allowed upon the structure except for details of the professional design and engineering consultants involved with the project.

In general, colours selected should be light to promote high visibility of the structure and safety at night.

### ***A1.13 General Application Requirements for Hoarding Construction***

#### *Public Liability Insurance*

Cumberland City Council must be indemnified for the period of construction and until the removal of the temporary structure. The indemnity is for third party claims arising from injury to persons and, damage to property (including consequential loss) in the course of works. Such indemnity must be for a minimum amount of \$10,000,000 (including the excess on the policy for any one accident or event).

Such a policy must be specifically endorsed to include the interests of Cumberland City Council as a joint insured for their respective rights and interests.

A certificate of currency must be submitted with the application and can be in the form of the sample attached to this policy. The Hoarding approval is considered void should the insurance lapse.

#### *Conditions of Development Consent*

Hoarding approvals must be read in conjunction with any conditions of development consent pertaining to the site. Specific conditions relating to the protection of Council's assets, street trees, site management and construction layout may impact on the hoarding design and or approval.

#### *Amendments to the Approval*

Modifications to an approved hoarding design cannot occur until an amended submission is made to Council. An amended application must include reasons for the modification and amended architectural and structural details as required. Amendments include replacement of one Type of Hoarding for another.

#### *Renewal of Applications*

The application for a hoarding permit is to be renewed prior to the application lapsing. The application is to detail the extended period required for the hoarding and list any proposed changes from the original approval granted.

The application is to include payment for the extended period as adopted in Councils fees and charges.

Failure to renew the application can cause all building or demolition works to cease on site. The applicant is to renew the Hoardings permit, prior to it lapsing.

#### *Council Inspections*

No building or demolition works shall proceed on site until written authorisation has been provided to the applicant from Council that the hoarding as constructed is satisfactory. Upon removal of the structure Council will inspect to ensure the satisfactory removal of materials and assess the condition of its assets.

Council is to be notified upon completion of the erection, and upon the removal of the Hoarding structure. The inspection will confirm compliance with conditions contained in the Hoarding permit and associated development consent. Inspections can be made by contacting Council.

#### *Unauthorised Structures*

No structures are to be erected without the prior approval of Council. Structures, which are constructed additional to a current approval, are deemed unauthorised and may negate any approvals.

#### *Working Hours*

Erection of Hoardings may only occur during Council's normal adopted hours for Building Works and as contained in conditions of development consent.

This policy will however require that in certain locations of Cumberland City Council where there is high pedestrian or traffic movement, or the inherent risks of erecting a hoarding in day light hours is impracticable due to the high volume of pedestrian or vehicle movements then operations will only be permitted at night or in off peak hours.

Council approval is required for works outside of Council's approved working hours.

Notification to surrounding residents and business occupiers must be provided detailing work commencement dates and hours of operations.

Consideration to the impact of pedestrians and motorists in the erection of Type A and B hoardings as applicable must be provided in the submission to Council with a traffic management plan.

Erection of full-face pipe scaffolding is not permitted during peak pedestrian movement hours.

#### *Monitoring Program*

Type B and C Hoardings erected for longer than six months are to be re certified by the applicant's inspecting structural engineer to ensure the structural integrity of the erected structure has been maintained. A Certificate of Structural Integrity is to be forwarded to Council within one week of the six month anniversary of the structure being erected.

#### *Dilapidation Report*

A dilapidation report detailing the condition of the footpath, kerb, gutter and road shoulder is to be

undertaken by the applicant and submitted with the application for the hoarding permit. The report will be verified by the inspecting officer and form the basis to ensuring all damage is rectified upon removal of the Hoarding structure.

### *Risk Management Reports*

For demolition works or deep site excavations an independent risk assessment and a public domain risk minimisation strategy by a practising structural engineer is to be submitted to Council prior to the approval of the application. In case of deep site excavation, a geotechnical report should be provided as well to assess the risks of vibration and the weakening of support. The report is to include advice on the suitability of the proposed design of the structure and method of restraint for the works to be carried out.

Application of this part is to be assessed in the individual case and in consultation with Council.

### *Council Assets*

Council's infrastructure including the drainage system shall not be interfered with or damaged during the construction or operation of the Hoarding.

The use of the roadway for storage of materials, loading and unloading is not permitted at any time. Kerb stones and gutters must not be cut or damaged. Prior approval from Council is required for any modification required to Council's infrastructure.

Vehicles must not cross the footpath to gain access to the site unless a temporary planked crossing is constructed to the satisfaction of Council.

### *Traffic Management Plan*

Where a Hoarding in its construction, operation or removal phase will impact on pedestrian or traffic movement a Traffic Management plan is to be prepared by an accredited traffic engineer and submitted with the application for Council approval. Specific submission requirements on plans can be made by contacting Council.

These details must consider Council, Police and Transport for NSW requirements. Special consideration will apply especially in high traffic areas of the City and in the vicinity of pedestrian malls, transport interchanges and town centres.

The loading and unloading of heavy material and, plant must form part of the Traffic Management Plan.

Provisions should be made for traffic control by referring to the Guide to Traffic Engineering Practice and AS 1742 Part 3 Manual of Traffic Control devices. Such details should be included in a Traffic Management Plan as required.

A copy of the Traffic Management Plan must be available onsite at all times for the inspection of an authorised officer of Council, Police or Transport for NSW.

### *Obstruction to Traffic Lights, and Cameras*

All hoardings must be constructed so that they will not obstruct either motorists or pedestrian's view of traffic lights.

Visibility from driveways, pedestrian's crossings and intersections also must not be constricted.

The applicant must detail on the application site plan the location of all traffic lights, Transport for NSW monitoring Cameras, Closed Circuit Television (CCTV) cameras and the like. The submission must

demonstrate no interference in the operation of these facilities to the satisfaction of Council and the relevant state government authorities.  
Referrals to the appropriate authority or private organisations may be required to ensure no interference will result.

#### *Consultation with other Authorities and Organisations*

The applicant must consult and seek concurrence with the relevant authorities where the Hoarding structure may impact on their services, utilities and assets, or requires a separate approval.

### **A1.4 Penalties for Non-Compliance**

#### Enforcement Options

A Hoarding Permit is issued under Part 1 Approvals s68 of the Local Government Act (the Act).

Section 672 of the Act states that a non-compliance with an approval issued under the Act is a breach of the Act.

For the purposes of this Policy and Guideline, the Hoarding Permit includes not only any conditions of the permit applied by Council approval but also include plans and documentation submitted in support of the application.

Where a breach of a Hoarding permit does occur, Council may deal with any non-compliances in one or a combination of the following manner;

- Issue penalty infringement notices for failing to comply with the approval
- Have a non-compliance with an approval dealt with by means of a Court Attendance Notice returnable to the Local Court. The Local Court can impose monetary penalties to a Corporation or an individual.
- Issue Orders requiring compliance with a Permit including conditions of that permit or requirements of this Policy and Guideline. The failure to comply with such an Order can result in either of the above legal options being taken
- In those circumstances where Council has issued an Order requiring compliance with the issued Permit and the terms of the Order have not been complied with Council can carry out the terms of the Order (e.g. to remove graffiti) and recover the costs of doing the work required by the Order.

#### *Retain Approvals On-Site*

A copy of all approvals must be available onsite at all times for inspection by Council and SafeWork NSW personnel.

## **A2 WORK ZONES**

### **A2.1 Work Zone Requirements**

Works Zones are often required at construction sites to facilitate development when parking on site is not available. Works Zones primarily relate to large developments, such as residential, hotel and commercial development sites where there is no on-site space for the loading or unloading of materials.

All Works Zone applications are required to be assessed by Council based on, but not restricted to:

- the amount of on-site space to carry out the activity
- Local Traffic Committee approval, that must be endorsed by Transport for NSW, Police and Council.

### *Suitable Locations*

Any use of public roadway (excluding the footpath/nature strip) for Works Zones must not obstruct vehicles, bicycles, pedestrian convenience, safety or amenity, and should complement other street activities.

Where a Works Zone is proposed to be located adjacent to another party's premises/property, the applicant must obtain written approval from the relevant property owner. Any concerns or requirements raised by the affected party must be resolved or accommodated.

In general, a Works Zone may only be approved on the roadway (excluding the footpath/nature strip) in time restricted and unrestricted parking areas.

The Applicant will be liable for any damages to Council's assets, such as kerbs, pits, gutter, footpath, road surface, signage, poles and trees.

### *Hours of Operation*

Standard works hours of operation are: 7.00 am – 6.00 pm Monday – Friday 8.00 am – 4.00 pm Saturday. Hours of operation outside this period may be considered by Council and may require further approvals beyond the areas covered by this Policy and Guideline.

### *Layout and Accessibility Corridors*

The use of a Works Zone should not compromise the existing street activities, through maintaining adequate clearances.

The Works Zone must be used in accordance with the Australian Road Rules. Vehicles stopping in the zone must be engaged in construction works in or near the zone, and the zone must not be used for the storage of materials and the use of skip bins and/or standing plant.

If standing plant is required within the works zone area, a separate Road Occupancy Licence (ROL) An application must be submitted to Council. Additional fees and charges may apply.

The use of the Works Zone shall not interfere or compromise the safety to pedestrians, cyclists or motorists. The Works Zone shall not interfere or encroach into bicycle or traffic lanes.

### *Fees*

All associated fees are payable in accordance with Cumberland City Council's Schedule of Fees & Charges.

### *Public Liability*

The applicant must provide Public Liability Insurance cover indemnifying Cumberland City Council as a principle for the sum of \$20 million. Evidence of such insurance must be submitted with the application.

A Works Zone application will not be approved unless public liability insurance is demonstrated.

### *Application Requirements*

Works Zone Applications must be submitted at least 28 days prior to works zone being required.

It is the responsibility of the applicant to ensure that this is complied with, and that all necessary documents are attached with the application for Council's consideration.

Documents required on application include:

- Completed Works Zone Application Form
- Public Liability Insurance (Certificate of Currency)
- Layout Sketch, including all road signage, line markings, and road width in the vicinity (between adjacent intersections)

## ***A2.2 Ongoing Management***

The Works Zone area must be maintained in a clean and tidy condition to the satisfaction of Council, or else the applicant will be required to reimburse Council for any extraordinary cleaning costs.

The use of equipment or activities to be conducted in the Works Zone must not result in any "offensive" noise as defined by the Protection of the Environment Operations Act.

If the Works Zone is either postponed or cancelled, the applicant needs to advise Council in writing of the situation no later than 24 hours prior to the planned commencement of the Works Zone.

Council will install and remove the Works Zone as appropriate. Where possible, existing signs, stems or power poles will be used.

The applicant should apply proper site management controls to the works zone area to prevent materials entering or likely to enter waterways or contaminate land.

The applicant is responsible for any environmental contamination resulting from the use of the works zone. Should contamination occur, the applicant is responsible, at their own cost, for returning the affected area to its condition prior to the contamination. If the applicant does not comply with this condition, Council may carry out the necessary works and the applicant will be required to reimburse Council for the cost of this works.

## ***A2.3 Compliance and Control***

### *Compliance*

Council's Authorised Officers will liaise with the site manager responsible for management and maintenance to ensure appropriate safety standards are met.

Failure to obtain a permit or non-compliance with the Permit Conditions is a breach of the Local Government Act 1993 as amended and/or the Roads Act 1993 as amended. Infringements will be issued in accordance with the regulations of these Acts.

The use of the Works Zone area may require compliance with other Council policies and/or legislation.

### *Breaches*

The following is a guide to the steps taken by Council to resolve or remedy a situation. The steps may be varied at any time based on individual circumstances.

### Breaches of Conditions

Step 1 - Caution/Letter Issued action to remedy must be within 12 hours

Step 2 - Infringement Notice served to ensure compliance.

Step 3 - Following Infringement Notice, permit may be cancelled and/ or further action taken.

### Operating with an Expired Permit

Step 1 - Caution/Letter Issued action to remedy must be within 12 hours

Step 2 - Infringement Notice served to ensure compliance.

Step 3 - Continued noncompliance may then result in further action being taken.

### Operating without a Permit

Step 1 - Application form is issued to the party and an Infringement Notice is served.

Step 2 - Continued non-compliance may then result in further action being taken.

## **A3 CRANE PERMITS**

### *A3.1 Definitions*

A Crane Permit is required when planning to operate any type of lifting device on, over or above the public way that is occasional and not related to development more than a duplex. Equipment includes:

- Mobile Cranes, including crane trucks and Hi Abs;
- Cherry pickers and Elevated Works Platforms (EWP);
- Concrete boom pumps;
- Scissor lifts; and
- Boom lifts.

### **A3.2 Requirements for Crane Permits**

#### *Suitability*

Any use of public roadway (excluding the footpath/nature strip) for crane permits must not obstruct vehicles, bicycles, pedestrian convenience, safety or amenity, and should complement other street activities.

Where a Crane Lift is proposed to be located adjacent to another party's premises/property, the applicant must obtain written approval from the relevant person. Any concerns or requirements raised by the affected party must be resolved or accommodated.

The Applicant will be liable for any damages to Council's assets (such as kerbs, pits, gutter, footpath, road sheeting, signage, poles and trees).

The maximum weight of any machinery proposed to operate on the public roadway or footpath is 1500kg. This is based on total weight, not point loads.

#### *Hours of Operation*

Standard works hours of operation are: 7.00am – 5.00pm Monday – Friday 7.00am – 4.00pm Saturday. Hours of operation outside this period may be considered by Council and may require further approvals beyond the areas covered by this Policy and Guideline.

#### *Layout and Accessibility Corridors*

The Crane Lift should not compromise the existing street activities, through maintaining adequate clearances.

The Traffic Control Plan associated with the Crane Permit must be approved by Council and implemented

at all times.

### *Fees*

All associated fees are payable in accordance with Cumberland City Council's Schedule of Fees & Charges.

The application fee must be paid at the time of lodgement (prior to commencement of work).

Any additional fees and charges will be payable prior to approval being granted and permit being issued.

### *Public Liability*

The applicant must provide Public Liability Insurance cover indemnifying Cumberland City Council as a principle for the sum of \$20 million. Evidence of such insurance must be submitted with the application.

### *Application Requirements*

Crane Permit applications must be submitted at least 48 hours prior to a Crane Lift being required. It is the responsibility of the applicant to ensure that this is compiled and that all necessary documents are attached with the application for Council's consideration.

Documents required on application include:

- Completed Crane Permit Application Form
- A full Traffic Control Plan, in accordance with AS1742.3 and manual for traffic control at work sites, drawn by a red or orange ticket accredited person. Accreditation details and site checklist to be included with the submission.
- All external approvals / acknowledgements or permits, where applicable (i.e. Transport for NSW and Police), must be attached.
- A copy of the applicant's current Public Liability Insurance Certificate with a minimum of cover of \$20 million and indemnifying Cumberland City Council must be attached. Cumberland City Council must be named on the certificate/letter from the insurer as an interested party.
- A Safe Work Method Statement &/or Material Data Safety Sheets for the proposed works.
- The manufacturer's/hirer's specification for the machinery is to be attached.
- Identification of any obstructions, such as trees, poles and utilities.

## **A4. ROAD OCCUPANCIES**

### ***A4.1 Definitions***

Road Occupancy- Any activities likely to affect road network's operational efficiency and occupy a road will require a road occupancy permit.

### ***A4.2 Requirements for Road Occupancies***

A road occupancy permit must be obtained before occupying any surface on the road reserve, including footpath, nature strip, channel, kerbing and road pavement.

Occupancies also include parking long and/or heavy vehicles for over an hour and the use of cranes.

### *Application Process*

Applicants seeking to obtain a road occupancy permit on Council's roads must obtain prior approval from Cumberland City Council pursuant to the provisions The Roads Act 1993 and comply with all conditions of the approval and this policy document.



Information and advice can be obtained from Council, with relevant details provided on Council's website: [www.cumberland.nsw.gov.au](http://www.cumberland.nsw.gov.au).

### *General Road Occupancy Conditions*

The following general road occupancy conditions are provided for an application:

1. Adequate vehicular traffic control shall be provided for the protection and convenience of pedestrians and motorists including appropriate signage and flagging. Workers shall be specially designated for this role, as necessary to comply with this condition. This is to be carried out in accordance with the Australian Standard AS 1742.3 – Traffic Control Devices for works on roads and Work Cover requirements.
2. Traffic Control Plans/Traffic Management Plans for the proposed work must be prepared by a person in possession of a current "Select/Modify Traffic Plans" qualification or higher and copy of the qualification must be attached with the application.
3. All the fees and charges must be paid in accordance with Council's current fees and charges policy.
4. Road Occupancy Licence must be obtained from Transport Management Centre of Transport for NSW for road occupancies impacting on traffic signals or state road network.
5. At least 6.0 metres width of roadway adjacent to the site shall be left open for two-way traffic. Please note that full closure of the road activity will NOT be allowed except under special circumstances. This will require consideration by the Cumberland Traffic Committee and approval by Council.
6. Booms shall not operate over pedestrian or vehicular traffic without approved overhead protection. All applications are to advise if there is any overhead work proposed across the footpath area.
7. Appropriate signs and barricades shall be erected to direct pedestrians to an alternate safe passage around a closed section of the public footpath where the public footpath is required to be closed under this approval.
8. The emergency vehicles travelling under lights and sirens are to be given priority and delay to these vehicles actively minimised.
9. The holder of this licence shall maintain safe clearance between workers and vehicles in the adjacent travel lane.
10. The residents/office access in the area affected by the traffic control setup shall be maintained at all times.
11. The holder of this approval shall indemnify the Council against all claims, damages and costs incurred by or charges made against Council in respect to death or injury to any person or damage in any way arising out of this approval.
12. A public liability insurance policy for an amount not less than \$10,000,000 for any one occurrence shall be held in joint names including Council as an interested party. The holder of this approval shall inform its liability insurers of the terms of this condition and submit a copy of liability insurance prior to commencement of work.
13. The operator of any unit carrying out this approval shall have this approval with them and produce it if required along with any other relevant authority approvals granted in the connection with this approval upon request of the Police or Council Officer and Workcover.
14. Mobile cranes, cherry pickers or concrete boom pumps shall not stand within the public way for extended periods when not in operation under this approval.
15. The operation of the mobile crane shall not give rise to an "offensive noise" as defined in the Protection of Environment Operations Act 1997. Furthermore, vibrations and/or emission of gases that are created during its operations and which are a nuisance, or dangerous to public health are not permitted.
16. The cost to repair damages, as a result of these works, to Council's footway and roadway area shall be borne by the applicant.

## **A5. ROCK ANCHORS**

### **A5.1 Definitions**

Rock anchors are inserted below ground level used to stabilize earth, sand or rock adjacent to excavation work, which are safely de-stressed or completely removed upon completion of the works.

This Policy and Guideline details the safe and economical means of supporting Council land adjoining development sites under construction.

### ***A5.2 Requirements for Rock Anchors***

#### *Objectives*

The objectives are:

- To ensure Council's assets are protected.
- To minimise any adverse impact on properties caused by rock anchors.
- To safeguard the public interest whilst ensuring a safe means of supporting public land adjoining development sites during construction.
- To protect utility services from damage resulting from developments.

#### *General Application*

This Policy and Guideline applies to all Council land where temporary rock anchors are proposed as a support mechanism during construction or excavation on development sites.

This Policy does not apply to the installation of rock anchors on private land.

The installation of permanent rock anchors on Council land may be considered in exceptional circumstances and in accordance with Council requirements. These requirements may be identified in this Policy or Guideline or may be specific to the relevant land being considered and not identified in this Policy or Guideline.

The use of temporary rock anchors may be permitted, subject to conditions and only where an alternative method of stabilisation cannot be used or is impractical.

Rock anchors must only be installed with formal approval from Council via a Section 138 of the Roads Act.

The Applicant/Developer must provide full details of the proposed installation, prepared by a qualified Structural or Geotechnical Engineer, for Council's approval, prior to commencement of excavation works. The Structural or Geotechnical Engineer must be a Chartered Professional Engineer with the Institute of Engineers Australia.

The Applicant/Developer must provide Council with a refundable Holding Deposit (minimum constant value up to 10 anchors) as per Council's Fees and Charges Schedule, which will not be released until a Certificate is provided to Council certifying that the rock anchors have been completely de-stressed or removed upon completion of works. This Holding Deposit may be used to repair any damage resulting from the rock anchors.

The Applicant/Developer must take out Public Liability Insurance to a minimum value of \$20 million, prior to the commencement of works.

#### *Fees and Charges*

All associated fees are payable in accordance with Cumberland City Council's Schedule of Fees & Charges.

The application fee must be paid at the time of lodgement (prior to commencement of work). Any additional fees and charges will be payable prior to approval being granted and permit being issued.

### *Public Liability*

The applicant must provide Public Liability Insurance cover indemnifying Cumberland City Council as a principle for the sum of \$20 million. Evidence of such insurance must be submitted with the application.

### *Application Requirements*

An application for the use of temporary rock anchors under this Policy and Guideline will only be considered if there is no other available method of stabilising Council's land. In this regard, statement from a qualified Structural or Geotechnical Engineer is required as proof.

Rock anchors must be installed at a depth of not less than 2.5m below existing natural ground levels at the boundary.

All utility services must be located and plotted on the drawing showing their depth and relative position to the proposed rock anchors, to ensure that the services will not be damaged or interfered with or affect Council's future works.

The proposed rock anchors are to be geotechnically and structurally certified by the qualified Structural or Geotechnical Engineer. Upon completion of works, the rock anchors are to be completely de-stressed or removed without damage to Council's land or to existing services. Proof shall be provided in the form of certification from the qualified Structural or Geotechnical Engineer.

The Applicant/Developer is liable for any current or future damage caused by the rock anchors during installation, whilst being installed, during de-stressing or during their removal including all damage to public land, damage to public land preventing its future development of the land (sterilisation) or damage to existing services.

## **A6. ROAD OPENING PERMIT**

### ***A6.1 Definitions***

A Road Opening Permit (ROP) in accordance with Section 138 of the Roads Act is used to apply for a permit to carry out any intrusive digging in the public road or footpath. The type of works covered by this application:

- Installation, maintenance, repairs/replacement or upgrading of utilities (water, gas, electricity or telecommunications)
- Any type of stormwater or sewer connection works and repairs
- Providing a temporary driveway/layback to premises for residential or construction vehicle access
- Upgrading the road, kerb & gutter associated with a development site approved by the City of Sydney Council
- ROP is NOT used for constructing permanent driveways or replacing redundant driveways with new footpaths, these works require a 'Application for Private Construction of Vehicular Crossing and Road Works' to be completed.

### ***A6.1 Requirements for Road Opening Permit***

Anyone who needs to carry out works can apply for a Road Opening Permit, including homeowners or trades people. If the permit is approved, only fully qualified and licenced trades people can carry out the works. All qualification and licence details must be included in the application.

All financial transactions with this approval will be conducted between the Cumberland City Council and the 'Applicant' listed on the application and the permit.

Lodgement of the ROP application and payment of fees is required to receive a permit. Please note that minimum 10 working days is required to process this application.

Additional information to be provided with the application includes;

- Public Liability Insurance Certificate
- Worker's Compensation Insurance Certificate
- Worksite details
- Traffic control plan
- Plans or sketch of proposed works

A single application can be used for multiple frontages of the same site subject to all opening details and plans are submitted at the same time.

All works being carried out under this approval must be carried out by qualified and licenced trades people whose registration / accreditation details are essential and must be provided at the time of submitting your application.

A road occupancy licence is required from the Transport for New South Wales if you are working within 100 metres of traffic signals or on state and regional roads.

## **PART B: INFRASTRUCTURE DESIGN**

### **B1. BOUNDARY/STREET ALIGNMENT LEVELS**

#### ***B1.1 Objectives***

Alignment Levels are required for Council to clearly understand existing public domain levels and grades, identify improvements for accessibility that may be required in accordance with relevant standards, and consider changes that are proposed.

Alignment Level applications require plans, cross-sections and longitudinal sections to demonstrate the road, footpath, kerb and gutter levels and cross-falls for a site, relative to the Australian Height Datum (AHD) and Map Grid of Australia (MGA) orientation.

#### ***B1.2 Requirements for Boundary/Street Alignment Levels***

Due consideration will need to be given to Boundary/ Street Alignment Levels to ensure that the proposed designs work with the existing conditions.

Consideration of Boundary/ Street Alignment Levels will also ensure that the proposed designs will follow Council standards and public domain designs.

#### ***Levels and Gradients***

- Adjustment of footways to achieve cross-falls between 1 – 3.5% from property boundary to the top of kerb. All levels must be related to Australian Height Datum (AHD);
- If existing footpath levels and gradients do not comply with City standards, reconstruction will be required.
- Small variations from the standards due to latent site conditions may be accepted.
- Localised adjustment of longitudinal grades and cross-falls to suit building entries is not permitted in the public domain and must occur within the property line if required.

#### ***Kerb and Gutter***

- The kerb line is to be parallel to and 150mm above the invert of the gutter (as designed), unless otherwise specified by Council.
- The design levels for new kerb returns must include the boundary, top of the kerb and gutter levels at relevant chainages.

#### ***Pedestrian Kerb Ramps and Driveways***

- Designs showing proposed adjustments to the general footpath gradients, such as kerb ramps and driveways are required.
- Adjustment of levels at vehicle and pedestrian entrances to address flood planning levels (e.g. for property basements) is not permitted. Any such adjustments must occur within the property line.

#### ***Pits and Service Covers***

- Designs indicating adjustments to suit required longitudinal grades and cross-falls.

#### ***Application Process***

When a development proposal involves construction of a new building, the introduction or alteration of building entries or driveways, or other impacts on the surrounding footway or roadway, an Application for Approval of Footpath Alignment Levels and Gradients is required.

An Alignment Level submission may be required:

- as a condition of consent under a Development Application (DA);
- in association with a Voluntary Planning Agreement (VPA); or
- as part of a Works on the Public Way application for approval under the Roads Act 1993, when a DA or VPA is not required.

The Alignment Levels submission should include all frontages of the development site or project area and extend a distance of 20m beyond the site frontages. Cross-sections should extend from the building line to the centreline of the road carriageway.

The submission should clearly show the existing public domain levels and proposed changes to those levels to meet Council standards and proposed changes to the public domain.

Submissions must be prepared by a registered surveyor and designed by an engineer.

Submissions must be approved by Council staff before works can start.

The items identified in this section of the Guideline are to be included in the submission, as relevant to the site.

Information and advice can be obtained from Council, with relevant details provided on Council's website: [www.cumberland.nsw.gov.au](http://www.cumberland.nsw.gov.au)

### *Fees and Charges*

All associated fees are payable in accordance with Cumberland City Council's Schedule of Fees & Charges.

The application fee must be paid at the time of lodgement (prior to commencement of work). Any additional fees and charges will be payable prior to approval being granted and permit being issued.

## **B2. DRIVEWAY/ FOOTPATH DESIGN**

### ***B2.1 Driveway / Footpath Design Requirements***

Driveway and Footpath Designs are to consider pedestrian and vehicular crossings within the public domain.

It is imperative to ensure that there will be sufficient gradient for flow of stormwater and to prevent ponding. Council also has set specifications for details of construction.

Footpath and driveway shall be designed in accordance with Council standards to provide a continuous and uniform surface for safe and comfortable pedestrian and vehicle movements between the property boundary and road pavement.

Reference:

- Cumberland City Council Standard Drawing SD 8102 – R1
- Cumberland City Council Development Control Plan (DCP)
- Australian Standards (AS2890).

## **B3. KERB AND GUTTER**

### ***B3.1 Kerb and Gutter Requirements***

Consideration will need to be given to Kerb and Gutter design to ensure that it is functional, with minimal impact to its surroundings.

It is a requirement for the Kerb and Gutter to follow Council's specifications and details for construction.

Reference:

Cumberland City Council Standard Drawing SD 8101  
Cumberland City Council Standard Drawing SD 8104

## **B4. VEHICULAR CROSSINGS**

### ***B4.1 General Information***

The Roads Act 1993 and the Local Government Act 1993 require that a person shall not carry out any activity or works on a public road or place without the approval of Council. Property owners are liable for all costs associated with the construction, maintenance and repair of a vehicular crossover between the road pavement and the property boundary line.

All vehicular crossing construction shall require written approval from Council prior to the commencement of any work. In this regard, a vehicular crossing application is to be made to Council requesting permission to construct. The application will be accompanied by the necessary vehicular crossing designs showing all required dimensions. Standard requirements may vary depending on the proposed use of the vehicular crossing and a desire to avoid conflict with existing trees, utility services, drainage system and gully pits.

Where a proposed vehicular crossing impacts on an existing gully pit, all costs associated with the construction of any new pit, grates and lintel required to resolve the conflict shall be at the applicants' expense.

Vehicular crossings shall be constructed perpendicular to the kerb and gutter or road centre line.

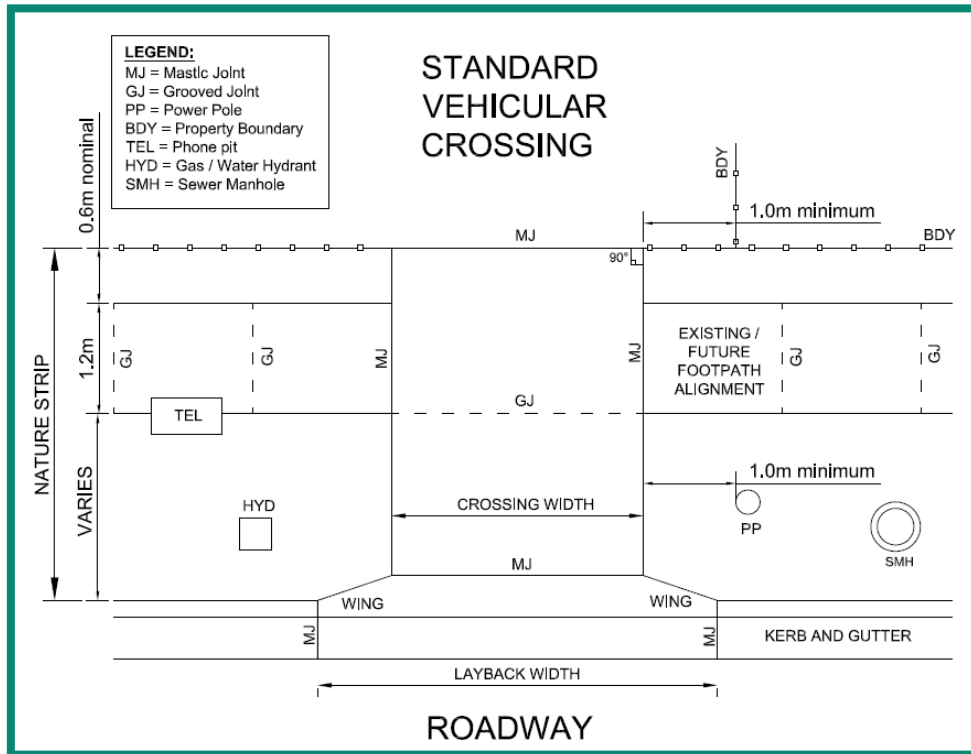
Vehicular crossings on corner allotments shall not be constructed within six (6) metres of the kerb's tangent point or opposite an on-coming street, in accordance with the Cumberland Development Control Plan and AS 2890.

The number of vehicular crossings permitted shall be limited to one (1) per property to improve streetscape, maximise on-street parking and reduce the number of vehicle-pedestrian conflict points. Additional vehicular crossings may be considered if consistent with the relevant provisions in the Cumberland Development Control Plan. Alternatively, a development application or modification will need to be submitted where relevant.

Where existing laybacks and/or crossings are made redundant by the construction of a new crossing in an alternate location:

- i. The old layback shall be removed, and the kerb and gutter restored to the standard profile.
- ii. The old crossing shall be removed, any damaged sections of footpath reconstructed, and the area restored to the satisfaction of Council.

Council may require the lodgement of a security deposit to ensure the satisfactory completion of any works within the road reserve. The security deposit shall be lodged with the vehicular crossing application form. The amount required shall be in accordance with Council's Schedule of Fees and Charges.



## B4.2 Standard Vehicular Crossing Requirements

### *Provision for Traffic and Safety of the Public*

During the course of the works, the contractor shall be adequately insured for Public Liability and shall indemnify Council against any claims arising from these works.

The contractor shall, for the duration of the works provide proper fencing, barricades, lighting, signs and such temporary roadways, footways as necessary for the accommodation and protection of pedestrians, motorists and public, in accordance with the relevant Australian Standards

A Road Occupancy Licence (ROL) may be required for construction work close to traffic lights and in high traffic areas.

### *Provision for Utility Services*

A provision for utilities such as power, water and telecommunications is to be made in the design process. It shall be the applicant's responsibility to arrange for a BEFORE YOU DIG® search to be requested.

Should there be the need to relocate and/or adjust the location or level of any utility, then it shall be the applicant's responsibility to arrange this with the relevant authority. Any reduction of a standard clearance or adjustment of a condition shall be negotiated between the applicant and the relevant regulatory authority.

The applicant shall verify in writing and forward to Council all correspondence between both parties before any inspection on the site can be carried out.

### *Provision of Work near Trees*

Any work near trees needs to be consistent with the Cumberland Development Control Plan or any other relevant control, standard or guideline.



In order to minimise any damage to a tree on or adjacent to the demolition and/or construction of a vehicular crossing, the following guidelines are to be read in conjunction with the conditions of development consent and are to be strictly adhered to:

- i. Pruning and removal of trees is subject to Council approval.
- ii. If tree related issues are encountered during works, Council is to be contacted immediately in order to advise on necessary works to resolve the issue. Failure to comply with any of the conditions and guidelines may result in Council retaining relevant bonds and/or the instigation of compliance proceedings against the owner/ applicant, builders or contractors.

Further information relating to tree protection can be found in Cumberland City Council's website: [www.cumberland.nsw.gov.au](http://www.cumberland.nsw.gov.au)

#### *Construction Approval Expiry*

The vehicular crossing approval shall lapse if the works as outlined within the approval is/are not completed within twelve (12) months of the date shown on the issued design.

Should the site conditions change from those assessed at the time of approval, prior to commencement of construction, contact is to be made with Council to confirm the design.

The applicant can apply to Council at least thirty (30) days before the expiry date, requesting for an extension of up to twelve (12) months.

A re-design of the vehicular crossing may be subject to further fees in accordance with Council's scheduled Fees and Charges.

#### *Design Requirements*

Vehicular access to individual properties shall be designed with consideration to on-street parking and drainage while promoting a pleasant pedestrian friendly environment and to establish an attractive neighbourhood. This is to be achieved through site-specific design to provide for an integrated safe environment for all uses of the area.

The vehicular crossing must be aligned with the garage/carport/parking bay opening.

The crossing must be constructed perpendicular to the adjacent kerb.

Vehicular crossings are to be separated from adjacent crossings.

Service covers or lid levels shall match the new concrete finish level.

### ***B4.3 Specifications for Vehicular Crossings***

#### *Single Dwelling Vehicular Crossings*

The crossing shall be constructed with a minimum 150mm thick concrete slab reinforced with one layer F82 steel mesh.

The minimum width at the property boundary is 3 metres.

The maximum width at the property boundary is subject to Development Approval and impact to on-street parking.

Splays are permitted where the width at the property boundary is less or equal to 3 metres.

### *Multiple Dwelling and Industrial Vehicular Crossings*

Specified as Heavy Duty and for use with all multiple dwellings and industrial properties.

The crossing shall be constructed with a minimum 200mm thick concrete slab reinforced with two (2) layers of F82 steel mesh.

The minimum width at the property boundary is 3 metres

The maximum width at the property boundary is subject to Development Approval.

Splays are permitted where the width at the property boundary is less or equal to 3 metres.

Any development, other than the single dwelling houses and granny flats, shall construct footpath on all frontages along with vehicular crossings

### *Concrete Finish*

All concrete works within the Council footpath reserve and/or vehicular crossings shall be consistent with the requirements outlined in the Cumberland Development Control Plan.

## ***B4.4 Process for Vehicular Crossing Approval and Inspection***

### *Application Process*

A vehicular crossing application shall be completed, and the appropriate fees and security bonds paid to Council. A copy of the nominated Contractors Public Liability Insurance is to be provided alongside the application form.

If not previously obtained, a Boundary Line Level application form shall also be submitted, and the relevant fees paid.

Cumberland City Council will assess the application and conduct a site investigation. Where necessary, Council will determine the required Boundary Line Level for the development site.

### *Approval for Private Construction of Vehicular Crossing*

Council will issue an approval letter with conditions and along with an Invoice for Asphalt Restoration to the applicant. Prior to receiving written approval from Council, the applicant is not permitted to conduct any works on the public reserve, including (but not limited to) excavation of the footpath, redundant driveway, kerb or gutter.

Should the applicant conduct any works on the Council reserve prior to being issued the approval, the following actions may be taken:

- Council may issue infringement notices or fines
- Full reinstatement to previous condition with all costs borne by the applicant.

Upon payment of the asphalt Invoice, the applicant may commence work.

### *Asphalt Restoration to be Carried out by Council*

For asphalt restoration covered under this section of the Guideline, a minimum 500mm wide and 50mm deep asphalt surface shall be removed for all new concrete works or concrete reconstruction works adjacent to the asphalt surface. A lip-board shall be placed along the lip line.

For heavy duty driveways and in industrial areas, the asphalt cut shall be minimum 500mm and 150mm deep.

#### *Booking Mandatory Formwork Inspections with Council*

After the applicant has completed the placement of the formwork, suitable bedding material and steel mesh, prior to concreting, an inspection booking is to be made with Council's engineers. A minimum of 48 hours' notice shall be given and bookings are subject to availability. An applicant's representative is required to be on site during the duration of the inspection.

Information and advice can be obtained from Council, with relevant details provided on Council's website: [www.cumberland.nsw.gov.au](http://www.cumberland.nsw.gov.au).

#### *Inspection by Council and Approval to Pour Concrete*

If Council's requirements and specifications are not met and more than one inspection is required, additional fees will apply. This fee is in accordance with Council's Schedule of Fees and Charges.

A copy of the inspection sheet will be issued by Cumberland City Council to the applicant (or representative) on-site, advising if the vehicular crossing has passed (with or without changes) or failed the inspection.

If the inspection was passed, pouring of the concrete may commence. Otherwise, if the formwork was unsatisfactory, appropriate rectifications are to be made and another inspection shall be booked with Council. No pouring can occur until the inspection is passed.

#### *Final Inspection and Refund of Security Bonds*

Once the concrete has been poured and reasonably set, the applicant is to contact Council to organise for the Asphalt patching work to be conducted.

A Security Bond Refund Application is to be lodged to Council and a final inspection will be conducted when requested by the applicant.

Council will then inspect the completed works, ensuring that all restorative work has been completed and to the satisfaction of Council's standards. Upon satisfactory completion of all works, Council will release the Security Deposit held by Council.

Please note that Council reserves the right to retain the monies in the case the applicant refuses to address defects and issues raised by Council.

Council will advise the issues to be addressed in writing to the applicant. Also, additional inspection in the process will be deducted from the bonds.

#### *Certificate of Compliance for Vehicular Crossing and Road Works*

Once the vehicular crossing and associated works have been completed, the applicant can request Council to issue a certificate of compliance to certify that the completed works complies with Council's development and regulatory requirements.

Certificate of Compliance also considers the quality of construction for the Vehicular Crossing and Road Works.

#### ***B4.5 Vehicular Crossings Approval for Complying Development Certificates (CDC)***

Cumberland City Council has a two-part process that you must adhere to in order to seek vehicular crossing location and construction of those works related to CDCs.

### *Step 1: Preliminary Access Approval for Vehicular Crossing (Location and Width)*

Prior to issue a CDC, consent for the location of the proposed vehicular crossing shall be obtained from Council by submitting the “Application for Preliminary Approval for Vehicular Crossing” form.

Application for boundary line levels shall also be submitted along with this application. Please refer to “Boundary Line Levels” section in this Guideline.

#### Important information (Preliminary Approval)

- This application is for Council to determine the site suitability for the Applicant’s proposed location only, in relation to a Complying Development Certificate.
- Access driveway width and location will be determined based on the site constraints and available on-street parking.
- Please allow up to ten (10) business days for applications to be processed.

### *Step 2: Obtaining Construction Approval of Vehicular Crossing and/or Ancillary Works by Private Contractor*

This approval is to be obtained by lodging the “Application for the Private Construction of Vehicular Crossings and Road Works” form. Council issued Preliminary Approval for Vehicular Crossing (as per Step 1) shall be included with the application.

Please note that private construction of vehicular crossing will be processed at the lock up stage.

## **B5. PUBLIC DOMAIN DESIGN**

### ***B5.1 Definition***

For the purpose of this policy, the following definition applies:

Public domain is referred to as land that is owned and/or managed by Cumberland City Council, and land that is proposed to be dedicated to Council as part of the development.

This includes but is not limited to the design for roadworks, street drainage works, footpaths, vehicular crossings and other public facilities referred to as the public domain.

Any work required in the public domain must be documented to the Council standard requirements described herein for each development stage.

Development proposals that meet any of the following criteria shall be required to submit public domain design plans to Council for approval:

- Developments in Town Centres and other Urban Centres; or
- Developments that provide new public domain infrastructure including roads, laneways and pedestrian links; or
- Developments in business and employment zones; or
- Some developments in R4 High Density Residential zones, subject to Council advice; or
- Any development with nil setback.

### ***B5.2 Application Process***

The Application for Assessment and Approval of Street drainage / Public Domain Design Plans (works within road reserve) is to be lodged.

Design Plans are to be submitted along with the application. The requirements have been outlined within

the subsequent section below.

Approval:

- Once the application and plans have been reviewed and all Council's requirements and objectives have been met, an approval will be sent to the applicant.
- Please note there may be several amendments of plans required if these requirements and objectives are not met.
- The approval will also be outlining the Conditions and Site inspections which may need to be carried out by Council Officers at key stages of the construction phase.

### ***B5.3 Public Domain Design Plan Submission Requirements***

Design Plans are to be submitted along with the application and the requirements for each submission category is outlined below.

Proposed public domain designs need to be consistent with any relevant planning control, any relevant Public Domain Plan, and any relevant standard drawings from Council.

Proposed road and footpath works within Council land are to be designed and the cross-sections and long-section details are to be prepared in accordance with the Road Design Guide and Austroads specifications

A detailed service search shall be carried out to ensure all services within the area of proposed works are identified.

The depth and locations of these services shall be clearly shown on the longitudinal sections, with the minimum required clearance to the other services annotated on the plans.

Written approval/concurrence from affected service authorities for service adjustments are to be obtained and details are to be attached with design plans. All services are to be adjusted to new surface levels and are to be clear of trafficable area.

Please note that approval for construction of the public domain works shall be obtained by lodging the application for private construction of vehicular crossing. The following documents are to be submitted at the end of completion and is not limited to Works as Executed (WAE) plans, and compaction test results.

### ***B5.4 Fees and Charges***

All associated fees are payable in accordance with Cumberland City Council's Schedule of Fees & Charges.

The application fee must be paid at the time of lodgement (prior to commencement of work). Any additional fees and charges will be payable prior to approval being granted and permit being issued.

## **B6. PUBLIC STREET LIGHTING**

### ***B6.1 Requirements for Public Street Lighting***

Council identifies requirement for public street lighting to provide lighting sufficient for the creation of a safe and comfortable night-time outdoor visual environment for vehicular and pedestrian movement.

The design of Public Street Lighting is to follow relevant Australian Standards, Work Cover Code of Practice, and relevant planning controls and any relevant Public Domain plans.

Reference:

- AS/NZS 1158 series - Lighting for roads and public spaces
- AS/NZS 1798 Lighting poles and bracket arms – Recommended dimensions
- AS/NZS 4677 Steel utility service poles
- AS 2700 Colour standards for general purposes
- AS 4282 Control of the obtrusive effects of outdoor lighting
- Work Cover Code of Practice, Work Near Overhead Power Lines, 2006
- Relevant Planning Controls
- Relevant Public Domain Plans

**B7. ROAD DESIGN**

***B7.1 Requirements of Road Design***

It is a requirement for proposed Road Designs to follow the guidelines stipulated by Austroads.

Road Designs are required to consider any relevant planning controls, any relevant public domain plans, and standard drawings provided by Council.

Reference:

- Austroads Guide to Road Design
- Council Standard Drawings
- Specifications provided by Council's Engineering Section
- Relevant Planning Controls
- Relevant Public Domain Plans

**B8. CYCLING DESIGN**

***B8.1 Requirements of Cycling Design***

It is a requirement for proposed Cycling Designs to follow the Guidelines stipulated by Transport for New South Wales and Austroads.

Cycling Designs are required to consider any relevant planning controls, any relevant public domain plans, and standard drawings provided by Council.

Reference:

- Austroads Guide to Road Design Part 6A: Paths for Walking and Cycling
- Austroads -guides for cycleway design
- TfNSW – Cycleway Design Toolbox
- Council Standard Drawings
- Relevant Planning Controls
- Relevant Public Domain Plan

## **PART C: STORMWATER AND FLOODPLAIN MANAGEMENT**

### ***C1. Stormwater Discharge Connection to Council's System***

#### ***C1.1 Definition***

For the purpose of this policy, the following definition applies:

Section 68 of the Local Government Act 1993 specifies a range of activities where approvals are required to be obtained from the local council. These are often in addition to standard development application (DA) requirements and are known as 'section 68 approvals'.

Section 68 activities for water supply, sewerage and stormwater work is as follows:

1. Carry out stormwater drainage work.
2. Carry out water supply work.
3. Draw water from a Council water supply or a standpipe (including selling of the water).
4. Install, alter, disconnect or remove a meter connected to a service pipe.
5. Carry out sewerage work.
6. Connect a private drain or sewer with a Council controlled public drain or sewer.

The information in this section is also applicable to application under a Complying Development Certificate (CDC).

#### ***C1.2 Application Process***

The Application for Approval of an Activity is to be lodged.

The design plans should clearly show the location of the connection point within Council land where the connection details are to be prepared in accordance with Council's standard drawings or as required by Council.

Once the application and plans have been reviewed and all Council requirements and objectives have been met, an approval will be sent to the applicant.

There may be several amendments of plans required if these requirements and objectives are not met. The approval will also be outlining the conditions and site inspections which may need to be carried out by Council at key stages of the construction phase.

Separate approvals listed below may be required to be obtained prior to the commencement of construction works. This include:

- Road opening permit.
- Short term road closure.
- Road occupancy licence from Transport for NSW (if required)

#### ***C1.3 Fees and Charges***

All associated fees are payable in accordance with Cumberland City Council's Schedule of Fees & Charges.

The application fee must be paid at the time of lodgement (prior to commencement of work). Any additional fees and charges will be payable prior to approval being granted and permit being issued.

## **C2. STREET DRAINAGE WORKS**

### ***C2.1 Definition***

For the purpose of this policy, the following definition applies:

Any development that requires the extension of street drainage works towards the development site and/or connection to council's underground drainage system.

### ***C2.2 Application Process***

The Application for Assessment and Approval of Street Drainage / Public Domain Design Plans (works within road reserve) is to be lodged.

Drainage Plans are to be submitted along with the application. The requirements have been outlined within the subsequent section below.

Approval:

- Once the application and plans have been reviewed and all Council's requirements and objectives have been met, an approval will be sent to the applicant.
- Please note there may be several amendments of plans required if these requirements and objectives are not met.
- The approval will also be outlining the Conditions and Site inspections which may need to be carried out by Council Officers at key stages of the construction phase.

### ***C2.3 Submission Requirements***

Any proposed stormwater works within Council land are to be designed and the details are to be prepared in accordance with Council's standard drawings and generally in accordance with Austroads specifications and AR&R, or as required by councils works and infrastructure section.

The street drainage system shall be constructed under the kerb & gutter

Surface levels and Invert Levels of the pits and pipes are to be shown on the plans so that a minimum 500mm cover can be provided for the pipe.

Longitudinal sections for the stormwater works within Council controlled land are to be shown on the plans.

All necessary analysis/calculations and Hydraulic Grade Line (HGL) shall be provided.

Within flood affected areas, flood levels are to be obtained from Council and incorporated within the design.

A detailed service search shall be carried out to ensure all services within the area of proposed works are identified.

The depth and locations of these services shall be clearly shown on the longitudinal sections, with the minimum required clearance to the other services annotated on the plans.

Written approval/concurrence from affected service authorities for service adjustments are to be obtained and details are to be attached with design plans

Cast-insitu Pits are to be used (excluding the lintel), pre-cast pits will not be accepted by Council.  
Documents to be submitted at the end of completion: WAE plans, CCTV Footage, Compaction test results



for back filling of trench.

## **C2.4 Fees and Charges**

All associated fees are payable in accordance with Cumberland City Council's Schedule of Fees & Charges.

The application fee must be paid at the time of lodgement (prior to commencement of work). Any additional fees and charges will be payable prior to approval being granted and permit being issued.

## **C3. DRAINAGE AND WATER SENSITIVE URBAN DESIGN (WSUD)**

### **C3.1 Requirement of WSUD**

Water Sensitive Urban Design (WSUD) is a multidisciplinary approach for integrating land use and water management (water supply, stormwater and wastewater) planning, with the aim of minimising the impacts of urban development on the natural water cycle. This is achieved by optimising the use/re-use of grey water and rainwater falling on the urban area, while minimising the amount of water lost when it is transported away from the catchment and reducing the demand for potable water.

Council accepts MUSIC models to be submitted along with the MUSIC modelling report for WSUD. The MUSIC model should undertake modelling for both the pre-development and post development scenarios and the report should include the following:

- Input data sources;
- Meteorological template data adopted and analysis completed to select appropriate data;
- Description of the base scenario model development;
- Description of the developed and developed (treated) models;
- MUSIC modelling results.
- Lifecycle cost analysis; and
- Analysis of the MUSIC modelling results against the targets.

## **C4. FLOODPLAIN MODELLING**

### **C4.1 Requirements for Floodplain Modelling**

For large scale developments, or developments where hydraulic hazard circumstances warrant it, particularly where an existing catchment-based flood study is not available, a flood study using a fully dynamic one or two dimensional computer model will be required.

For smaller developments the existing flood study may be used if available and suitable (e.g. it contains sufficient local detail), or otherwise a model or estimation of flood analysis accepted in the current edition of Australian Rainfall will be required.

From this study, the following information shall be submitted in plan form:

- a) water surface contours;
- b) velocity vectors;
- c) velocity and depth product contours; and/or points
- d) delineation of flood risk precincts relevant to individual floodplains.

This information is required for the pre-developed and post-developed scenarios. Analysis shall be up to the 1%AEP flood event.

Consideration should also be given to any relevant planning controls, policies, and/or flood related studies from Council.

## **C5. CONSTRUCTION REQUIREMENTS**

Prior to the commencement of any construction works within Council land the following approvals shall be required to be obtained from Council and other relevant authorities:

- Road opening permit
- Short term road closure.
- Approval for private construction of vehicular crossings (public domain works)
- Road occupancy licence from Transport for NSW (if required)

Council will determine the necessary bonds and restoration fees required and advise applicants accordingly. All bonds and restoration fees shall be paid prior to issuing road opening approval.

This requirement also applies for approvals sought under Section 68 of the Local Government Act.

## **C6. FLOOD ADVICE**

### ***C6.1 Flood Advice Letter***

Council's Flood Advice Letter (FAL) is a site specific advice letter informing applicants, residents, and/or developers on the level of flood affection within that area. The FAL informs what the 1% and PMF flood levels are and the associated flood risk based on Council's available flood studies and information.

FALs are predominately required to accompany all development proposals on site/properties identified to be affected by flooding within Council's available flood studies and information.

The Application for the flood advice letter is to be lodged to Council. Processing time is a maximum of 10 working days upon receipt of payment.

### ***C6.2 Public Stormwater Drainage Diagram/Catchment Map***

The Public Stormwater Drainage Diagram/Catchment Map is a map capturing the approximate location of public stormwater infrastructure and its associated catchment area based on the site topography regarding a specific region within the Cumberland LGA.

This information is required to assist professional engineers when preparing and reviewing stormwater designs and/or site specific flood studies for development that may impact the public drainage network.

The Application for the Public Stormwater Drainage Diagram/Catchment Map is to be lodged. Processing time is a maximum of 10 working days upon receipt of payment.

### ***C6.3 Obtaining Flood Model Request***

For large developments, designers may require a copy of Council's available flood model data to demonstrate compliance with relevant planning controls.

This information can be made available on a case-by-case basis. Please contact Council to obtain further information and requirements to obtain a copy of Council's flood model data.

In order to obtain flood model data for the catchments within the Cumberland LGA the applicant is to email the Stormwater/Floodplain sector and fill out the data disclaimer form.

This information will be provided via a 1TB hard drive which is to be provided by the applicant and is to be delivered to Council's Office.

There will be an associated fee charged of 2 hours of professional engineering time. All fees are to be

paid, prior to receiving the flood model data.

#### **C6.4. Fees and Charges**

All associated fees are payable in accordance with Cumberland City Council's Schedule of Fees & Charges.

The application fee must be paid at the time of lodgement (prior to commencement of work). Any additional fees and charges will be payable prior to approval being granted and permit being issued.

## **PART D: TRAFFIC AND TRANSPORT**

### **D1. CUMBERLAND LOCAL TRAFFIC COMMITTEE (CTC)**

#### **D1.1 Objectives**

The purpose of the Cumberland Local Traffic Committee (CTC) is to make recommendations and provide advice to Council on the technical aspects of proposals to regulate traffic on local roads within the Cumberland Local Government Area (LGA) prior to Council exercising its delegated authority. In making its recommendations and providing its advice, the Committee is to consider only the technical merits of a proposal and ensure that the proposal meets current technical guidelines.

The establishment of the CTC is regulated by Transport for the NSW under the Roads Act.

The operation of the CTC is governed by a Terms of Reference, which is available on Council's website: [www.cumberland.nsw.gov.au](http://www.cumberland.nsw.gov.au)

#### **D1.2 Meeting Arrangements**

CTC meetings are organised in two formats recognised by Transport for NSW: 'face to face' or electronic meetings. The meeting is led by the Chair of the CTC.

The typical meeting frequency of the CTC is outlined in the Terms of Reference. Extraordinary meetings of the CTC may be held as required, subject to the support of the Chair of the CTC.

#### **D1.3 Notification Requirement**

For matters under consideration by the CTC, notification requirements have been identified to ensure that consultation is undertaken prior to technical consideration of matters under the Committee.

The table below lists the notification and advertising requirements for traffic facility consideration by Cumberland Traffic Committee. This detail is in addition to other requirements (as applicable) that may be in the Cumberland Community Engagement Strategy or relevant planning controls.

<b>Proposed Traffic Facility</b>	<b>Letters to Properties</b>	<b>Notice on Council's Website</b>	<b>Minimum Notification Period</b>	<b>Re-notification (if required)</b>
Statutory 'No Stopping' restrictions (see 1)	Yes – affected and adjoining properties	No	14 days	14 days
'No Stopping' restrictions on road safety requirement	Yes – affected and adjoining properties	No	14 days	14 days
'No Parking' restrictions along a street	Yes – affected street(s)	No	14 days	14 days
Full Road closures	Yes – affected street(s)	Yes	28 days	14 days
Areawide consultation (see note 2)	Within 400m radius of the location or the whole	Yes	14 days	14 days

<b>Proposed Traffic Facility</b>	<b>Letters to Properties</b>	<b>Notice on Council's Website</b>	<b>Minimum Notification Period</b>	<b>Re-notification (if required)</b>
	area under consideration			
Traffic and transport infrastructure (see note 3)	Yes – affected street(s)	Yes	14 days	14 days

Notes:

1. Statutory 'No Stopping' restrictions include 'No Stopping' zones in accordance with the Road Rules such as; 10m zones at intersections.
2. Area wide consultation includes proposed residential parking schemes and local area traffic and transport studies
3. Traffic and transport infrastructure includes speed humps, roundabouts, public transport infrastructure, and active transport infrastructure.

## **D2. TRAFFIC FACILITIES**

### ***D2.1 Roundabouts***

Provision of the roundabout would significantly improve the traffic flow and Level of Service at an intersection particularly for the minor roads. Roundabout shall not be used to address driving behaviours such as fail to give way at an intersection or to improve sight distance.

The following factors shall be considered when assessing a roundabout at an intersection:

- Roundabouts work better when there is large amount of right turning traffic and balanced traffic flow at an intersection.
- At least 3 recorded accidents related to turning movements at the intersection in the last five years
- Provision for all 'general access' heavy vehicles to manoeuvre the roundabout shall be made.

Roundabouts shall be designed in accordance with the relevant guidelines and standards and Road Rules.

#### Reference:

AUSTROADS - Guide to Road Design– Par 4B: Roundabouts  
AUSTROADS - Guide to Traffic Management – Par 6: Intersections, Interchanges and Crossings  
RMS Austroads Guide Supplement for Part 4B: Roundabouts

### ***D2.2 Traffic Calming Devices***

There are many traffic calming methods / devices used to reduce traffic speeds in local streets and improve road safety. Some of these are:

- Speed humps – both raised concrete threshold and rubber cushions – These do not interfere with parking in the local street.
- Chicanes and angle slow points – These will require extensive parking restrictions.
- Road narrowing - These will require extensive parking restrictions.

The following factors shall be considered when assessing traffic calming devices:

- Traffic data
- Crash warrants in the last 5 years
- Road characteristics

- Community support & other factors

Any traffic calming device, whether an individual item or as part of a broader scheme, will require Local Traffic Committee consideration and Council approval.

Reference:

AUSTROADS - Guide to Traffic Management – Part 8: Local area Traffic Management  
 RMS Austroads Guide Supplement for Part 8  
 Cumberland City Council – Local Area Traffic Management (LATM) Policy

**D2.3 Traffic Signals**

Traffic Signals are under the jurisdiction of Transport for NSW (TfNSW).

There are several factors that influence traffic signal provision namely, traffic volumes, traffic conflicts and accident statistics, pedestrian requirements, feasibility amongst others. Cost is also a major factor in consideration of traffic signals.

Council is required to plan, design and obtain TfNSW approval for any traffic signal on local road intersections.

Section 2 of the TfNSW Guide, 'Traffic Signal Design' provides general warrants for the installation of traffic signals at an intersection. These warrants are to be used as a guide and Council should consider each intersection in detail.

Reference:

*Traffic signal design – RTA (now TfNSW)*  
*AUSTROADS - Guide to Road Design – Part 4A: Unsignalised and Signalised Intersections*  
*RMS Austroads Guide Supplement for Part 4A*  
*Other TfNSW guides*

**D2.4 Signs and Line-Marking**

*Signs*

Traffic signs are grouped into 3 categories;

1. Regulatory signs –
  - Parking series such as Period Parking or User limitation, No Parking, No Stopping, Bus/Mail/Taxi/Loading/Truck/Works Zone
  - Pedestrian related signs
  - Direction series such as One Way, Keep Left/Keep Right, No Entry/Left Turn/Right Turn
  - Movement signs such as Stop, Give Way
2. Warning signs
3. Guide signs

Regulatory signs require Cumberland Traffic Committee approval.

All standard signs used in NSW can be searched in the on-line 'Sign Register' provide by TfNSW.

This sign register covers the standard signs used in NSW for regulating, warning, informing and guiding road users.

### *Line Marking:*

Line marking is a traffic control device to control traffic movements, defining lane changing and allowing for passing of vehicles.

Line marking on a pavement is grouped into longitudinal line marking, such as centre line marking and edge lines, and transverse line marking such as Stop lines, Give Way lines and marked pedestrian crossings.

'Delineation guidelines' provides warrants for the provision of different types of line marking.

Line markings require Cumberland Traffic Committee approval.

### Reference:

Australian Standard AS1742 - Manual of uniform traffic control devices  
Delineation Guidelines – RTA (now TfNSW)  
Road sign register

## **D2.5 Parking Restrictions**

### *Timed or Restricted Parking*

Council may introduce parking changes on safety and/or access grounds. These changes may include 'No Stopping' and 'No Parking', 'Bus Zone', 'Loading Zone' and 'Works Zone' signs and time limited and period parking restrictions. These are generally provided in on-street parking or publicly available parking areas.

For the introduction of parking changes, such as time-limited (1P, 2P), 'No Parking' or 'No Stopping' parking restrictions along a length of road, community support is required to be demonstrated before a review of the parking restrictions can be considered unless considered necessary based on safety.

All changes to on-street parking requires Cumberland Traffic Committee approval.

### *Driveways:*

Cars parking on both sides of driveways is a typical situation throughout the local government area. Council does not normally provide parking restrictions across driveways, as parked cars are mostly considered to be a temporary obstruction and it is generally possible to achieve sight lines by manoeuvring a vehicle to use gaps in parking.

However, parking restrictions across car park driveways servicing large number of parking spaces can be considered based on individual merits.

### *Accessible (Disabled) Parking*

Council provides accessible parking within town centres where road widths permit. The number of accessible parking provided will be determined by the available parking in the area and community use requirements.

Accessible parking spaces will only be considered in town centres and off-street car parking areas.

Accessible parking will not be provided in residential areas.

Provide accessible parking, which is physically accessible and safe to use.

Accessible parking should be provided, where practical, in angled parking as a preference to parallel parking spaces to enhance safety and accessibility.

Parallel accessible parking spaces in Town centres should be indented to achieve the desired width.

Time restrictions may be applied to accessible parking spaces.

Vehicles displaying an accessible parking permit can remain in time restricted on-street parking spaces for double the posted time in accordance with Road Rules.

Accessible parking is provided in accordance with Australian Standards AS2890, Part 6.

The provision of all types of on-street parking requires Cumberland Traffic Committee approval.

Reference:

*AUSTROADS - Guide to Traffic Management – Part 11: Parking*  
*RMS Austroads Guide Supplement for Part 11*  
*AS2890 – Parking Facilities –*  
*2890.1 Off-street car parking*  
*2890.2 Off-street commercial vehicle facilities*  
*2890.3 Bicycle parking facilities*  
*2890.5 On-street parking*  
*2890.6 Off-street parking for people with disabilities\**

*D2.6 Pedestrian Facilities*

Council provides pedestrian facilities to assist people to cross streets based on an as needs basis. This is based on the following factors:

- There shall be only single lane of traffic in each direction.
- Number of pedestrians (P) crossing at the location (during number of hourly periods in a typical day as required)
- Number of vehicles (V) on the road (during number of hourly periods in a typical day as required).
- Suitability of the location
- Speed of traffic
- Any other factors influencing safety of pedestrians.

The installation of pedestrian facilities requires the approval of CTC and Council.

*Children's Crossings*

Children's crossings are part-time crossings that operate before and after school hours. Aside from these times, the area is not a pedestrian crossing. When in use, red flags displaying the words 'CHILDREN CROSSING' are used. Drivers must slow down and halt before the stop line when a pedestrian is on the crossing or waiting to cross – and remain stopped until all pedestrians leave the crossing.

*Pedestrian Crossings (Zebra Crossings)*

Drivers must slow down and stop when a pedestrian steps onto a marked crossing. Drivers must give way to any pedestrian on the crossing. Crossings with poor visibility have zigzag white lines painted on the road to warn drivers. Some drivers may not stop for pedestrians, so wait until all vehicles have stopped before you start to cross.

Some pedestrian crossings (zebra) are combined with children's crossing installation. In these instances, children's crossing rules apply when the flags are displayed and when the flags are removed, pedestrian crossing rules apply.



### *Raised Pedestrian Crossings*

Raised pedestrian crossings are located where there are high levels of pedestrian activity. They are raised to increase visibility for approaching drivers and slow down traffic.

### *Crossing at Traffic Signals*

Traffic signals for pedestrians are often located on busy roads to stop vehicles and allow large numbers of people on foot to cross safely. Scramble crossings stop all vehicles and permit pedestrians to walk in all directions. Traffic signals for pedestrians are also installed at some mid-block locations where there are many people (young, older or pedestrians with disabilities) wishing to cross the road.

### *Pedestrian Traffic Signals*

Many traffic lights have pedestrian signals to help you cross the road safely. When approaching traffic lights, pedestrians must not start to cross on the flashing red don't walk signal. Pedestrians must wait for the green signal before starting to cross.

### *Mid-block Pedestrian Signals*

Mid-block pedestrian signals are provided where there is high demand for pedestrians and the required warrants as specified in the Traffic Signal Design guidelines are satisfied.

### *Pelican Crossings*

The signals for pedestrians at pelican crossings are the same as those at normal mid-block pedestrian signals. However, when the DON'T WALK pedestrian symbol flashes, drivers see a flashing yellow light. If there is no risk of a collision, drivers may proceed through the crossing.

### *Pedestrian Refuge Islands*

Pedestrian refuge islands are not pedestrian crossings; they are installed on busy or wide roads to help pedestrians cross in two stages. Sometimes they are used with a pedestrian crossing when a staged crossing is required.

All traffic signals are under the jurisdiction of Transport for NSW.

### Reference:

Australian Standard AS 1742 Part 10 – Manual of Uniform Traffic Control devices – Part 10:  
Pedestrian control and protection  
RMS Supplement to AS1742  
TDT 2011/01a – Pedestrian refuges

### ***D2.7 Guard Rails and Other Protective Measures***

Safety barriers including guard rails are provided to prevent any vehicle from losing control and injuring people standing on the roadside, to redirect an impacting vehicle and keep costs of damage to the vehicle and also the barrier to a minimum.

### Reference:

AUSTROADS - Guide to Traffic Management – Par 6: Roadside Design, Safety and Barriers RMS  
Austroads Guide Supplement for Part 6  
Standard Drawings

### **D3. TRAFFIC STATUTORY REQUIREMENTS**

Statutory parking restrictions are given in Road Rules 2014 in the NSW Legislation.

Some of the main restrictions are given below:

#### Intersections

- A driver must not stop on a road within 10 metres from the nearest point of an intersecting road at an intersection without traffic lights unless it is signposted otherwise.
- A driver must not stop on a road within 20 metres from the nearest point of an intersecting road at an intersection with traffic lights unless it is signposted otherwise.

#### Pedestrian crossings

- A driver must not stop on a children's crossing, or on the road within 20 metres before the crossing and 10 metres after the crossing unless it is signposted otherwise.
- A driver must not stop on a pedestrian crossing including marked foot crossing that is not at an intersection, or on the road within 20 metres before the crossing and 10 metres after the crossing, unless it is signposted otherwise.

The above 20m/10m rule applies to pedestrian refuges also.

Part 12 of Road Rules 2014 deals with the statutory requirements of stopping at various parking zones such as Bus Zone, Works zone, Truck Zone, Taxi Zone, and Mail Zone.

It also details the requirements for restricted stopping at bus stops (not signposted as Bus Zones), fire hydrants, and post box.

#### Reference:

Road Rules 2014  
Austroads Guides  
Australian Standards  
RMS Supplements

### **D4. PUBLIC TRANSPORT**

#### ***D4.1 Requirements for Public Transport***

Public transport services and infrastructure are provided in Cumberland LGA. Improvements, modifications or changes may be required in response to customer demand, population growth, as well as alignment with strategies, policies, plans, and projects.

Considerations of public transport are to be informed by relevant studies, strategies and plans, applicable planning controls and any other relevant guidelines, standards and drawings.

#### Reference:

Transport for NSW- Bus Infrastructure Guide  
Australian Human Rights Commission - Guideline for promoting compliance of bus stops with the Disability Standards for Accessible Public Transport 2002  
TfNSW Bus Layover Guideline  
TfNSW Integrated Public Transport Service Planning Guidelines  
Relevant Planning Controls  
Relevant Public Infrastructure Plans  
Relevant Standard Drawings

## **D5. WALKING AND CYCLING**

Active transport services and infrastructure are provided in Cumberland LGA. Improvements, modifications or changes may be required in response to customer demand, population growth, as well as alignment with strategies, policies, plans, and projects.

Considerations of active transport are to be informed by relevant studies, strategies and plans, applicable planning controls and any other relevant guidelines, standards and drawings.

### Reference

*RMS – How to prepare a Pedestrian Access and Mobility Plan*  
*Austrroads Guide to Road Design*  
*RMS Complementary Traffic Materials*  
*RMS Austrroads Traffic Supplements*  
*RMS Australian Standards Traffic Supplements*  
*Australian Standards for kerb ramps, tactile markers to suits with people with disabilities.*  
*Transport for NSW - Transport Cycleway Design Toolbox*  
*Transport for NSW Walking Space Guide*  
*NSW Movement and Place Framework*  
*NSW Public Spaces Charter*  
*Relevant Planning Controls*  
*Relevant Public Domain Plans*  
*Relevant Standard Drawings*

## **D6. ROAD SAFETY AUDIT**

A road safety audit is a formal examination of a proposed road / traffic projects or an existing road to identify road safety deficiencies and areas of risk that could lead to road crashes.

The Audit shall be undertaken by an independent and qualified team, and consider information as outlined in relevant studies, guidelines, and standards.

### Reference:

AUSTROADS – Guide to Road Safety  
Other AUSTROADS guides  
Relevant Australian Standards

## **D7. FILMING**

### ***D7.1 Requirements for Filming***

Council approves filming applications in the LGA within the road reserve or Council owned properties.

A person may lodge a filming proposal with the Council (such as a film, a documentary, an advertisement, a television program or a specified set of television programs) for a filming project under Section 115 of the Local Government Act 1993 (as amended).

A filming proposal cannot be lodged for more than one filming project on the same application. Where the same company has several proposals, these must form separate applications.

Filming applications on road reserve will be assessed based on interruptions to the community and traffic.

The filming application is assessed in accordance with the NSW filming protocol. Based on the protocol, fees do not apply to essential vehicles parking.

A Traffic Management Plan/Traffic Control Plan is required if the applicant is planning to occupy/close part of the road for filming. Fees will be charged based on Council's Fees and Charges Schedule.

Vehicles associated with the filming activity are allowed to park on the road in accordance with the Road Rules, however, any barricading or reserving of parking for non-essential vehicles will require a road occupancy approval with appropriate fees.

Full road closure is generally not supported due to the significant impact on the local traffic and residents. Also, full road closures require Cumberland Traffic Committee and Council approval which may take up to 3 – 6 months.

The applicant must consult with the residents who will be directly impacted by the filming activities/change of traffic conditions prior to the commencement of the filming.

Complaints from residents associated with the filming activities shall be addressed by the applicant.

## **D8. ROAD CLOSURE FOR EVENTS AND OTHER ACTIVITIES**

### ***D8.1 Requirements for Road Closure for Events and Other Activities***

Temporary full road closures not effected by Council's road works should be reported to Cumberland Traffic Committee (CTC) and approved by Council in accordance with the CTC Terms of Reference.

In accordance with the CTC delegation to Councils, a Traffic Management Plan (TMP) shall be approved by Transport for NSW. Any special event activity will also require submission of the Special Events Form.

Full road closures require traffic committee and Council approval which may take up to 3 – 6 months in addition to obtaining approval of a Traffic Management Plan from Transport for NSW which may take up to 6 months.

#### Reference:

TfNSW - Guide to Traffic and Transport Management for Special Events – July 2018

TfNSW - Neighbourhood Activity Guidelines – Road Access Permits and Temporary Road Closures

## **D9. RESIDENTIAL PARKING SCHEME**

### ***D9.1 Definition***

A Residential Parking Scheme aims to allow unrestricted on-street parking for residents and provides time restricted on-street parking for other users.

### ***D9.2 Eligibility***

The application of a Residential Parking Scheme is as follows:

- If you live within the Residential Parking Scheme area, you are eligible to apply for a parking permit with appropriate supporting documents such as, proof of residency and vehicle registration details.
- Parking permits are not available for boats, caravans, buses, trucks and/or vehicles greater than 4.5 tonnes unladen.
- Parking permits DO NOT provide exemptions from limits and parking fees in locations that are not part of the nominated RPS area or from other restrictions including, but not limited to, 'NO

STOPPING', 'NO PARKING', 'LOADING ZONE', 'TRUCK ZONE', 'WORKS ZONE', 'BUS ZONE', 'BUS LANES', or 'CLEARWAY'.

- A maximum of two permits per household, subject to availability of off-street parking and on-street parking, will be issued. Residents of high-density residential buildings constructed after the approval of the scheme are not eligible for a parking permit.
- Resident Parking permits are not available for visitors, retailers, or business owners.

Presently there are six (6) Residential Parking Schemes managed by the Council in the Cumberland LGA, and are in sections of the following locations:

- Auburn – Susan Street
- Clyde
- Granville
- Pendle Hill
- South Wentworthville
- Westmead

### ***D9.3 Residential Parking Permit***

Residential Parking Permits issued to residents are valid only for the financial year of the issue and expire on 30 June irrespective of the issuing date.

Council will send reminders to all current permit holders to renew their existing permits. It should be noted that the expiry date of the parking permits are also printed on the permits.

The renewal application shall have copies of all relevant documents with appropriate fees in accordance with Council's approved Fees and Charges.

### ***D9.4 Provision of New Residential Parking Scheme***

Council may choose to investigate the provision of a new Residential Parking Scheme within the Cumberland LGA. This investigation is undertaken with consideration of the following factors:

- Residents have difficulty parking near their residence.
- Residents have no on-site parking or limited on-site parking
- Place of residence could not be reasonably modified to provide on-site parking

The provision of a new residential parking scheme would also need to be consistent with Transport for NSW's guidance on the matter, as well as relevant policies of Council.

The introduction of a Residential Parking Scheme requires the approval of CTC and Council.

#### **Reference:**

Cumberland City Council Permit Parking Policy

## **D10. HEAVY VEHICLE ACCESS**

### ***D10.1 Requirements for Heavy Vehicle Access***

#### ***General***

Some roads within the Cumberland Local Government Area have light traffic signage. 'No Trucks' signs or limiting mass limit signs are to prevent trucks / large vehicles taking shortcut or 'rat runs' through local roads affecting the amenity of local residents.

In accordance with Rule 104 of Road Rules, there are exemptions to a driver of a heavy vehicle if the destination of the driver lies within the light traffic area of the street.

### *Heavy Vehicle National Law (HVNL)*

The Heavy Vehicle National Law (HVNL) was first introduced in Queensland and subsequently to all other states which adopted the legislation except Western Australia. The NSW Government has passed Heavy Vehicle National Law (NSW) No 42a and Heavy Vehicle (Mass, Dimension and Loading) National Regulation (NSW) for approval of heavy vehicle access.

The Heavy Vehicle National Law (HVNL) commenced in NSW on 10 February 2014.

The National Heavy Vehicle Regulator (NHVR) was established to enforce the HVNL. The NHVR assumes responsibility for processing access permits and notices for all vehicles above 4.5 tonne gross mass (defined as heavy vehicle under the Road Rules). The NHVR receives requests for heavy vehicle access and forwards to relevant road authorities. The NHVR may only grant permits if it is satisfied that the use of heavy vehicles under the authority will not pose a significant risk to public safety and each relevant road authority has consented to the grant.

Under the requirements of HVNL, requests for access into local and regional roads are assessed by the Council as the road authority.

### *General Access Vehicles*

All small vehicles, heavy vehicles up to 12.5m and 19m semi-trailers are considered 'General Access Vehicles' and can freely access any road which is not a load limited road.

### *B-Double Vehicles*

B-Double (23m & 25/26m) and 4.6m high vehicles which are classified as Class 2 heavy vehicles do not have general access on all roads. These vehicles can only use designated routes. The routes are approved for three (3) years period, and thereafter are extended further unless revoked. The B-Double and 4.6m high vehicle access applications are determined in the same manner as for the other heavy vehicle applications under the HVNL. Council's current internal practice is to consider these applications through the Cumberland Traffic Committee.

Cumberland Local Traffic Committee considers B-double access requests on manoeuvrability, safety of road users and amenity of residents along the route. In some instances, Council also arranges a field trial to assess the vehicle on site prior to reporting to the traffic committee. At these field trials, Council invites the Police representative and NHVR or TfNSW representative to be present as observers.

B-double approved routes are shown in the NHVR Route Planner map.

### *Performance Based Standards (PBS) Vehicles*

PBS vehicles are designed to have a high level of performance and meet strict safety and infrastructure standards to ensure they are suited to the road network. The benefit of the PBS scheme is greater vehicle safety, increased freight productivity and fewer impacts on road infrastructure.

PBS vehicle applications are submitted through the NHVR and forwarded to Council for approval into Council roads.

### *Higher Mass Limits*

Local roads represent a major part of the road network and are necessary to support the distribution of goods and produce throughout the economy.

Higher Mass Limits (HML) allow particular heavy vehicles to access additional mass entitlements providing operators of vehicles or combinations running HML are accredited under the Mass Management Module of the National Heavy Vehicle Accreditation Scheme (NHVAS), vehicles are fitted with certified road friendly suspensions and vehicles are on an authorised HML route.

HML provides a significant increase in the productivity of road freight transport vehicles.

HML access in New South Wales is only available by obtaining a HML permit from the NHVR.

The access request for HML applications are assessed by Council. Each application is considered on merit against a broad range of factors such as community impacts, traffic volumes, network access and the respective road pavement conditions prior to reporting to Council for approval.

Any approval of heavy vehicles on local roads could be revoked any time if the vehicles are deemed to cause pavement damage or safety or amenity concerns.

#### *Over Size/Over Mass (OSOM) Vehicles*

One off trips by OSOM vehicles are approved via NHVR portal as these transport large loads such as tower cranes to development sites or other sites, such as transporting rails to Sydney Trains work sites. These OSOM vehicles travel under specified conditions such as at night, and/or with pilot vehicles.

### **D11. DRIVEWAY LINE MARKING**

#### ***D11.1 Requirements of Driveway Line Marking***

Council provides driveway line marking on road pavement to manage illegal blocking of driveways within the Cumberland Local Government Area (LGA). This will be undertaken with consideration of the following factors:

- Road width
- Availability of kerbside parking
- Existing parking restrictions adjacent to the driveway
- Other factors affecting safety of road users.

Council will assess the merits of each application based on several factors including road widths and available parking. A fee in accordance with Council's approved Fees and Charges Schedule shall be paid with the application.

### **D12. SAFETY, SPEED AND RED LIGHT CAMERAS**

#### ***D12.1 Requirements for Safety, Speed and Red Light Cameras***

Council receives requests for the installation of safety speed and red-light cameras on local roads from residents.

Transport for NSW is responsible for assessing the need for safety and red-light cameras in NSW.

Residents can nominate sites for safety cameras (speed and red light) on the 'Safe Roads NSW' web site at the link;

<https://www.saferoadsnsw.com.au/>

Transport for NSW will prioritise future locations for speed cameras based on the information provided on the nomination, crashes at the location/street and other road safety aspects.

### **D13. SIGNAGE AND WAYFINDING**

#### ***D13.1 Community Facility Name Signs***

Community facility name signs are provided to advise road users of the direction to these facilities. These community facilities are generally not-for profit or non-commercial and located on side streets.

The community facility direction signs are provided on street name signposts and the number of facilities provided with direction signs is limited, hence, approval of community facility name signs should be restricted to facilities which are likely to be those sought by a significant number of strangers to a district.

A fee has to be paid in accordance with Council's 'Fees and Charges' for the procurement and installation of the sign(s) if approved.

Further guidelines are provided in the Australian Standard (AS1742 Part 5) for the consideration of community facility signs.

Reference:

Australian Standards AS 1742 Part 5 – Manual of Uniform traffic control devices – Part 5: Street name and community facility signs.

***D13.2 OTHER SIGNAGE AND WAYFINDING***

There are a range of other signage and wayfinding that may be used by Council or are required to be provided as part of a development consent or infrastructure project. Some examples include pedestrian way finding and bus stops.

The provision of signage and wayfinding is to be considered with relevant legislations, policies, standards, and guidelines.

Reference:

TfNSW – Wayfinding Guidelines and Standards  
Geographical Names Board of NSW  
Relevant Planning Controls  
Relevant Public Domain Plans  
Council Signage Guidelines



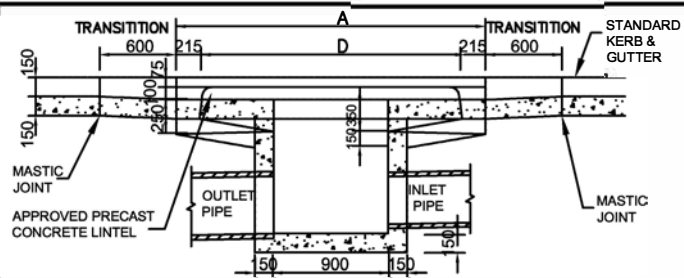
## PART E: STANDARD DRAWINGS

A range of standard drawings are available from Council to provide guidance on the topics covered under this guideline. It is recommended that contact is made with Council when preparing engineering drawings to ensure that any additional requirements are captured.

The list of standard drawings provided are outlined in the table below;

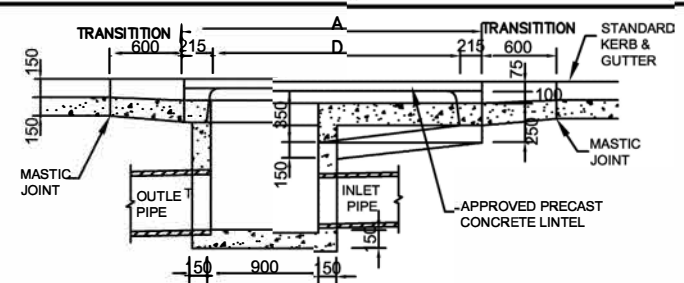
<b>Drawing Number</b>	<b>Descriptions</b>
SD 8010	Standard Grated Gully Pit with Precast Concrete Kerb inlet and "Bicycle Safe" Grates
SD 8011	Standard Multi-Grated Sag Pit
SD 8012	Junction Pit
SD 8013	Lobster and Lobster Back Bends Typical Set out and Ordering Requirements
SD 8014	Surcharge Pit, Inlet Pit and Step Iron
SD 8015	Standard Saddle Type Gully Pit Details
SD 8016	Standard Multi Grated Pit at Vehicular Crossing
SD 8017	Concrete Bulkheads
SD 8018	Minor Drainage Details
SD 8019	Concrete Headwalls for Double Pipe Culverts
SD 8020	Concrete Headwalls for Single Pipe Culverts
SD 8021	Rock Mattress Outlet Protection for Pipe Culverts
SD 8022	Trash and Safety Barrier for Open Culverts
SD 8023	Subsoil Drains
SD 8024	Standard Floodway Warning Sign
SD 8025	Fence Modifications to Permit Overland Stormwater Flow
SD 8026	Standard Gully Pit Details
SD 8100	Concrete Kerb & Gutter, Laybacks, Foot Paving, Mountable Kerb & Dish Crossing
SD 8101	Concrete Kerb Ramps
SD 8102	Concrete Vehicular Crossing
SD 8102	Concrete Vehicular Crossing – Revision 1
SD 8103	Standard Cycleway, Footway Crossing and Concrete Cycleway Paving
SD 8104	Kerbs and Gutters
SD 8105	Roof Water Outlet Connection
SD 8108	Pedestrian Pathway Barrier
SD 8109	Cycleway Barrier
SD 8110	Medium Duty Vehicular Crossing Using Paving Units
SD 8111	Typical Arrangement of Threshold Pavements and Intersections
SD 8112	Pathway Steps
SD 8113	Accessway Details
SD 8114	Standard Indented Bus Bay
SD 8115	Speed Hump Standard for Car Parks
SD 8116	Raised Concrete Threshold
SD 8118	Rock Retaining Wall
SD 8302	Sediment Control Structures Construction Traffic "Shake Down"
SD 8303	Sediment Control Structures

<b>Drawing Number</b>	<b>Descriptions</b>
	Filtration Controls to Surface Inlet Pits
SD 8304	Sediment Control Structures Siltation Protection to Gully Pits
SD 8304	Siltation Protection to Gully Pits
SD 8305	Sediment Control Structures Block and Rock Drop Inlet Sediment Trap and Culvert Sediment Trap
SD 8306	Sediment Control Structures Level Spreader, Diversion Bank and Channel and Rock Check Dam
SD 8307	Sediment Control Structures Sedimentation Basin Features
SD 8400	Standard Swing Gate
SD 8400B	Standard Swing Gate
SD 8500	"V" Grated Pit – Type 2
DWG-003	Standard Drawing Temporary Restoration

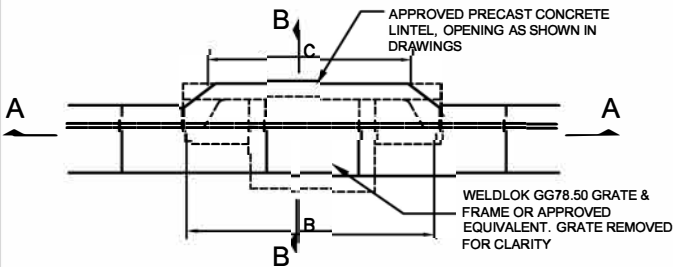


SECTION A - A

NOMINAL OPENING	A (mm)	B (mm)	C (mm)	D (mm)	MASS (kg)
1.2	1825	1460	1180	1365	370
1.8	2438	2083	1778	2007	445
2.4	3048	2692	2390	2615	552
3.0	3657	3302	3000	3226	724
3.6	4267	3912	3610	3835	823
4.2	4877	4521	4220	4445	904
4.8	5486	5130	4830	5055	996

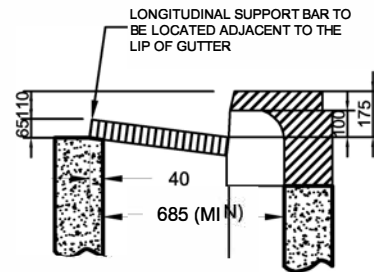


SECTION C - C



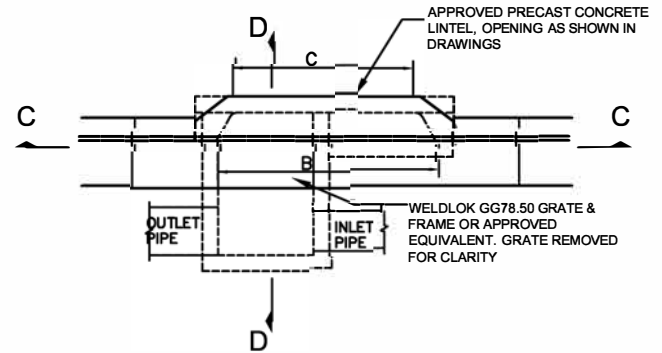
PLAN - TYPE 1

( TO BE USED AT SAG POINTS )



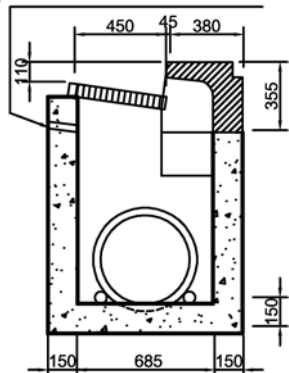
GRATING DETAIL

NOTES :

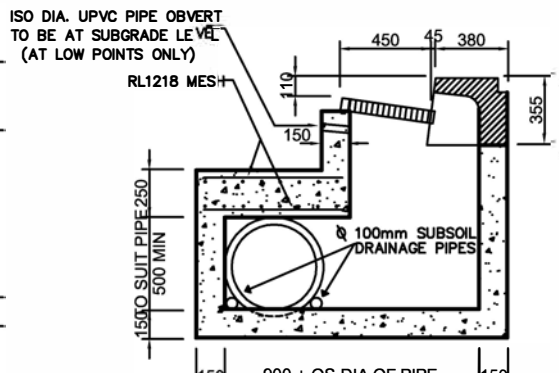


PLAN - TYPE 2

( TO BE USED ON GRADE )



SECTION B - B



SECTION D - D

- WHERE DEPTH EXCEEDS 1000mm, PROVIDE APPROVED 24mm DIA STEEL STEP IRONS AT 300 mm c/c TOP TO BOTTOM OF PIT - SEE SD8015 & 8014
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF  $F'c = 25 \text{ MPa} @ 28 \text{ DAYS}$
- MINIMUM COVER TO ALL PIPES SHALL BE 600mm UNDER ROADS AND 450mm ELSEWHERE, UNLESS OTHERWISE SPECIFIED
- WHERE THE INTERNAL WIDTH EXCEEDS 900mm OR DEPTH EXCEEDS 1800mm THE WALLS SHALL BE REINFORCED IN ACCORDANCE WITH SD 8015 & SD 8026
- MINIMUM COVER TO REINFORCEMENT SHALL BE 40mm
- ALL STEEL REINFORCEMENT SHALL COMPLY WITH AS 1302 AND AS 1304
- RL1218 MESH CAN BE REPLACED WITH SLB1 MESH WITH N16 BARS @ 200 c/c
- 2 x 100mm DIA SUB SOIL DRAINAGE PIPE, 4.0m LONG AND WRAPPED IN A FILTER SOCK, SHALL BE PROVIDED ON THE UPSTREAM FACE OF THE PIT AND SHALL BE CONNECTED AT INLET PIPE INVERT LEVEL AND CLEAR OF ANY BENCHING
- THE GRATE FRAME SHALL BE INSTALLED WITH THE LONGITUDINAL SUPPORT BAR ADJACENT TO THE LIP OF THE GUTTER
- DO NOT SCALE FROM THIS DRAWING



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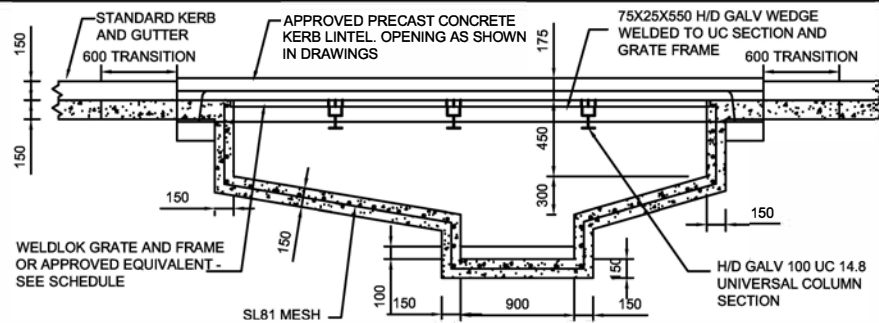
TITLE : STANDARD GRATED GULLY PIT WITH PRECAST CONCRETE KERB INLET AND "BICYCLE SAFE" GRATES

Scale: NTS

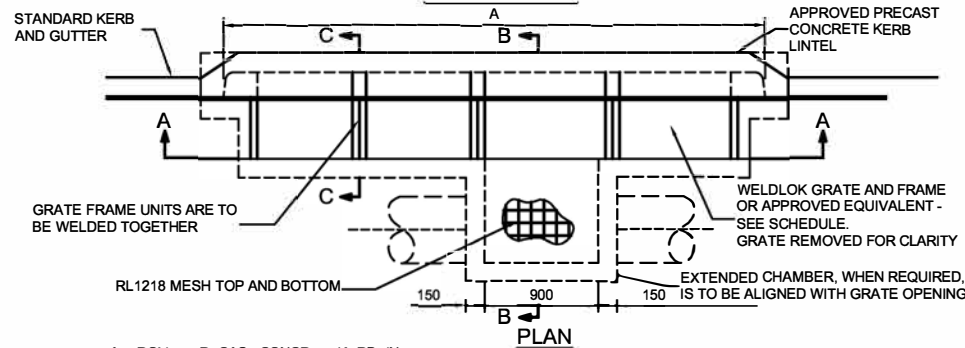
Drawing No: SD 8010

Sheet: 1 of 1

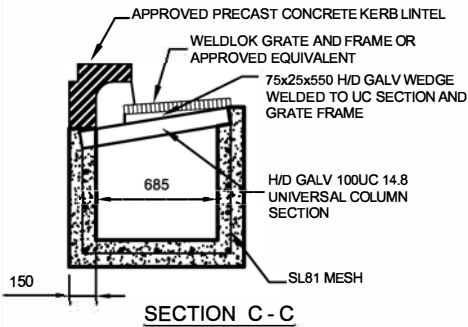
Date: Jan 2017



SECTION A - A



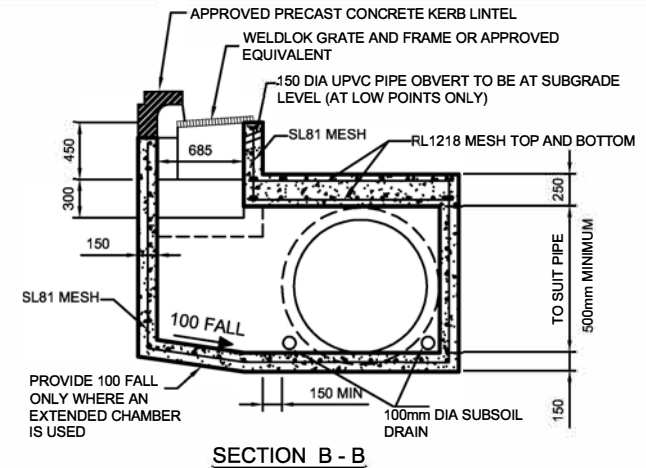
PLAN



SECTION C - C

GRATE SCHEDULE

NOMINAL OPENING	"A" (mm)	NUMBER OF GRATE UNITS	
		GG78.50	GG78.49
3.0	3300	3	---
3.6	3910	---	4
4.2	4520	4	---
4.8	5130	3	2
5.4	5740	5	---



SECTION B - B

NOTES:

1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF  $F_c = 20 \text{ MPa}$  @ 28 DAYS
2. ALL STEEL REINFORCEMENTS SHALL COMPLY WITH AS 1302 AND AS 1304
3. MINIMUM COVER TO REINFORCEMENT SHALL BE 40mm
4. ALL STEELWORK FABRICATIONS SHALL BE STRICTLY IN ACCORDANCE WITH AS 4100 AND AS 1554
5. WELDS, UNLESS OTHERWISE NOTED, SHALL BE 6mm CONTINUOUS FILLET AND SHALL BE PROTECTED WITH AN APPROVED COLD GALVANISED PAINT
6. ALL STEELWORKS SHALL BE HOT DIPPED GALVANISED (H/D GALV) AFTER FABRICATION. ANY SURFACE SUBSEQUENTLY DAMAGED SHALL BE PROTECTED WITH AN APPROVED COLD GALVANISED PAINT
7. 2 X 100mm DIAMETER SUB SOIL DRAINAGE PIPE, 4.0m LONG AND WRAPPED IN A FILTER SOCK, SHALL BE PROVIDED ON THE UPSTREAM FACE OF THE PIT AND SHALL BE CONNECTED AT INLET PIPE INVERT LEVEL AND CLEAR OF ANY BENCHING
8. WHERE THE DEPTH OF THE PIT EXCEEDS 1000mm, PROVIDE 24mm DIAMETER HOT DIPPED GALVANISED STEEL STEP IRONS AT 300mm C/C FROM TOP TO BOTTOM OF PIT. SEE SD 8014 AND 8015
9. RL1218 MESH CAN BE REPLACED WITH SL81 MESH WITH N16 BARS @ 200mm C/C
10. THE GRATE FRAMES SHALL BE INSTALLED WITH THE LONGITUDINAL SUPPORT BAR ADJACENT TO THE LIP OF THE GUTTER
11. DO NOT SCALE FROM THIS DRAWING
12. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED



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TITLE :

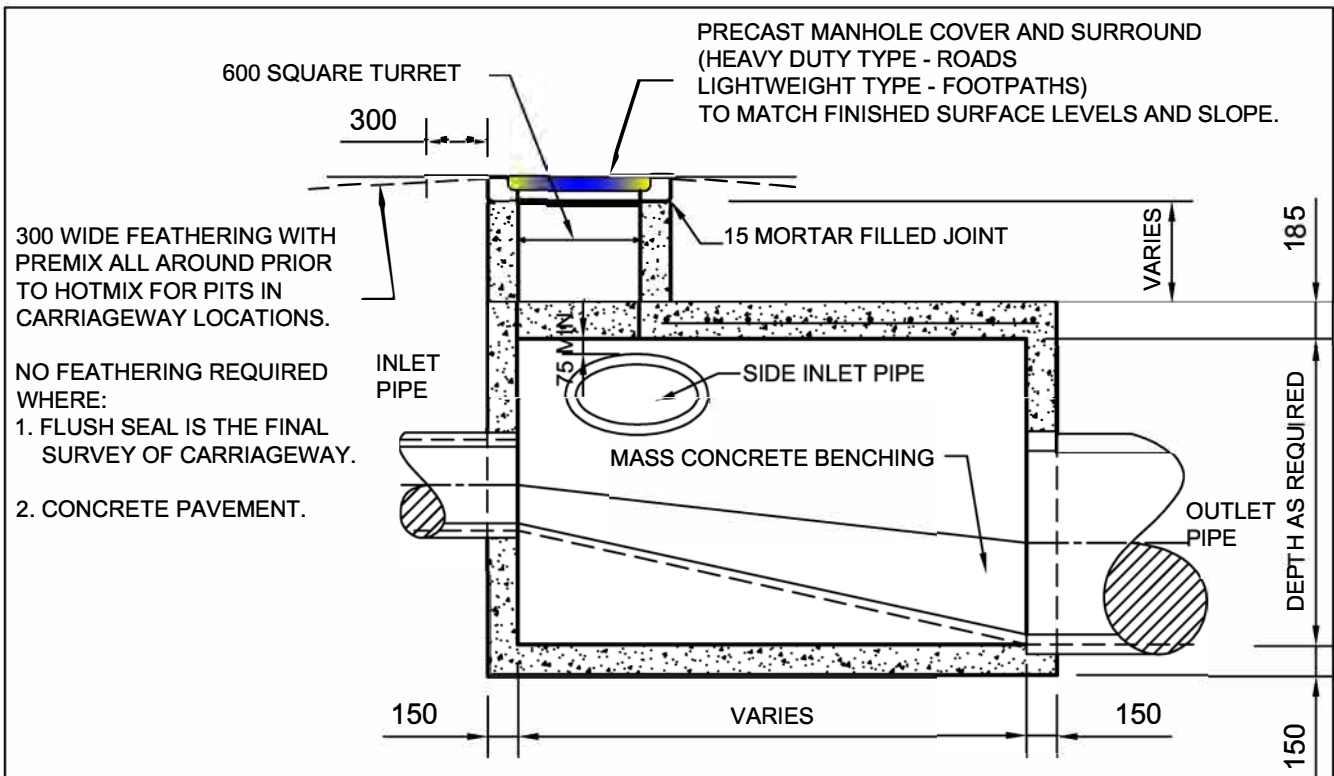
**STANDARD MULTI GRATED SAG PIT**

Scale: NTS

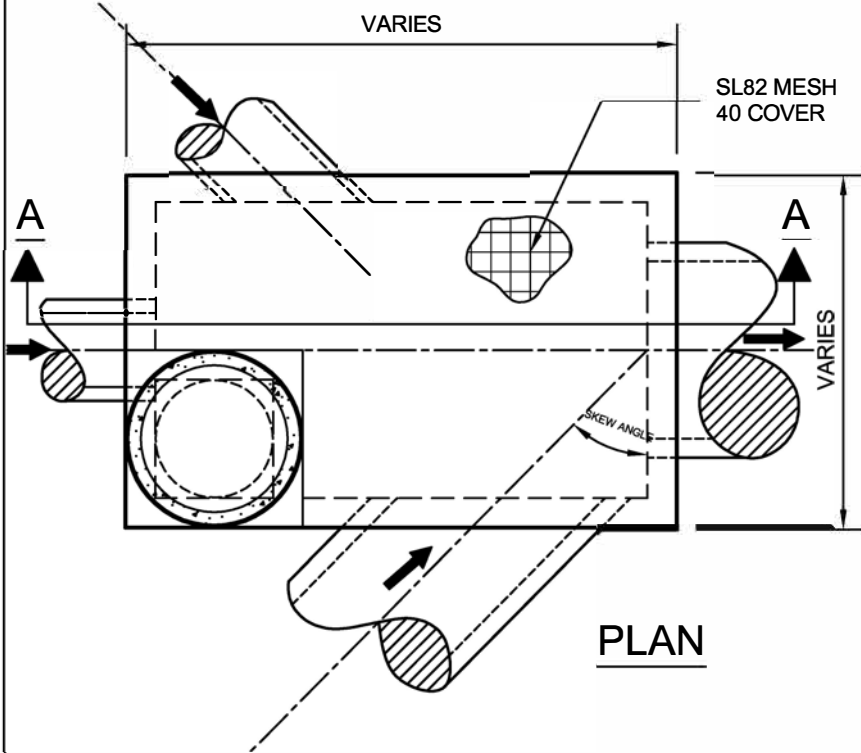
Drawing No: SD 8011

Sheet: 1 of 1

Date: Jan 2017



**SECTION A - A**

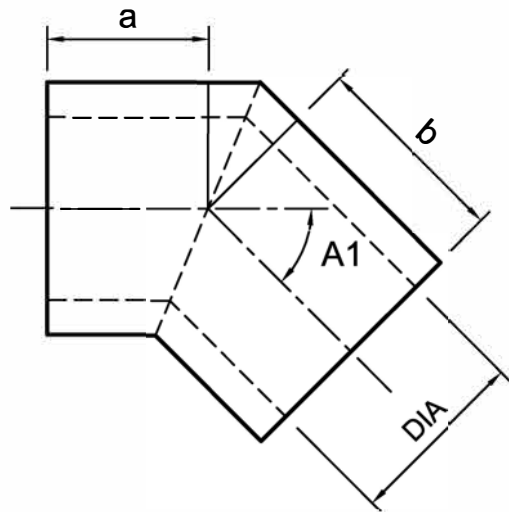


- NOTES:**
1. 100 DIA SUBSOIL DRAINAGE PIPE 2000 LONG WRAPPED IN FABRIC SOCK TO BE PROVIDED ADJACENT TO INLET PIPES.
  2. COMPRESSIVE STRENGTH  $F_c$  FOR CAST IN SITU CONCRETE SHALL BE MINIMUM 20 MPa AT 28 DAYS.
  3. WHERE PITS EXCEEDED 1000mm DEEP, PROVIDE STEP IRONS. REFER TO DRAWINGS SD 8014 & 8015.
  4. TOP BENCHING SHALL BE  $\frac{1}{2}$  OF OUTLET PIPE DIAMETER.
  5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

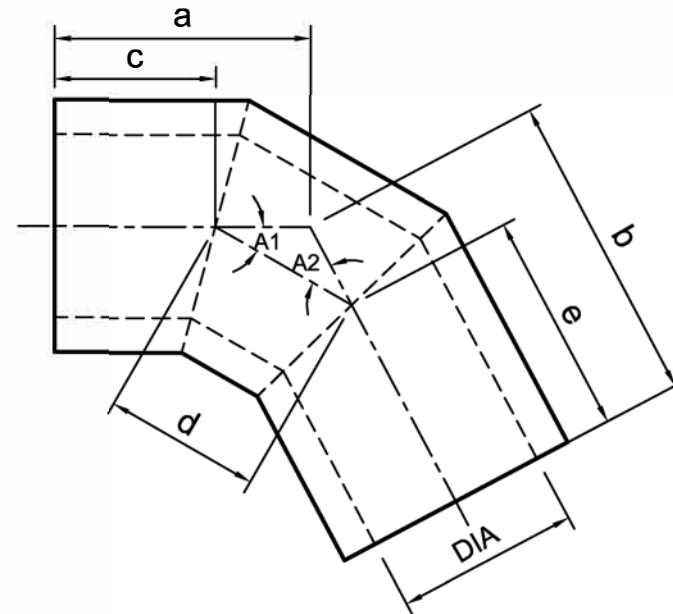


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TITLE : <b>JUNCTION PITS</b>		
Scale: NTS		Drawing No: SD 8012
Sheet: 1 of 1		Date: Jan 2017



ELBOW BEND



LOBSTER BACK BEND

NOTES:

1. ALL LENGTHS SHALL BE IN MILLIMETRES WITH A TOLERANCE OF +/- 25mm
2. ALL ANGLES SHALL BE EXPRESSED TO THE NEAREST DEGREE
3. PIPES SHALL BE BUTT JOINTED, UNLESS OTHERWISE SPECIFIED
4. DO NOT SCALE FROM THIS DRAWING



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ABN 22 798 563 329

**TITLE : LOBSTER AND LOBSTER BACK BENDS TYPICAL  
SET OUT AND ORDERING REQUIREMENT**

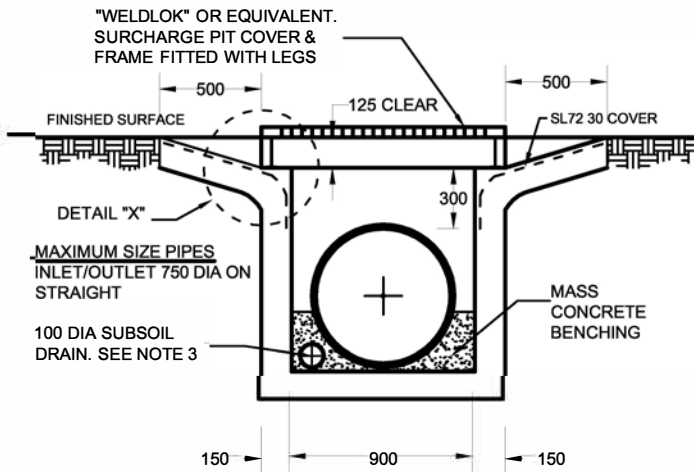
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Drawing No: SD 8013

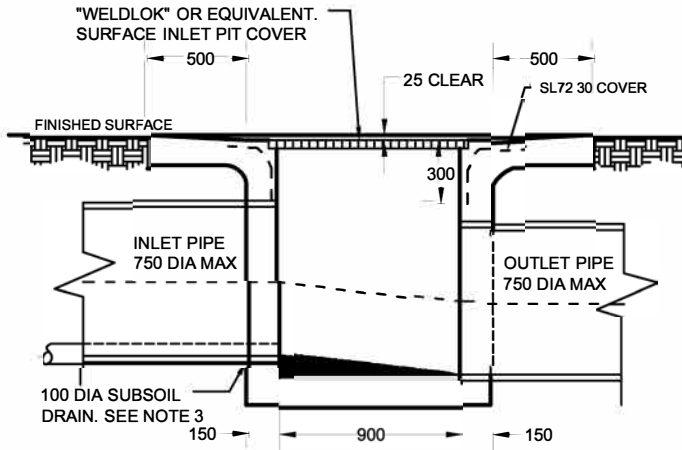
Sheet: 1 of 1

Date: Jan 2017

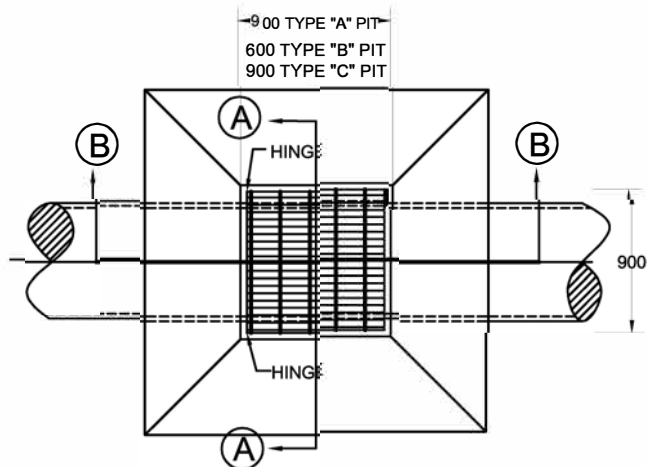




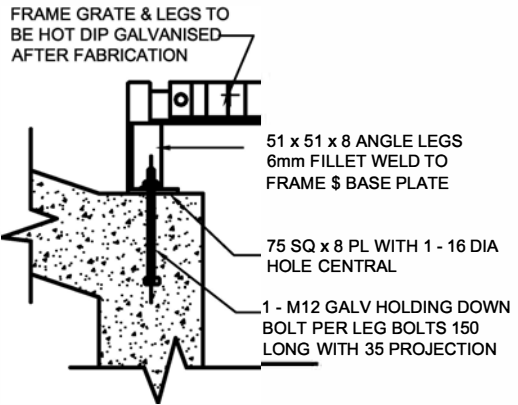
SECTION A-A  
INLET AND SURCHARGE PIT TYPE A



SECTION B-B  
SURCHARGE PIT TYPES B & C



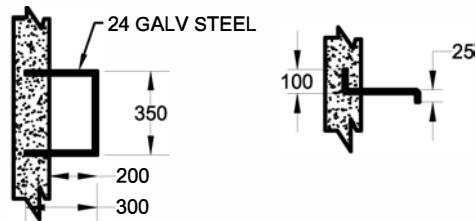
PLAN SURCHARGE PIT TYPES A, B & C



DETAIL "X"

SURCHARGE PIT SIZES TABLE		
PIT	OPENING SIZE	GRATE TYPE
TYPE A	900x900	P.C.9090 B
TYPE B	600x900	P.C.6090 B
TYPE C	900x900	P.C.9090 B

TYPE "A" GRATE TO BE FITTED WITH LEGS AS PER DETAIL "X"



DETAIL OF STEP IRONS

STEP IRON SHALL BE PROVIDED AT 300 CTS UNDER LID WHERE PIT IS DEEPER THAN 1000 (SEE STD DWG 8015).

**NOTES:**

1. COMPRESSIVE STRENGTH (F<sub>c</sub>) FOR CAST IN SITU CONCRETE SHALL BE A MINIMUM 25MPa AT 28 DAYS.
2. TOP OF BENCHING SHALL BE ONE HALF (½) OF OUTLET DIAMETER PIPE.
3. 100 DIA SUBSOIL DRAINAGE PIPE 2000 LONG WRAPPED IN FABRIC SOCKS SHALL BE PROVIDED ADJACENT TO INLET PIPES.
4. ALL PITS SHALL BE PROVIDED WITH A LOCKING CUP.
5. PIT SHALL BE "WELDLOK" GULLY GRATE GG 78 - 51 OR APPROVED EQUIVALENT (SKIRTED).
6. DURING INSTALLATION OF GRATE AND FRAME, CONTRACTOR IS TO ENSURE CLEARANCE BETWEEN LINTEL AND OPEN GRATE (REFER TO INSTALLATION TOLERANCE).
7. WHERE PITS ARE PROVIDED IN PEDESTRIAN PATHWAY, THE GRATE SHALL BE SUPPLIED WITH A PEDESTRIAN SAFE MESH.
8. ALL DIMENSION SHALL BE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.



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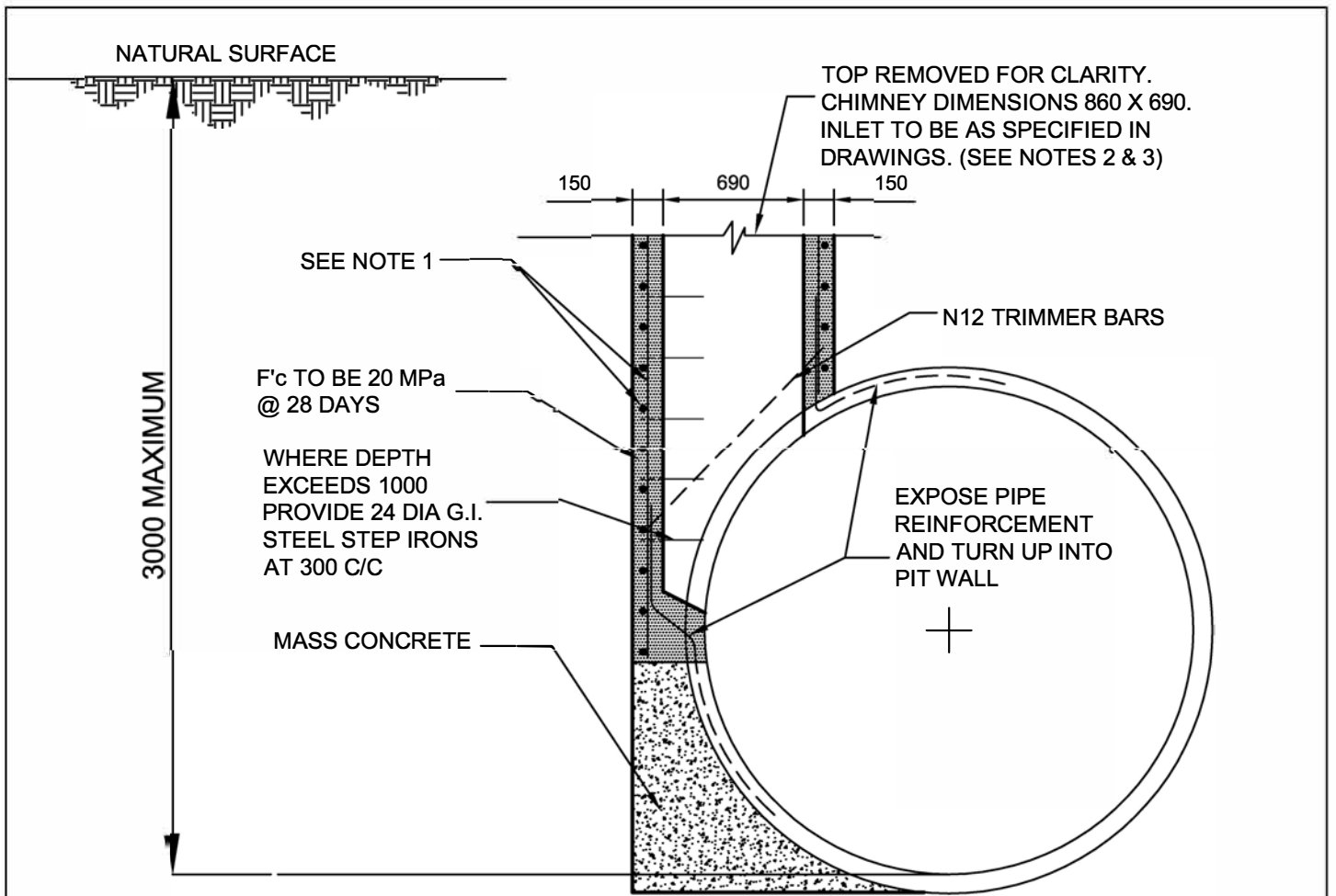
**TITLE : SURCHARGE PIT, INLET PIT  
AND STEP IRON**

Scale: NTS

Drawing No: SD 8014

Sheet: 1 of 1

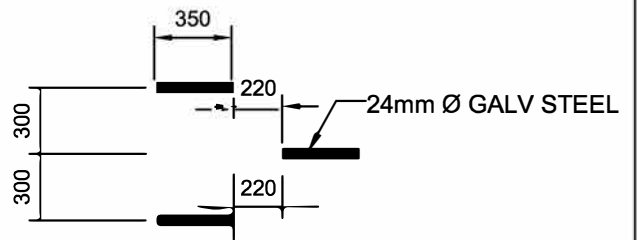
Date: Jan 2017



## SECTIONAL ELEVATION

### NOTES:

1. FOR DETAILS OF WALL STEEL REINFORCEMENTS, SEE STANDARD DRAWING SD 8026
2. FOR DETAILS OF KERB INLET, SEE STANDARD DRAWING SD 8010
3. WALL THICKNESS IN CHIMNEY SHALL BE ADJUSTED TO SUIT TYPE OF PIT LID.
4. SADDLE PITS SHALL BE CONSTRUCTED ON PIPES OF 1050mm DIA OR GREATER.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.



### STEP IRON DETAILS



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TITLE: STANDARD SADDLE TYPE  
GULLY PIT DETAILS

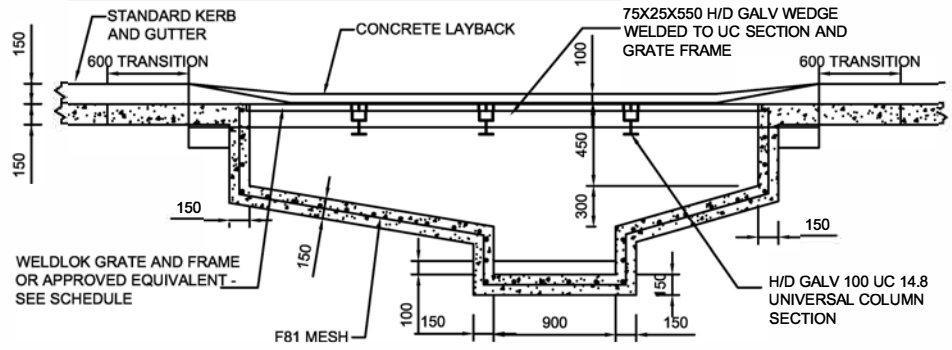
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Drawing NO: SD 8015

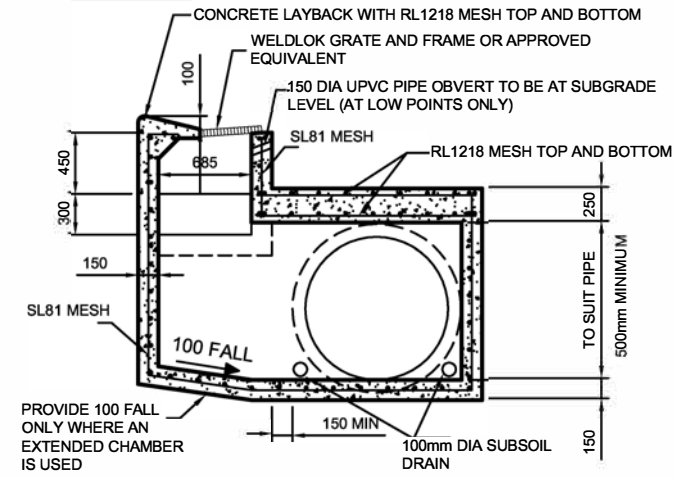
Sheet: 1 of 1

Date: Jan 2017

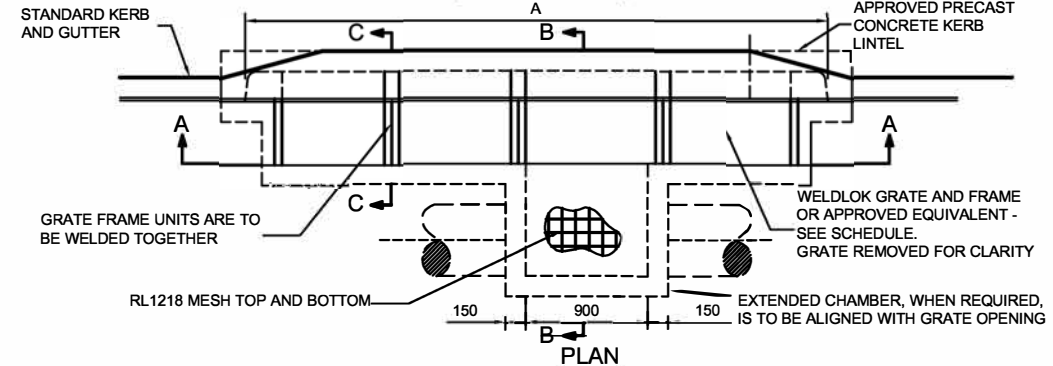




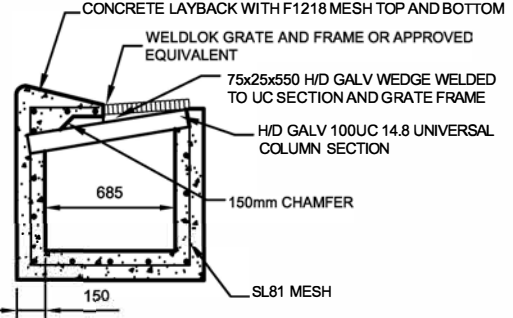
SECTION A - A



SECTION B - B



PLAN



SECTION C - C

GRATE SCHEDULE

NOMINAL OPENING	"A" (mm)	NUMBER OF GRATE UNITS	
		GG78.50	GG78.49
3.0	3300	3	---
3.6	3910	---	4
4.2	4520	4	---
4.8	5130	3	2
5.4	5740	5	---

NOTES:

1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF F<sub>c</sub> = 20 MPa @ 28 DAYS
2. ALL STEEL REINFORCEMENTS SHALL COMPLY WITH AS 1302 AND AS 1304
3. MINIMUM COVER TO REINFORCEMENT SHALL BE 40mm
4. ALL STEELWORK FABRICATIONS SHALL BE STRICTLY IN ACCORDANCE WITH AS 4100 AND AS 1554
5. WELDS, UNLESS OTHERWISE NOTED, SHALL BE 6mm CONTINUOUS FILLET AND SHALL BE PROTECTED WITH AN APPROVED COLD GALVANISED PAINT
6. ALL STEELWORKS SHALL BE HOT DIPPED GALVANISED (H/D GALV) AFTER FABRICATION. ANY SURFACE SUBSEQUENTLY DAMAGED SHALL BE PROTECTED WITH AN APPROVED COLD GALVANISED PAINT
7. 2 X 100mm DIAMETER SUB SOIL DRAINAGE PIPE, 4.0m LONG AND WRAPPED IN A FILTER SOCK, SHALL BE PROVIDED ON THE UPSTREAM FACE OF THE PIT AND SHALL BE CONNECTED AT INLET PIPE INVERT LEVEL AND CLEAR OF ANY BENCHING
8. WHERE THE DEPTH OF THE PIT EXCEEDS 1000mm, PROVIDE 24mm DIAMETER HOT DIPPED GALVANISED STEEL STEP IRONS AT 300mm C/C FROM TOP TO BOTTOM OF PIT. SEE SD 8014 AND 8015
9. RL1218 MESH CAN BE REPLACED WITH SL81 MESH WITH N16 BARS @ 200mm C/C
10. THE GRATE FRAMES SHALL BE INSTALLED WITH THE LONGITUDINAL SUPPORT BAR ADJACENT TO THE LIP OF THE GUTTER
11. DO NOT SCALE FROM THIS DRAWING
12. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED

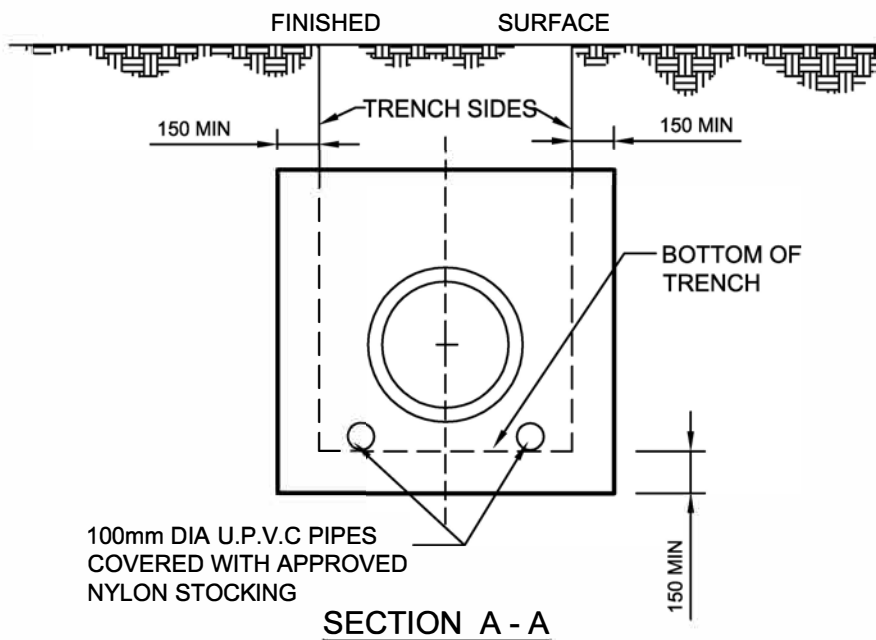
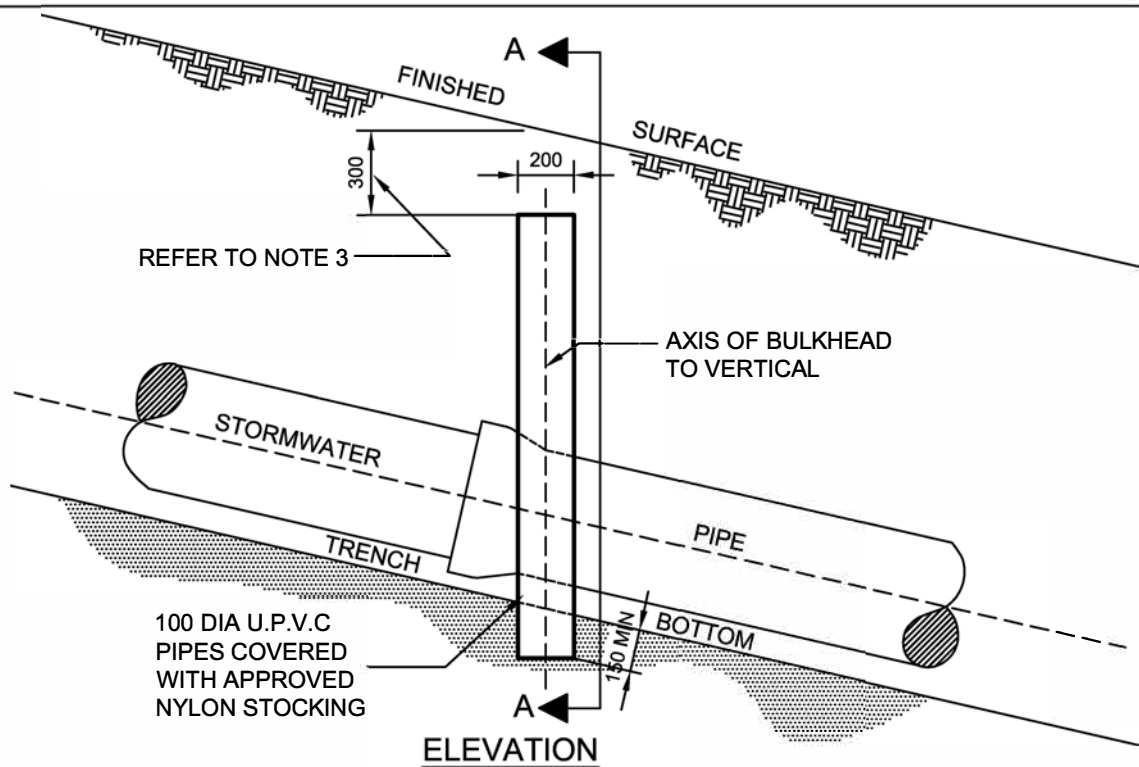


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TITLE : STANDARD MULTI GRATED PIT  
AT VEHICULAR CROSSING

Scale: NTS  
Sheet: 1 of 1

Drawing No: SD 8016  
Date: Jan 2017



**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETRES
2. COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS SHALL BE 20 MPa
3. WHERE THE PIPELINE IS UNDER A ROAD PAVEMENT, THE TOP OF THE BULKHEAD SHALL EXTEND TO SUBGRADE UNLESS OTHERWISE DIRECTED BY COUNCIL'S ENGINEER



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TITLE :

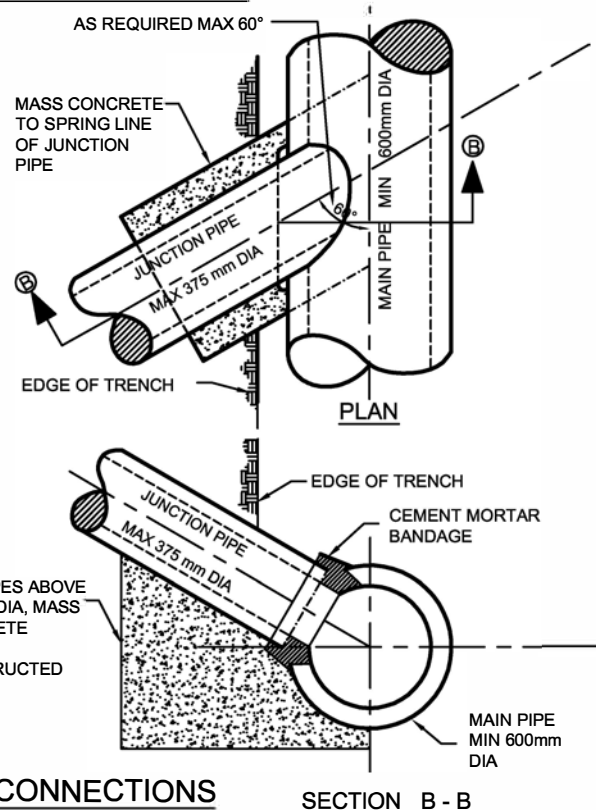
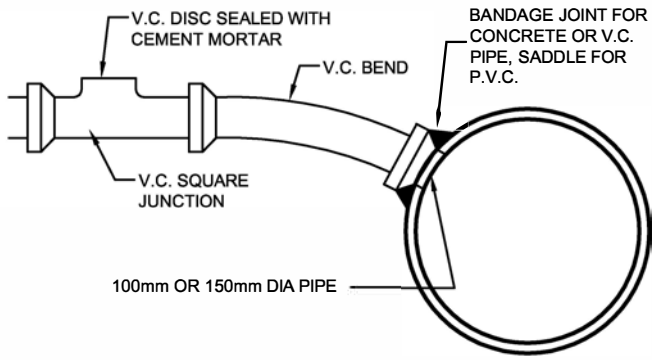
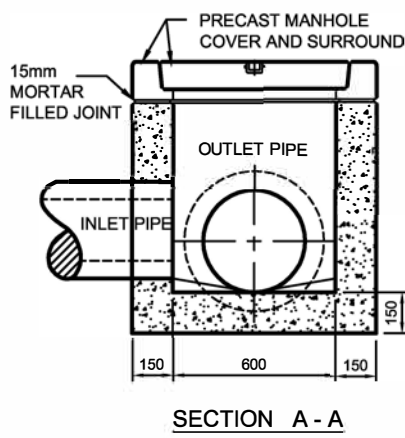
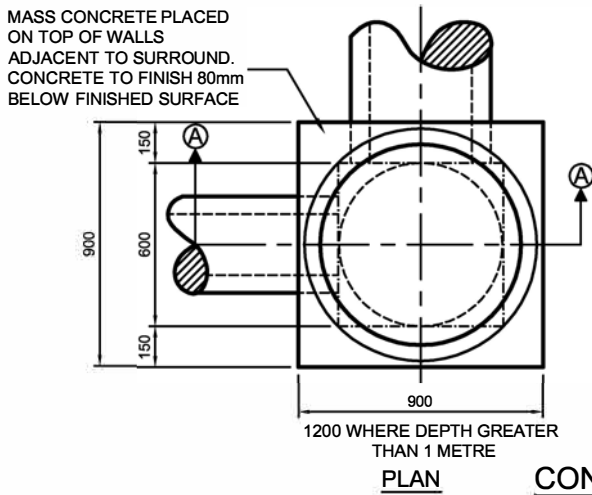
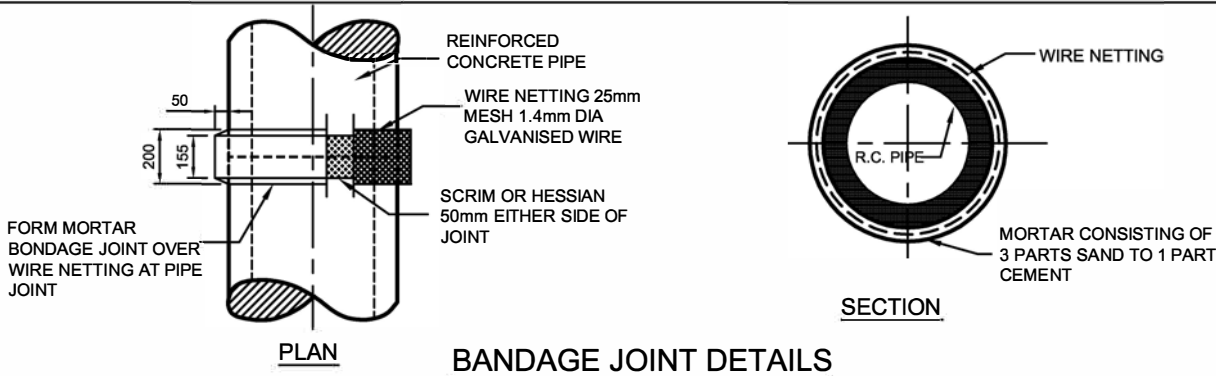
**CONCRETE BULKHEADS**

Scale: NTS

Drawing No: SD 8017

Sheet: 1 of 1

Date: Jan 2017



THE R.C. STORMWATER PIPE SHALL BE PIERCED BY A NEAT OPENING AS SHOWN TO ALLOW THE CONNECTION OF A VITRIFIED CLAY SQUARE, SLOPED JUNCTION OR BEND WHICH SHALL NOT PROTRUDE BEYOND THE INNER SURFACE OF THE R.C. STORMWATER PIPE.

THE INTERNAL JUNCTION SHALL BE SMOOTHLY FINISHED WITH 2:1 CEMENT MORTAR SO AS TO PRESENT NO OBSTRUCTION WITHIN THE INTERNAL CHANNEL OF THE R.C. STORMWATER PIPE.

**NOTE:**

1. COMPRESSIVE STRENGTH, F<sub>c</sub> FOR CAST IN SITU CONCRETE SHALL BE A MINIMUM OF 20MPa @ 28 DAYS.
2. ALL DIMENSION ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED

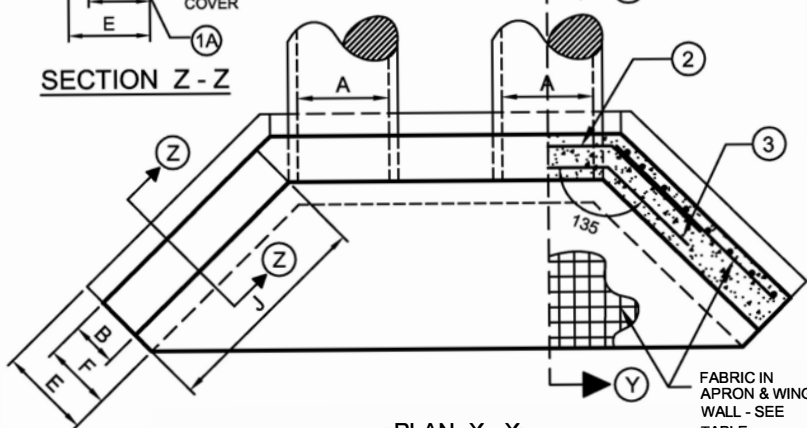
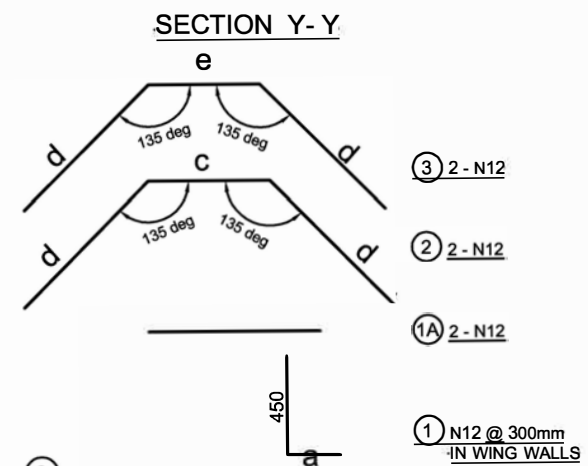
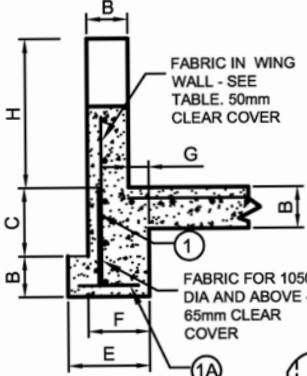
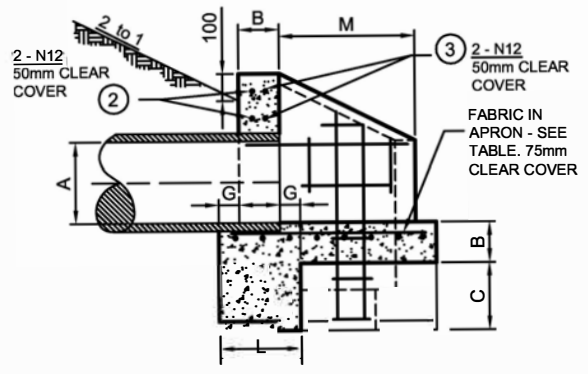
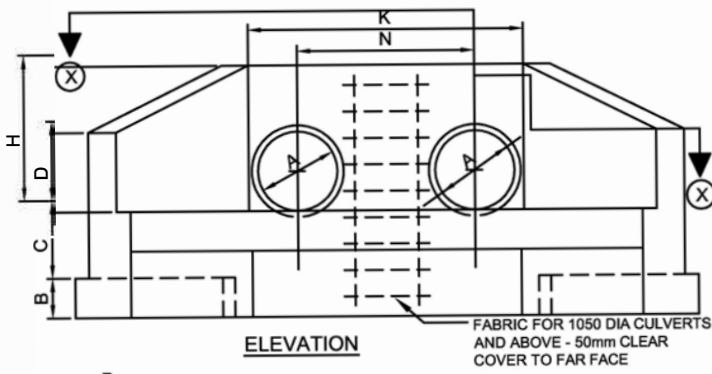
**TYPICAL DIRECT CONNECTIONS**



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TITLE : <b>MINOR DRAINAGE DETAIL</b>		
Scale: NTS		Drawing No: SD 8018
Sheet: 1 of 1		Date: Jan 2017



- NOTES:**
1. COMPRESSIVE STRENGTH OF CONCRETE (F<sub>c</sub>) SHALL BE 20MPa AT 28 DAYS
  2. ALL EXPOSED CORNERS SHALL HAVE 12mm CHAMFER
  3. ALL QUANTITIES ARE FOR ONE HEADWALL ONLY
  4. REINFORCING BARS SHALL BE TEMPCORE BARS IN ACCORDANCE WITH A.S. 1202 410Y
  5. ALL DIMENSIONS ARE IN MILLIMETRES

PIPE SIZE	HEADWALL DIMENSIONS												REINFORCEMENT					
	A	B	C	D	E	F	G	H	J	K	L	M	N	FABRIC NO.	a	b	c	d
300	150	230	300	300	225	75	550	710	1040	300	500	670	SL82	100	630	1120	650	1080
375	150	230	300	300	225	75	630	930	1200	300	660	750	"	100	850	1260	750	1240
450	150	230	300	300	225	75	700	1130	1380	300	800	840	"	100	1050	1460	750	1420
525	150	230	300	300	225	75	780	1360	1540	300	960	920	"	100	1280	1620	750	1580
600	180	350	380	450	290	110	930	1560	1700	400	1100	1000	SL92	160	1480	1800	750	1740
675	205	325	380	450	315	110	1040	1780	1880	425	1260	1090	"	190	1700	2000	750	1920
750	205	325	380	450	315	110	1080	1980	2040	425	1400	1170	"	190	1900	2160	750	2080
825	230	300	380	450	340	110	1160	2210	2200	450	1560	1250	SL102	210	2130	2340	750	2240
900	230	300	380	450	340	110	1230	2400	2360	450	1700	1330	"	210	2320	2500	750	2400
1050	260	340	450	700	390	130	1380	2630	2750	520	1860	1550	"	260	2550	2920	750	2790
1200	260	340	450	700	390	130	1550	3110	3120	520	2200	1760	"	260	3030	3290	750	3160
1350	260	440	530	700	390	130	1700	3310	3510	520	2340	1980	"	260	3230	3680	750	3550
1500	260	440	530	900	390	130	1880	3820	3860	520	2700	2160	"	260	3740	4030	750	3900
1650	260	490	600	900	390	130	2050	4100	4250	520	2900	2400	"	260	4020	4420	750	4290
1800	260	490	600	900	390	130	2210	4550	4680	520	3220	2610	"	260	4470	4750	750	4660

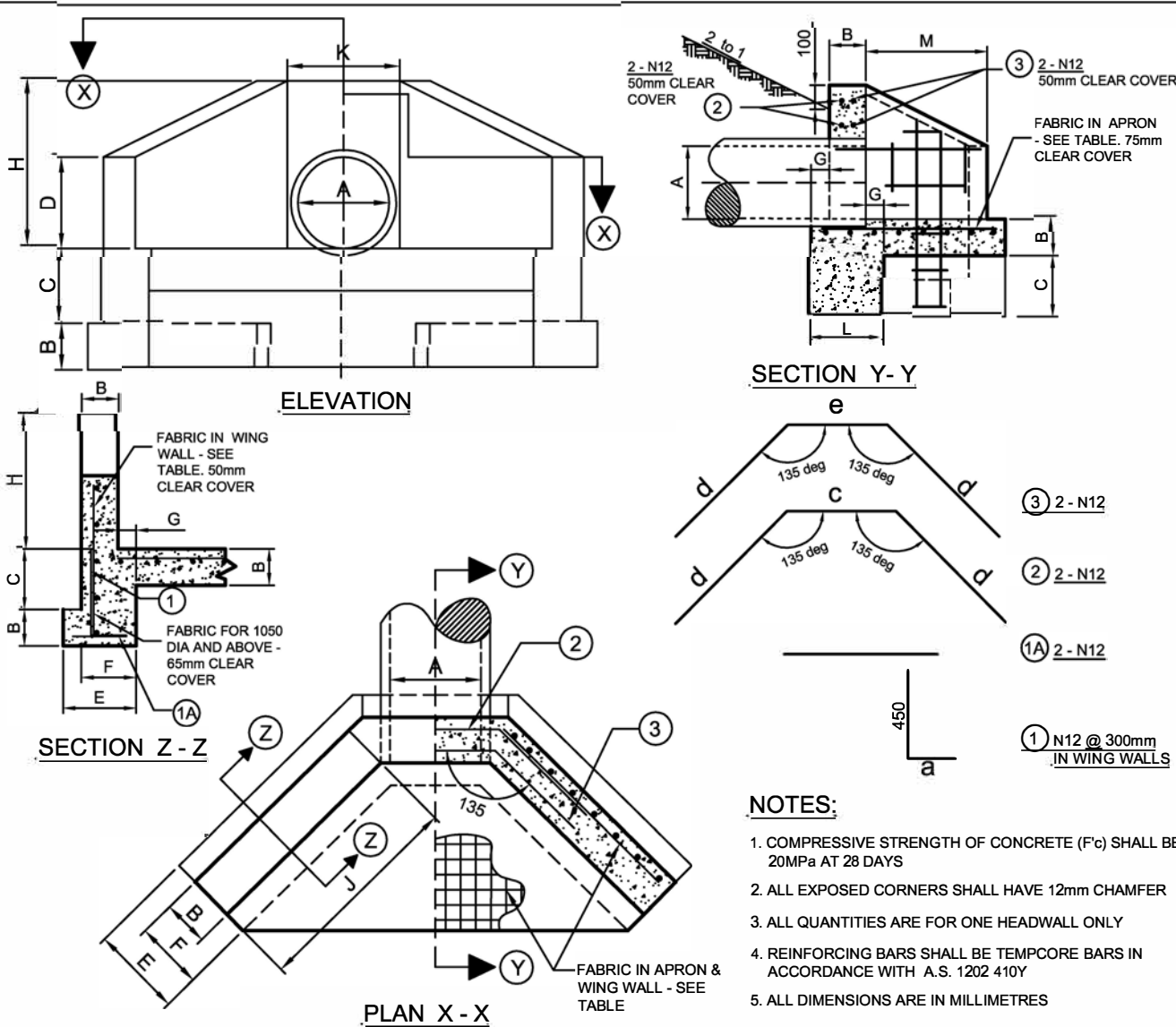


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**TITLE :** CONCRETE HEADWALLS FOR DOUBLE PIPE CULVERTS

Scale: NTS	Drawing No: SD 8019
Sheet: 1 of 1	Date: Jan 2017





PIPE SIZE	HEADWALL DIMENSIONS											REINFORCEMENT					
	A	B	C	D	E	F	G	H	J	K	L	M	FABRIC NO.	a	b	c	d
300	150	230	300	300	225	75	550	710	370	300	500	SL82	100	630	450	650	410
375	150	230	300	300	225	75	630	930	450	300	660	"	100	850	530	750	490
450	150	230	300	300	225	75	700	1130	540	300	800	"	100	1050	620	750	580
525	150	230	300	300	225	75	780	1360	620	300	960	"	100	1280	700	750	660
600	180	350	380	450	290	110	930	1560	700	400	1100	SL92	160	1480	800	750	740
675	205	325	380	450	315	110	1010	1780	790	425	1260	"	190	1700	910	750	830
750	205	325	380	450	315	110	1080	1980	870	425	1400	"	190	1900	990	750	910
825	230	300	380	450	340	110	1160	2210	950	450	1560	SL102	210	2130	1090	750	990
900	230	300	380	450	340	110	1230	2400	1030	450	1700	"	210	2320	1170	750	1070
1050	260	340	450	700	390	130	1380	2630	1200	520	1860	"	260	2550	1370	750	1240
1200	260	340	450	700	390	130	1550	3110	1360	520	2200	"	260	3030	1530	750	1400
1350	260	440	530	700	390	130	1700	3310	1530	520	2340	"	260	3230	1700	750	1570
1500	260	440	530	900	390	130	1880	3820	1680	520	2700	"	260	3740	1850	750	1720
1650	260	490	600	900	390	130	2050	4100	1850	520	2900	"	260	4020	2020	750	1890
1800	260	490	600	900	390	130	2210	4550	2010	520	3220	"	260	4470	2180	750	2050

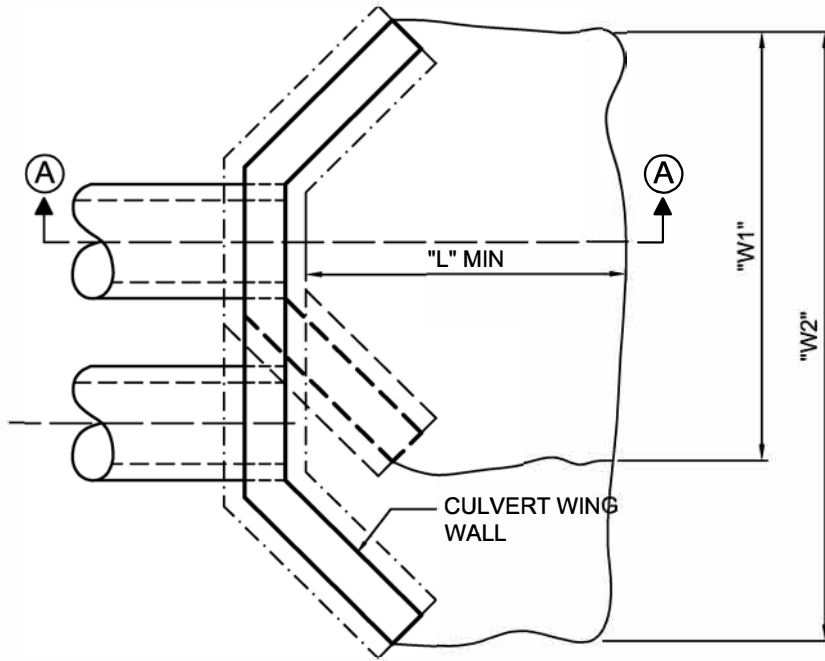


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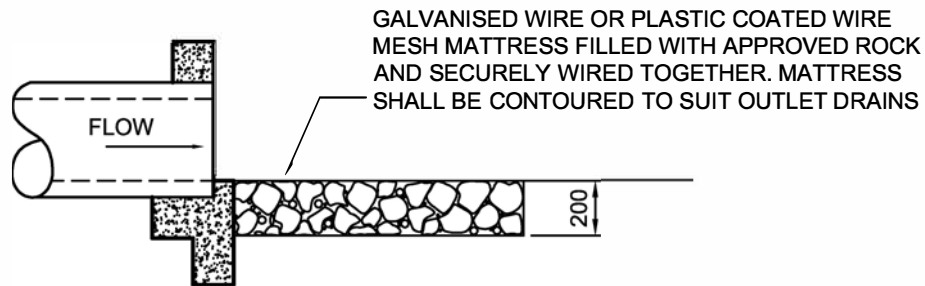
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**TITLE:**  
**CONCRETE HEADWALLS FOR SINGLE PIPE CULVERTS**

<b>Scale:</b> NTS	<b>Drawing No:</b> SD 8020
<b>Sheet:</b> 1 of 1	<b>Date:</b> Jan 2017



PLAN



SECTION A - A

GALVANISED WIRE OR PLASTIC COATED WIRE MESH MATTRESS FILLED WITH APPROVED ROCK AND SECURELY WIRED TOGETHER. MATTRESS SHALL BE CONTOURED TO SUIT OUTLET DRAINS

PIPE Ø	"W1"	"W2"	m "L" Min
300	1450	2320	1200
375	1800	2750	1800
450	2100	3130	2400
525	2400	3520	3100
600	2750	4050	3600
675	3350	4810	4300
900	4000	5630	4800
1050	4600	6890	5500
1200	5200	7660	6100
1350	5650	8270	6700
1500	6100	8880	7300
1650	6700	9640	7900
1800	7300	10410	8500

"W1" - MATTRESS WIDTH FOR SINGLE PIPE CULVERT

"W2" - MATTRESS WIDTH FOR DOUBLE PIPE CULVERT

- PROTECT FULL LENGTH OF EXCAVATED CHANNEL AS DIRECTED
- ALL DIMENSIONS ARE IN MILLIMETRES
- SIZES OF ROCK FILL : 80mm MIN  
: 150mm MAX



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TITLE :

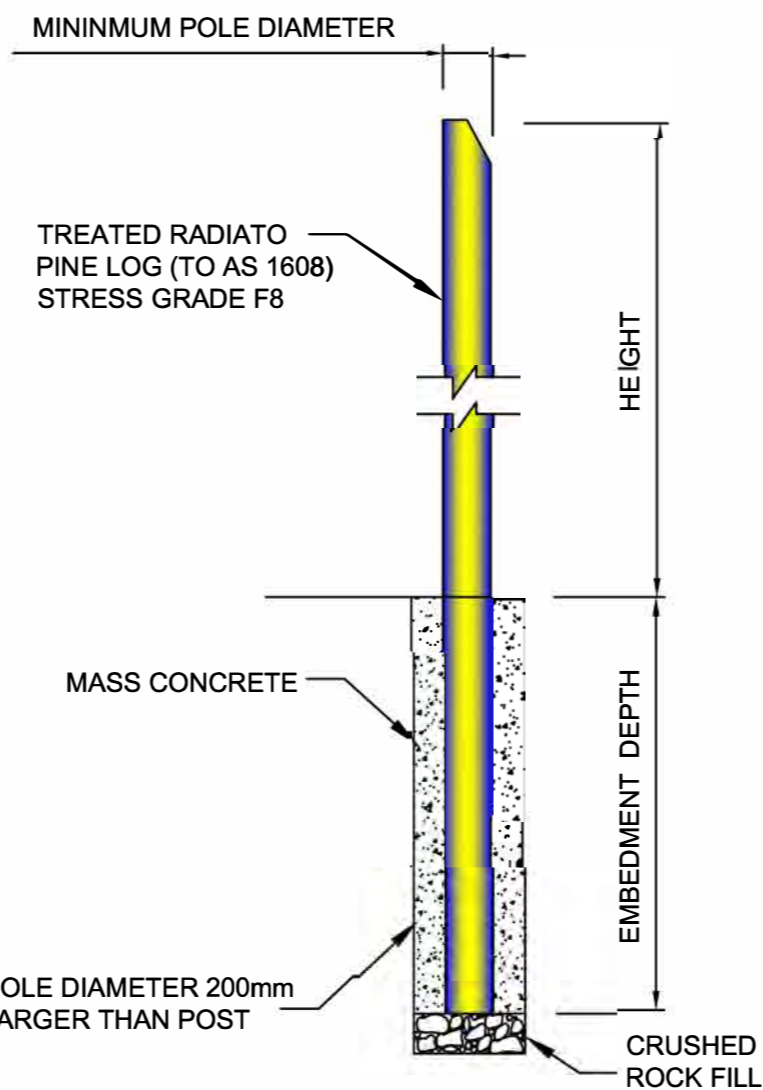
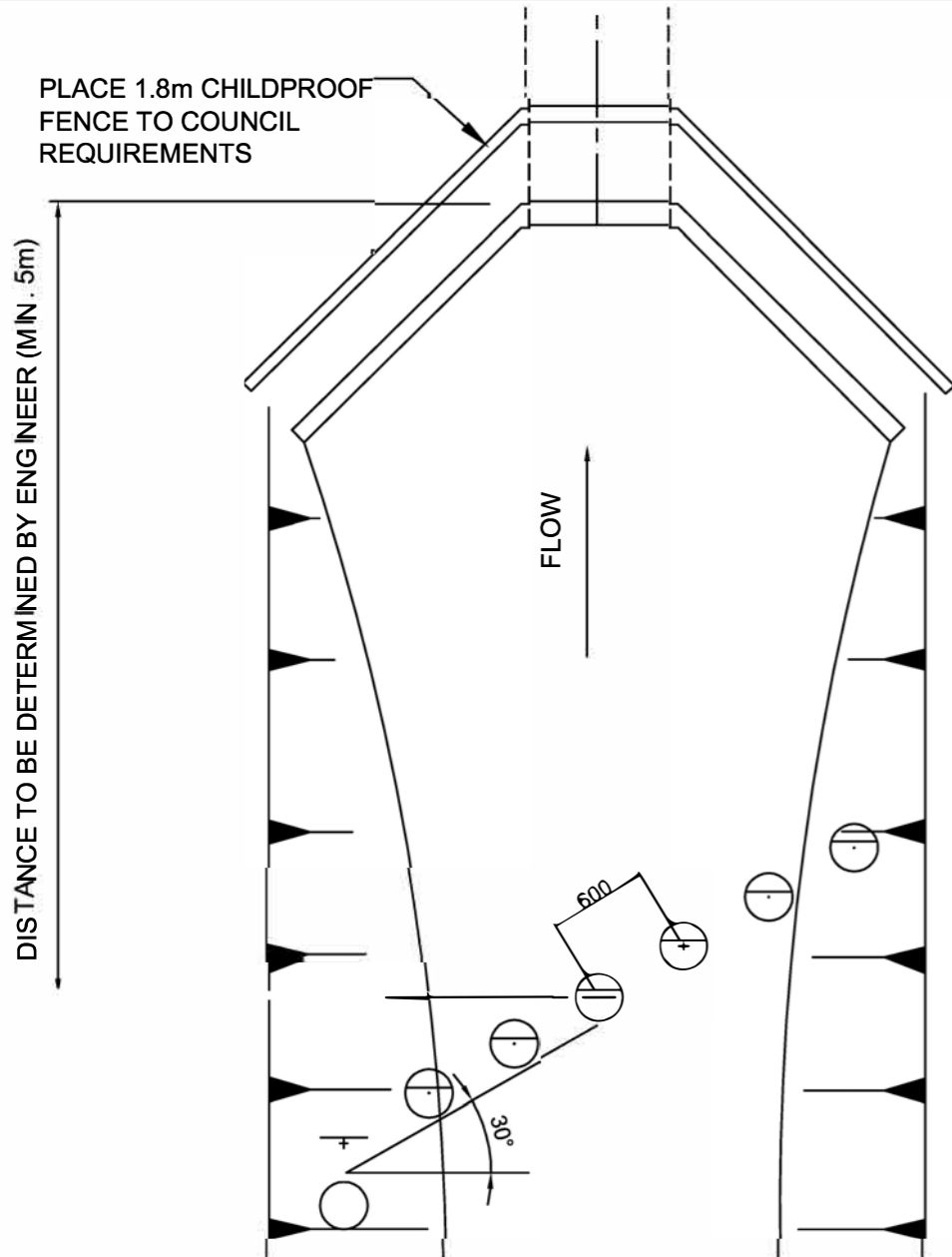
**ROCK MATTRESS OUTLET  
PROTECTION FOR PIPE CULVERTS**

Scale: NTS

Drawing No: SD 8021

Sheet: 1 of 1

Date: Jan 2017



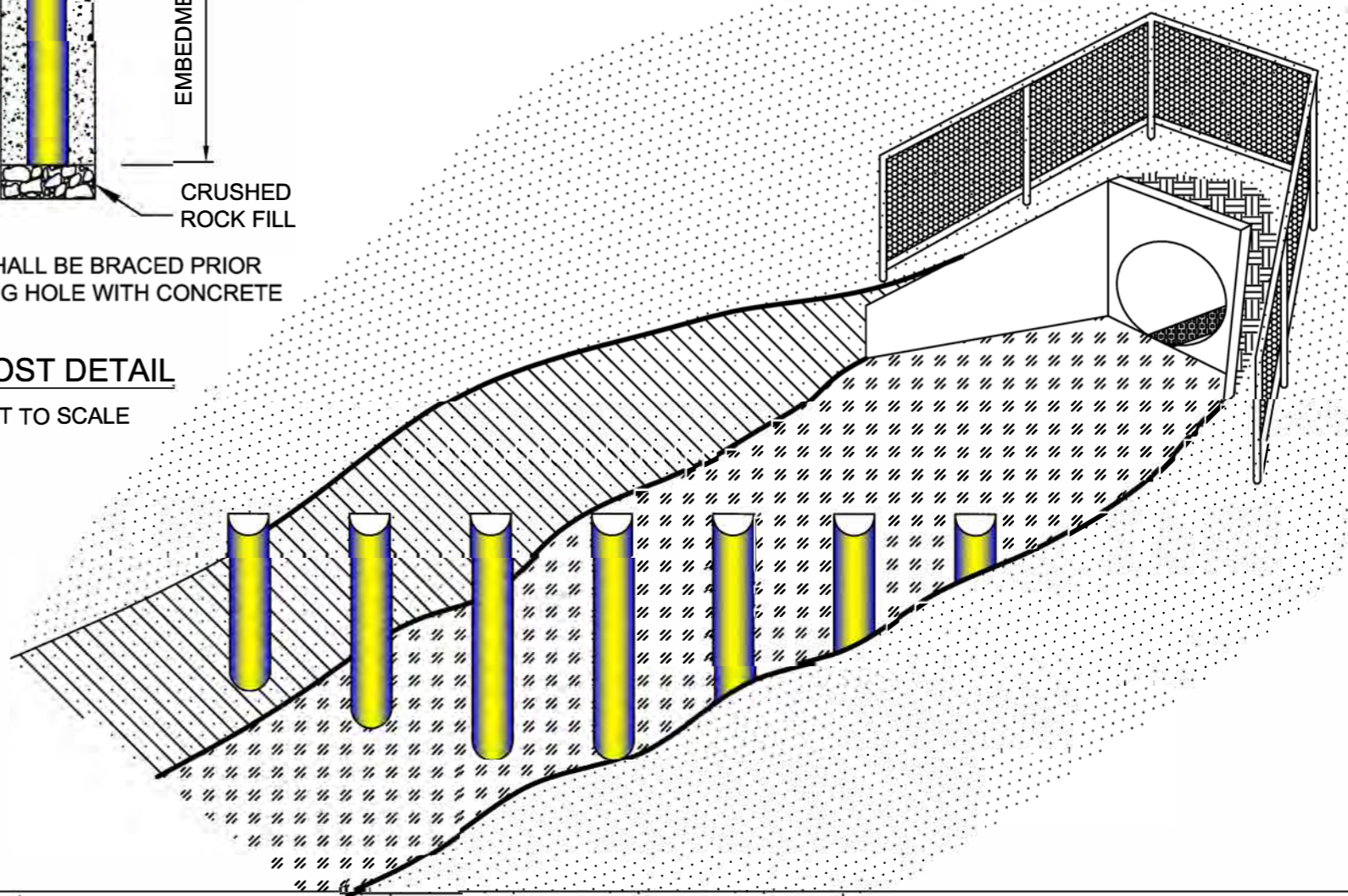
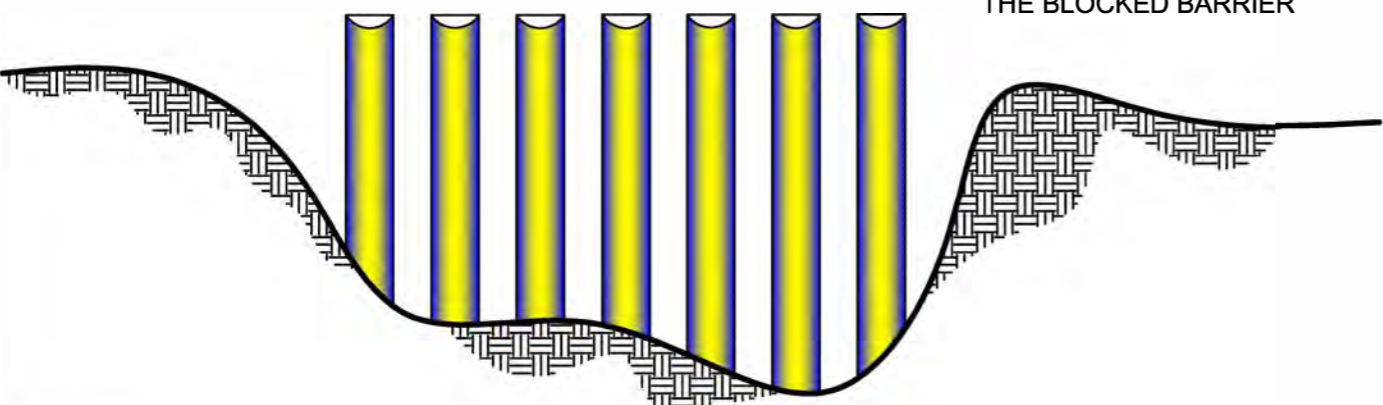
POLES SHALL BE BRACED PRIOR TO FILLING HOLE WITH CONCRETE

**NOTE:**  
LOCATION AND LEVEL OF BARRIER SHALL BE SET SO BLOCKAGE WITH DEBRIS WILL NOT CAUSE DAMAGE DUE TO RAISED FLOOD LEVELS AS FLOOD WATER FLOWS OVER THE BLOCKED BARRIER

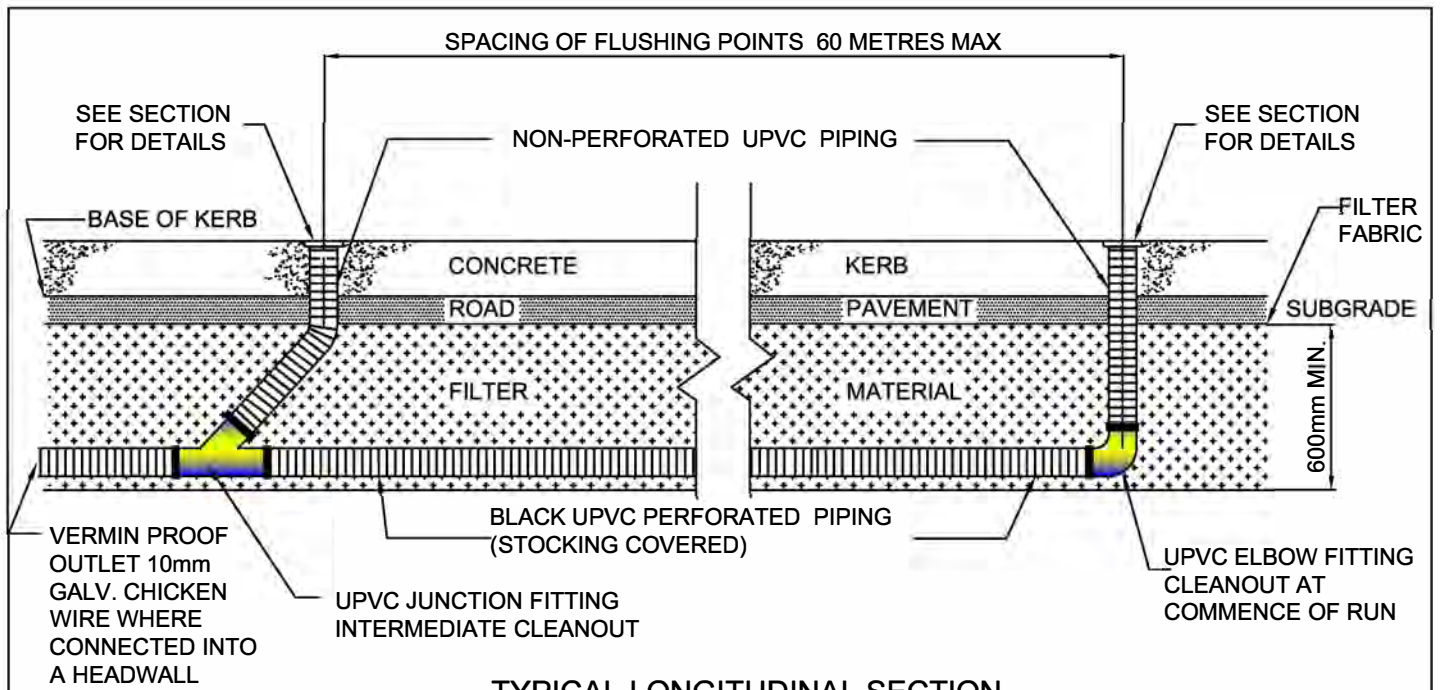
**POST DETAIL**  
NOT TO SCALE

**DESIGN TABLE**

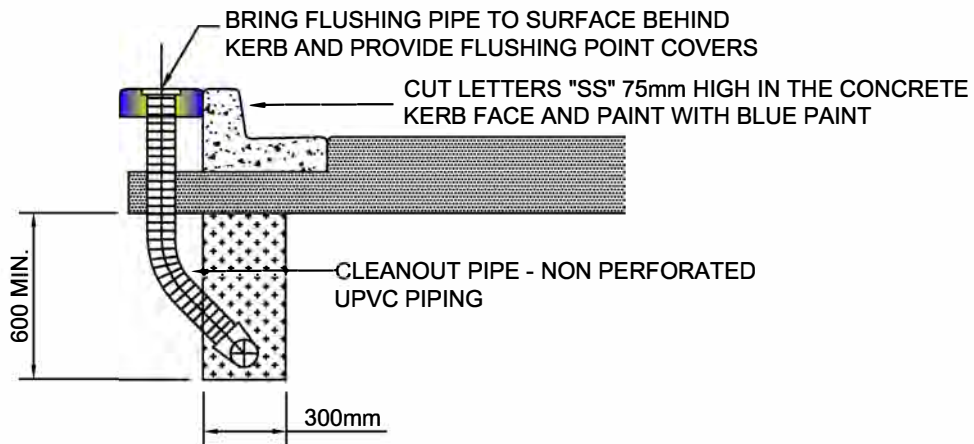
HEIGHT (m)	MIN POLE DIA (mm)	EMBEDMENT LENGTH (m)	
		STIFF SOIL	ROCK
1.0	150	1.0	TWICE THE POLE DIAMETER MINIMUM 400mm BELOW SOUND ROCK
1.1 - 1.5	200	1.1	
1.6 - 2.0	200	1.6	
2.1 - 2.5	250	2.1	
2.6 - 3.0	300	2.6	



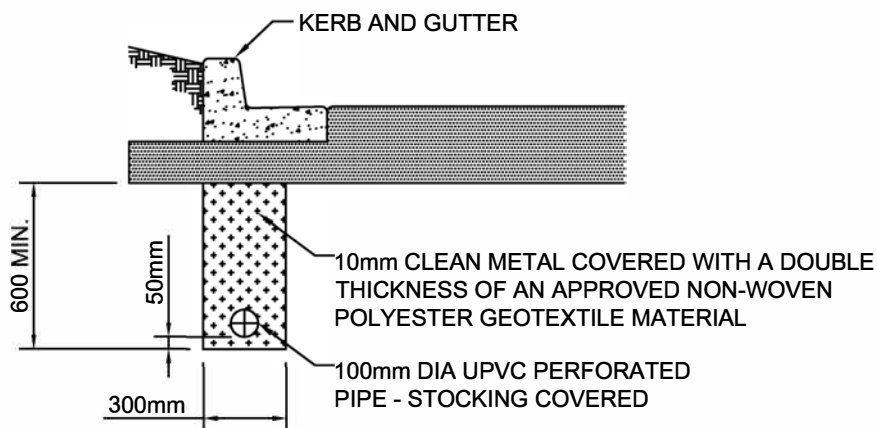




**TYPICAL LONGITUDINAL SECTION**



**SECTION AT FLUSHING POINT**



**TYPICAL SECTION**



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TITLE :

**SUBSOIL DRAINS**

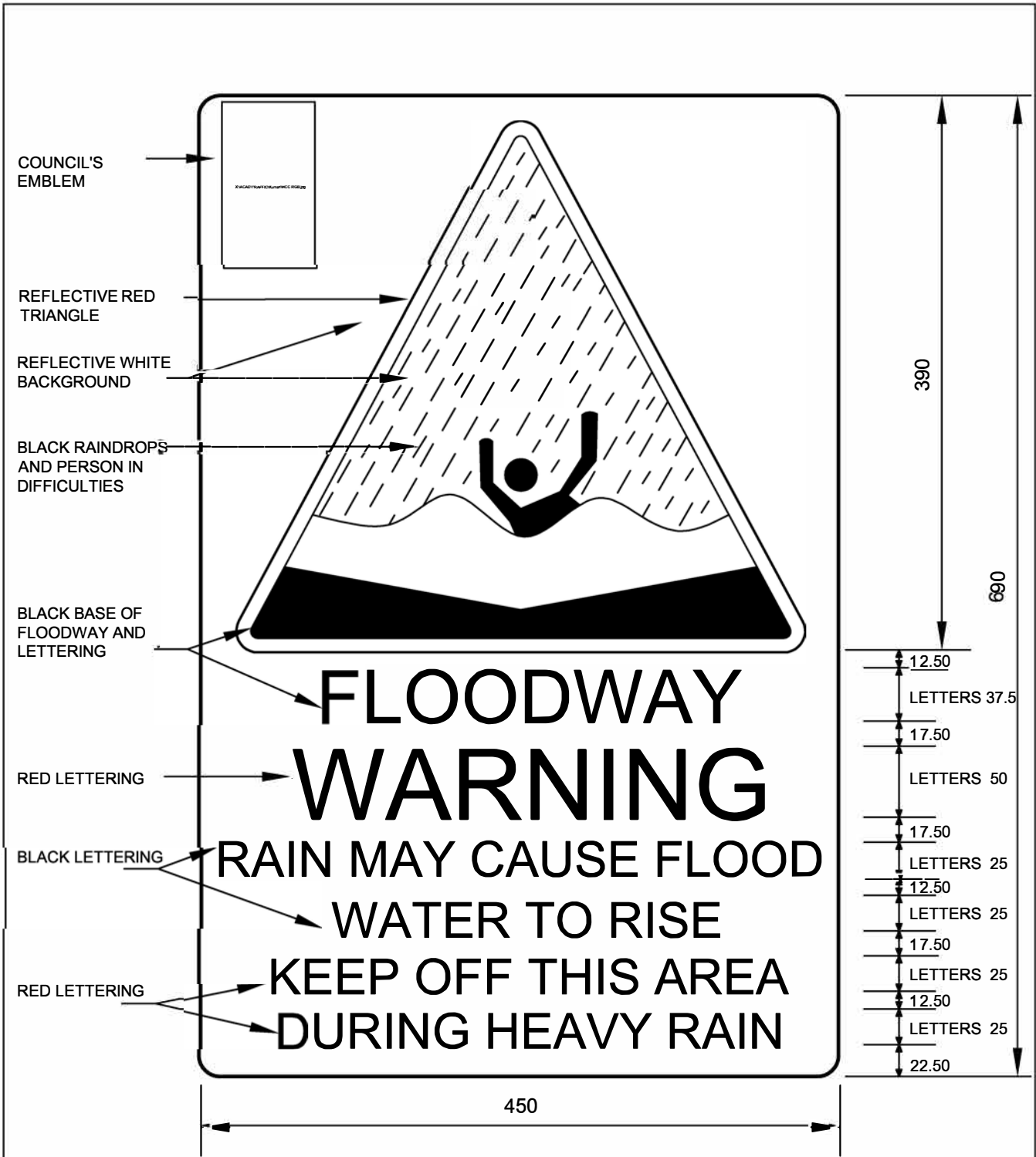
Scale: NTS

Drawing N° SD 8023

Sheet: 1 of 1


Date: Jan 2017

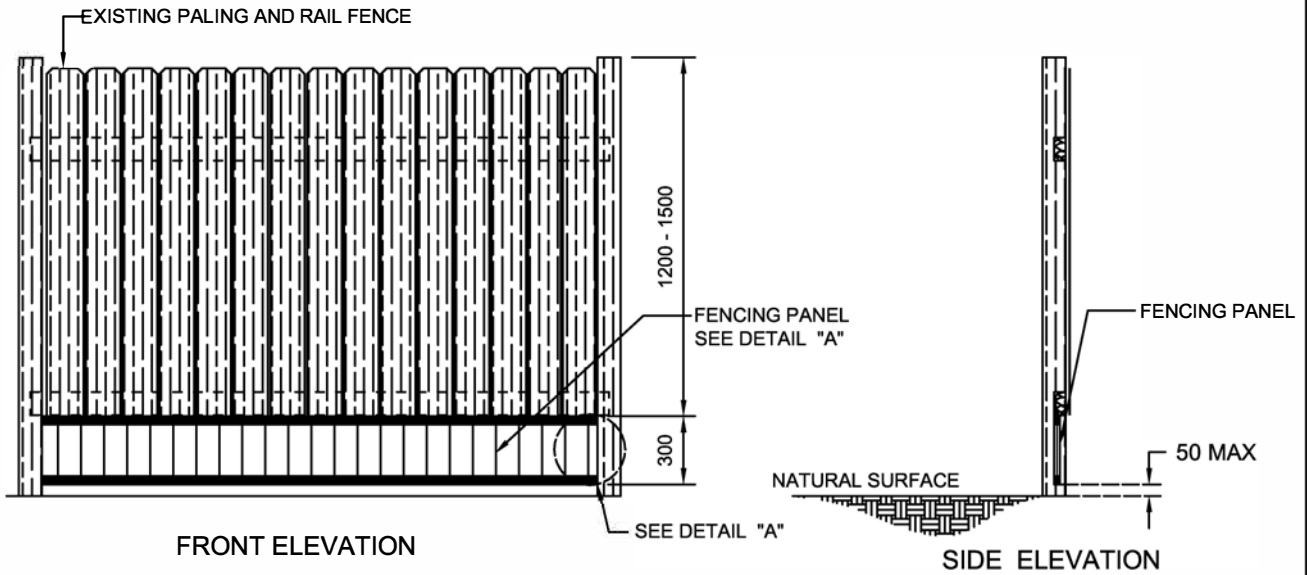




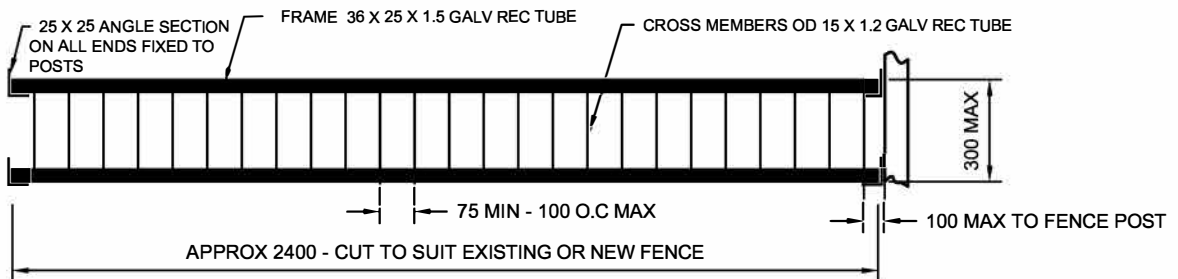
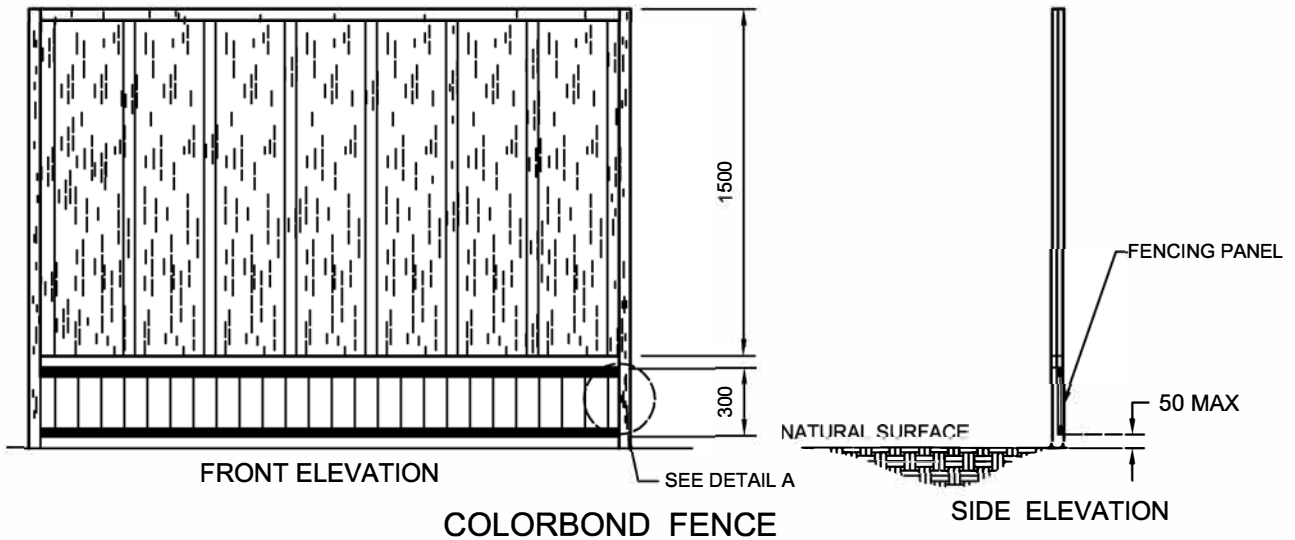
**NOTE:**

- ALL LETTERING SHALL BE "E" SERIES.
- ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE SHOWN.

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	<b>STANDARD FLOODWAY WARNING SIGN</b>		
	Scale: NTS		Drawing N° SD 8024
Sheet: 1 of 1		Date: Jan 2017	



**EXISTING OR NEW PALING FENCE**



**DETAIL A - FENCING PANEL**

FENCING PANEL COLOUR: POWDER COATED TO SUIT SITE  
(BLACK OR DARK GREEN)

NOTE:  
ALL DIMENSION ARE  
IN MILLIMETERS



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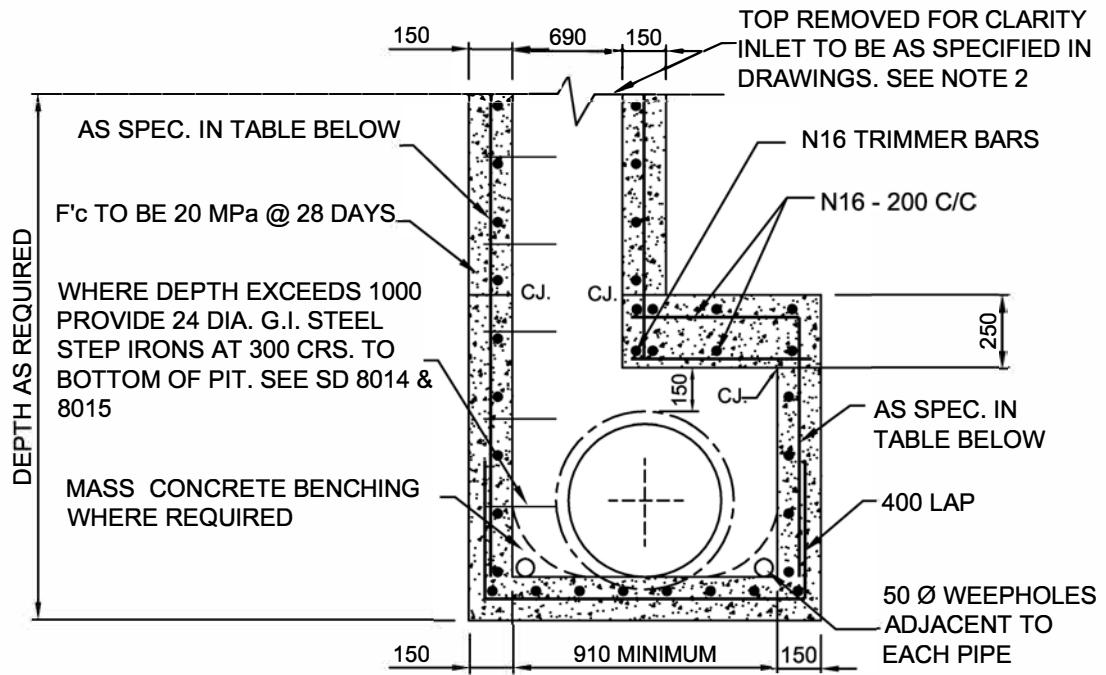
**TITLE : FENCE MODIFICATIONS TO  
PERMIT OVERLAND  
STORMWATER FLOW**

Scale: NTS

Drawing No: SD 8025

Sheet: 1 of 1

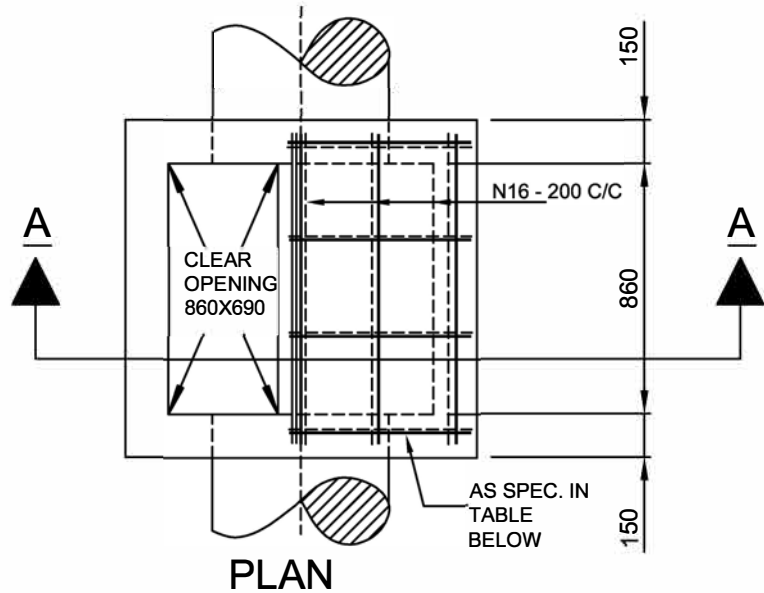
Date: Jan 2017



**SECTIONAL ELEVATION A - A**

**NOTE:**

1. MINIMUM 300mm COVER.
2. WALL THICKNESS IN CHIMNEY SHALL BE ADJUSTED TO SUIT TYPE OF PIT LID.
3. SUBSOIL DRAINS SHALL BE PLACED FOR A DISTANCE OF 4 METRES FROM EACH WEEPHOLE.
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
5. C/C - CENTRE TO CENTRE FOR ALL REINFORCEMENT.



**PLAN**

**SPACING OF N12 WALL & BASE REINFORCEMENT**

DEPTH TO INVERT D	WALL & BASE THICKNESS, T	MAXIMUM INTERNAL PLAN DIMENSION, W				
		0 - 1990	1200 - 1790	1800 - 2390	2400 - 2690	2700 - 3000
0 - 1990	150	NIL REINF	250 C/C	250 C/C	250 C/C	200 C/C
2000 - 2490		250 C/C	250 C/C	200 C/C	200 C/C	150 C/C
2500 - 2990		250 C/C	200 C/C	150 C/C	150 C/C	140 C/C



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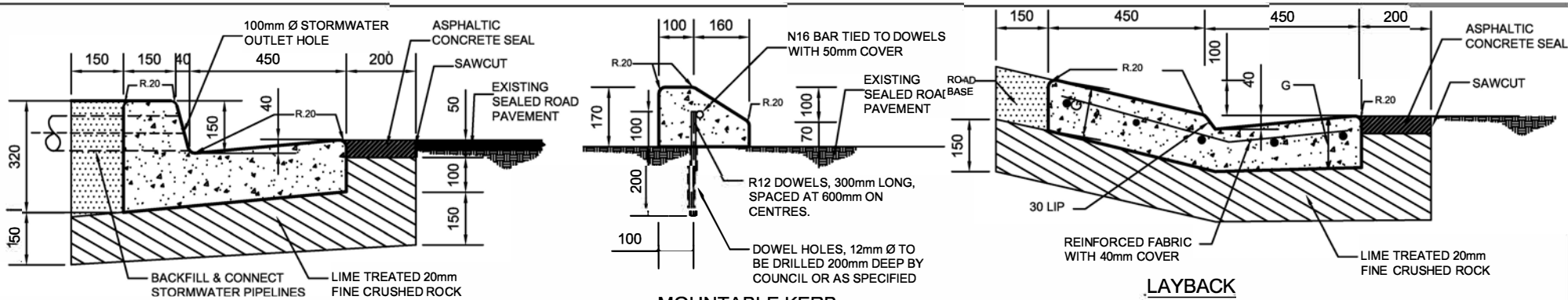
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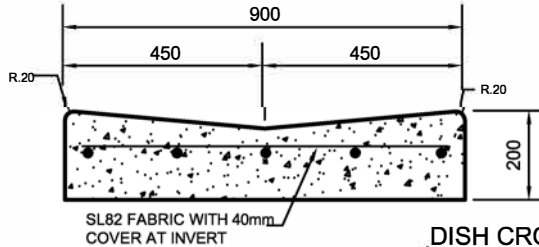
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Sheet: 1 of 1

Date: Jan 2017

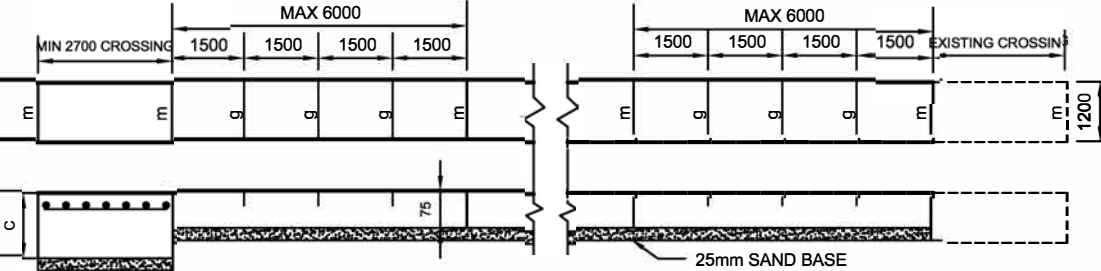


**KERB & GUTTER**



- NOTES:**
1. TRANSVERSE JOINTS AT 6,000 SPACING DOWELED WITH R20 BARS 600mm LONG AT 300mm ON CENTRES.
  2. SL82 FABRIC TO EXTEND THROUGHOUT ADJACENT 200mm THICK APRON AND GUTTER.
  3. SUBGRADE AS SPECIFIED ON DRAWINGS.

**DISH CROSSING**



**TYPICAL**

**SECTION**

- C = 130mm THICK, SL62 FABRIC (LIGHT DUTY)
- 150mm THICK, SL82 FABRIC (MEDIUM DUTY)
- 200mm THICK, SL82 FABRIC HEAVY DUTY)
- g = GROOVE JOINT 20mm DEEP
- m = MASTIC JOINT (FULL DEPTH OF CONCRETE)
- CROSSFALL = 40mm

**NOTES**

1. ALL DIMENSIONS ARE IN MILLIMETRES
2. DIAGRAMS ARE NOT TO SCALE
3. REFER TO COUNCIL PLAN NO. SD 8102 FOR CONSTRUCTION OF VEHICULAR CROSSING

**CONCRETE FOOTPAVING**

**LAYBACK**

LAYBACK & VEHICULAR CROSSING STANDARD	LAYBACK THICKNESS	REINFORCING FABRIC
	G	AS.1304
LIGHT DUTY (RESIDENTIAL DWELLINGS)	150	SL62
MEDIUM DUTY (RESIDENTIAL TOWN HOUSES & HOME UNITS)	150	SL82
HEAVY DUTY (INDUSTRIAL & COMMERCIAL)	200	SL82

**CONSTRUCTION NOTES:**

1. CONCRETE WORKS ARE TO BE CONSTRUCTED TO THE LEVELS AND STANDARD SPECIFIED ON THE DRAWINGS AND SPECIFICATIONS.
2. SAWCUTTING OF PAVEMENTS INCLUDING KERB & GUTTER IS REQUIRED WHERE PROPOSED WORKS ADJOIN EXISTING PAVEMENTS.
3. REINFORCING FABRIC TO BE SUPPORTED ON BAR CHAIRS & TO HAVE 40mm COVER TO BOTH FINISHED SURFACES & EDGES OF CONCRETE PAVEMENT.
4. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH (F<sub>c</sub>) OF 28 MPa AT 28 DAYS.
5. PREFORMED 100mm THICKNESS EXPANSION JOINTS SHALL BE PROVIDED AT 5m INTERVALS FOR KERB & GUTTER, MOUNTABLE KERB AND AT EACH END OF LAYBACKS.
6. CONCRETE SURFACE FINISH:  
FOOTPAVING & BACK OF LAYBACK - BROOM OR WOODEN FLOAT  
KERB & GUTTER AND LAYBACK GUTTER - STEEL FLOAT.
7. CORNERS AND EDGES: ROUND - RADIUS TO BE 20mm (R.20) WHERE SHOWN.



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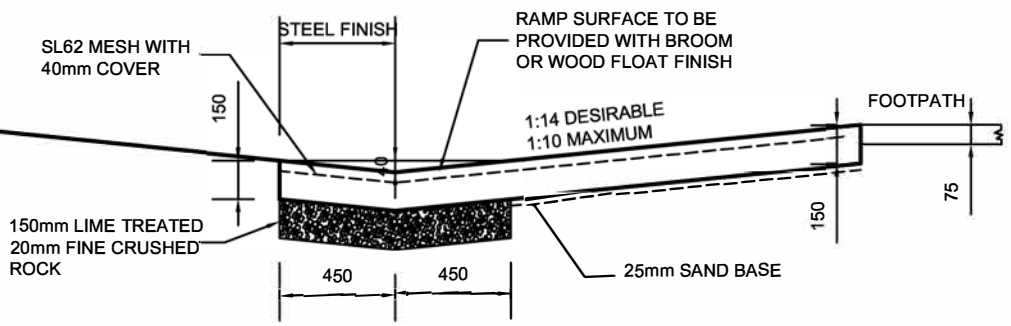
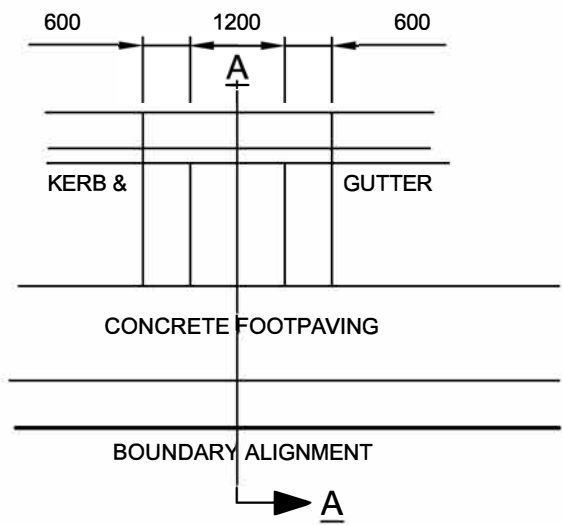
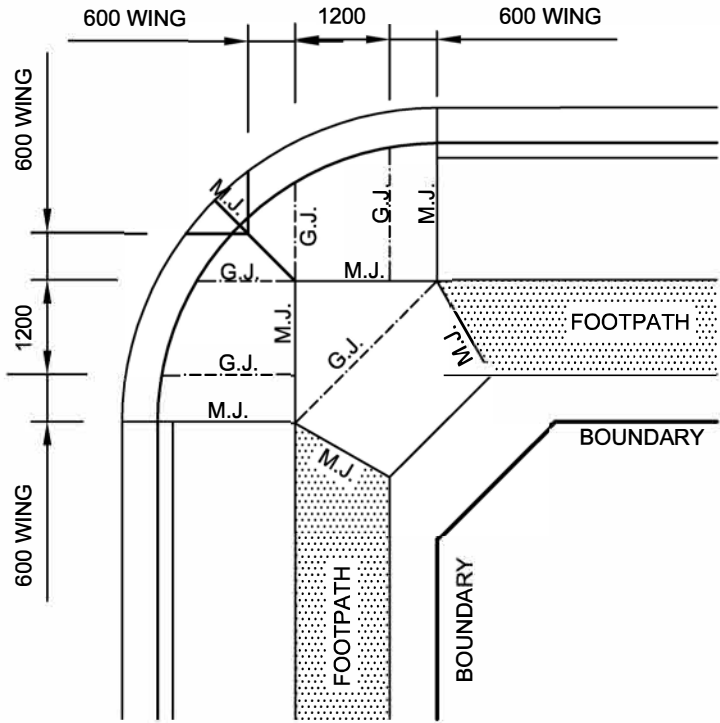
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Scale: NTS

Drawing N° SD 8100

Sheet: 1 of 1

Date: Jan 2017



SECTION A-A

**POSITIONING OF KERB RAMPS**

1. KERB RAMPS SHOULD BE PROVIDED ON CORNERS OF STREET INTERSECTIONS AND AT ESTABLISHED PEDESTRIAN CROSSINGS BETWEEN STREET INTERSECTIONS.
2. THE NUMBER AND POSITION OF RAMPS IS TO BE DETERMINED AFTER CONSIDERATION OF THE GENERAL MOVEMENT OF PEDESTRIANS, THE LOCATION OF MARKED FOOT CROSSING AND THE POSITION OF ANY EXISTING OBSTACLES SUCH AS TRAFFIC SIGNALS, GULLY PITS, ETC. THE LOCATION OF KERB RAMPS SHOULD BE CAREFULLY PLANNED TO ENSURE THAT USERS ARE NOT PUT AT RISK FROM TRAFFIC OF ANY KIND, BEARING IN MIND THAT A DISABLED PERSON'S REACTION TIME MAY BE GREATER THAN THAT OF A PERSON HAVING FULL MOBILITY.
3. KERB RAMPS SHOULD BE INSTALLED IN THE KERB IN A MANNER WHICH WILL DIRECT THE USER (PARTICULARLY THE VISUALLY DISABLED) ACROSS THE ADJACENT ROADWAY BY THE MOST DIRECT ROUTE.
4. WHEREVER POSSIBLE, DISCHARGE POINTS FROM KERB RAMPS SHOULD BE LOCATED SO AS TO INTEGRATE USE BY BOTH DISABLED AND ABLE BODIED PEOPLE.

**CONSTRUCTION NOTES**

1. KERB AND GUTTER TO BE REMOVED WITHOUT DISTURBING ADJOINING SEALED PAVEMENT.
2. FOOTPAVING TO BE LOWERED WHERE NECESSARY TO SUIT SPECIFIED KERB RAMP GRADES.
3. THE LAYOUT OF FOOTPAVING TO A KERB RAMP IS TO BE DETERMINED FOR EACH LOCATION TO PROVIDE CONTINUITY FOR PEDESTRIAN MOVEMENTS. FOOTPAVING TO MATCH FULL WIDTH OF KERB RAMP.
4. KERB RAMPS ARE TO BE PROVIDED WITH KERB AND GUTTER CONSTRUCTION IN ACCORDANCE WITH SECTION B-B WHERE NOT ADJOINING CONCRETE FOOTPAVING AND SECTION A-A WHERE CONSTRUCTED WITH FOOTPAVING.
5. KERB RAMPS NOT CONSTRUCTED IN CONJUNCTION WITH KERB AND GUTTER ARE TO BE CONSTRUCTED IN ACCORDANCE WITH SECTION A-A ON A 25mm SAND BASE.
6. FOOTPAVING ADJOINING SECTION B-B MUST BE CONSTRUCTED AS DETAILED IN SECTION A-A.

**GENERAL NOTES**

- A. ALL DIMENSIONS ARE IN MILLIMETRES.
- B. DIAGRAM ARE NOT ON SCALE.
- C. SYMBOLS:  
M.J. - MASTIC JOINT  
G.J. - GROOVED JOINT



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PROJECT :

**STANDARD DESIGN**

TITLE :

**CONCRETE KERB RAMPS**

Surveyed :

File: SD 8101.Dwg

Scale: AS SHOWN @ A4

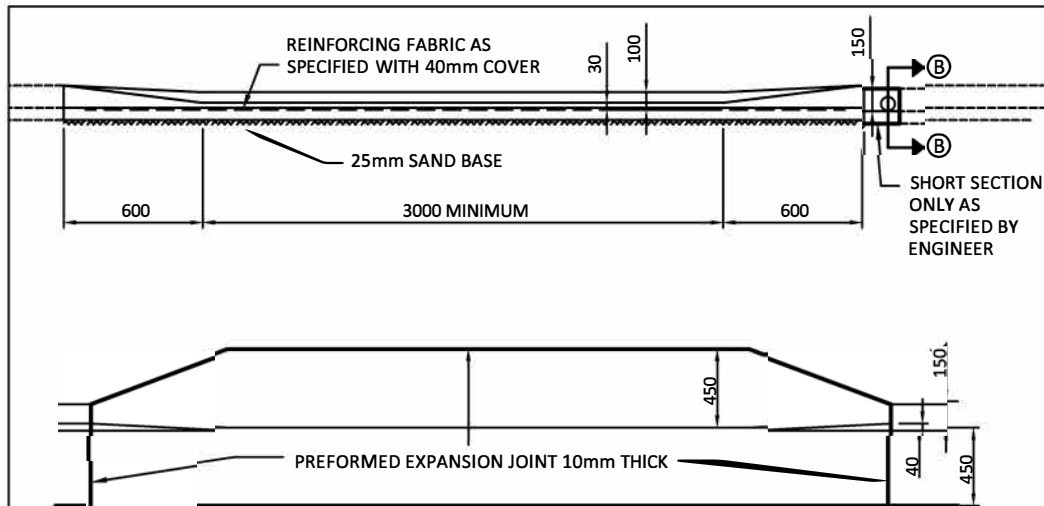
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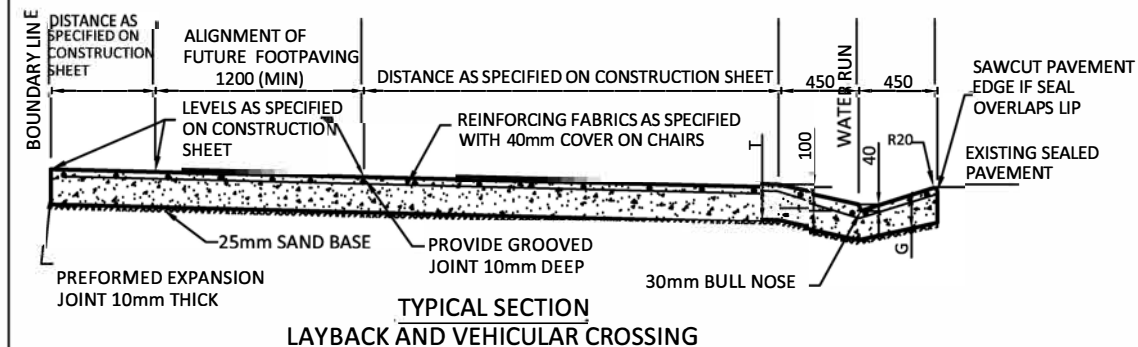
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**SD 8101**



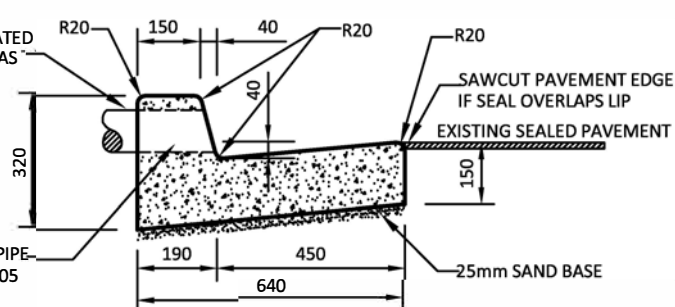


**LAYBACK**



BACKFILLING AND CONNECTION OF RELOCATED STORMWATER OUTLETS AS SPECIFIED

100mm MAXIMUM PVC PIPE IN KERB (REFER TO SD 8105 FOR PIPE CONNECTION)



**SECTION B-B**

**CONSTRUCTION NOTES**

- LAYBACKS AND VEHICLE CROSSINGS SHALL BE CONSTRUCTED TO THE LEVELS AND STANDARD SPECIFIED ON THE CONSTRUCTION SHEET AND SPECIFICATION.
- KERB AND GUTTER SHALL BE REMOVED FOR CONSTRUCTION OF LAYBACKS.
- EDGE OF SEALED ROAD PAVEMENT IS NOT TO BE DISTURBED WHEN REMOVING KERB AND GUTTER.
- SAW CUTTING OF PAVEMENTS INCLUDING KERB AND GUTTER IS REQUIRED WHERE PROPOSED WORKS ADJOIN EXISTING PAVEMENTS.
- A SOUND SUBGRADE IS TO BE ESTABLISHED PRIOR TO PLACING SAND BASE.
- SAND BASE UNDER LAYBACKS IS NOT REQUIRED WHEN CONSTRUCTED ON EXISTING ROAD PAVEMENT.
- REINFORCING FABRIC TO BE SUPPORTED ON BAR CHAIRS AND TO HAVE 40mm COVER TO BOTH FINISHED SURFACES AND EDGES OF CONCRETE PAVEMENT.
- CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF (F<sub>c</sub>) AT 28 DAYS OF 25 MPa.
- CONCRETE SURFACE FINISH - VEHICULAR CROSSING - BROOM OR WOODEN FLOAT  
- KERB AND GUTTER AND LAYBACK - STEEL FLOAT
- CORNERS AND EDGES: ROUNDED, RADIUS TO BE 20mm (R20) WHERE SHOWN.
- PREFORMED EXPANSION JOINT REQUIRED AT BOUNDARY BACK OF LAYBACK.

**CONSTRUCTION NOTES**

- ALL DIMENSIONS ARE IN MILLIMETRES.
- DIAGRAMS ARE NOT TO SCALE.
- MINIMUM MEAN WIDTH OF VEHICULAR CROSSING TO BE 3000mm UNLESS OTHERWISE SPECIFIED.

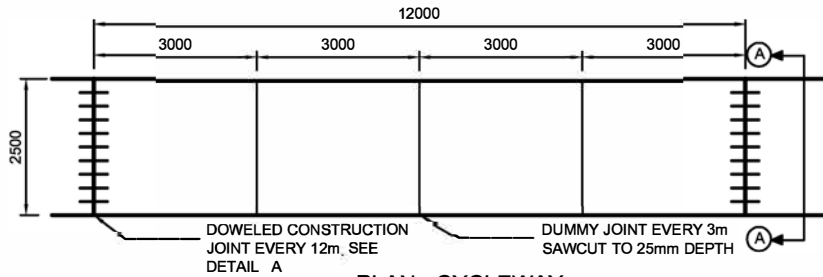
LAYBACK & VEHICULAR CROSSING STANDARD	CONCRETE THICKNESS		REINFORCING FABRIC AS.4671
	T	G	
LIGHT DUTY (RESIDENTIAL DWELLINGS)	130	150	SL62
MEDIUM DUTY (RESIDENTIAL TOWN HOUSES AND HOME UNITS)	150	150	SL82
HEAVY DUTY (INDUSTRIAL & COMMERCIAL)	200	200	SL82



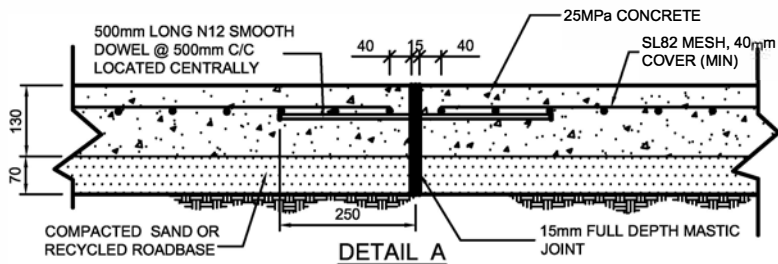
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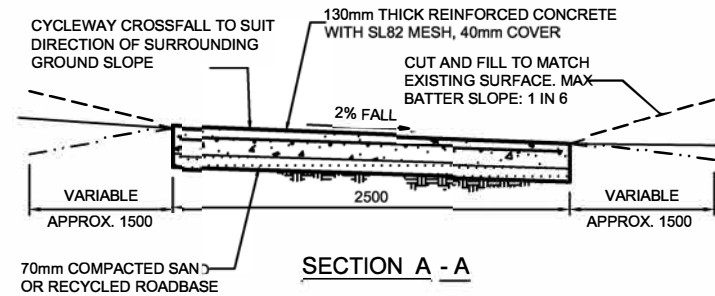
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		Date: Jan 2017	Sheet: 1 / 1
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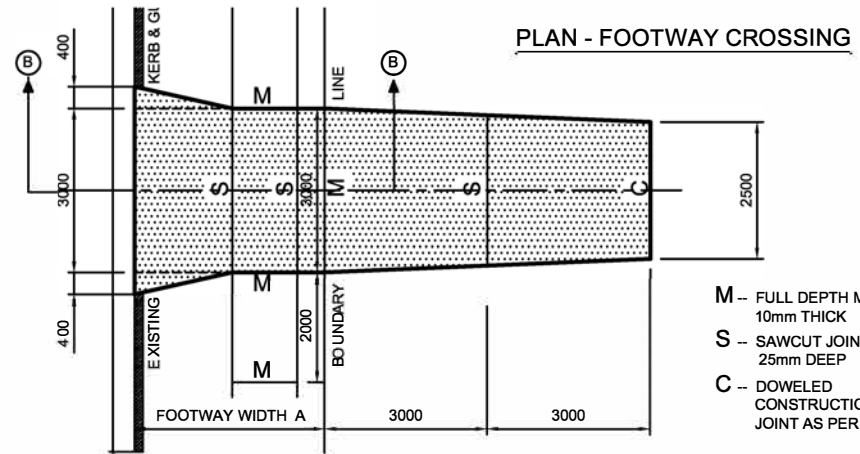
PLAN - CYCLEWAY



DETAIL A

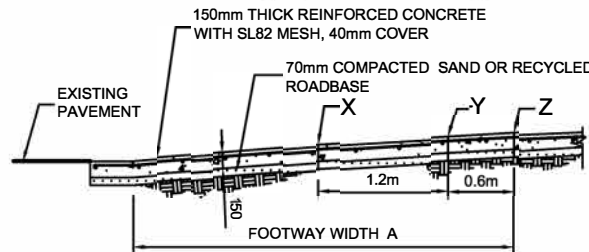


SECTION A - A



PLAN - FOOTWAY CROSSING

M - FULL DEPTH MASTIC 10mm THICK  
 S - SAWCUT JOINT 25mm DEEP  
 C - DOWELED CONSTRUCTION JOINT AS PER DETAIL A



SECTION B - B

FOOTWAY WIDTH A (m)	LEVEL RELATIVE TO WATER RUN OF KERB		
	X (mm)	Y (mm)	Z (mm)
2.74	160	200	220
3.50 - 3.66	180	220	240
3.96 - 4.00	200	240	260
4.88 - 5.00	220	260	280

**NOTES:**

1. CONCRETE WORKS SHALL BE CONSTRUCTED TO THE LEVELS AND STANDARDS SPECIFIED ON THE DRAWINGS
2. SAWCUTTING OF KERB AND GUTTER AND FOOTPATHS ARE REQUIRED WHERE THE PROPOSED WORKS ADJOINING EXISTING
3. KERB AND GUTTER SHALL BE REMOVED FOR THE CONSTRUCTION OF FOOTWAY RAMPS WITHOUT DISTURBING ADJOINING PAVEMENT
4. A COMPACTED SUBGRADE SHALL BE ESTABLISHED TO THE SUPERINTENDENT'S SATISFACTION PRIOR TO THE PLACING OF THE BASE
5. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF F<sub>c</sub> 25 MPa AT 28 DAYS
6. CONCRETE SURFACE FINISHES:  
 FOOTWAY RAMP AND CYCLEWAY - BROOM FINISH  
 KERB & GUTTER AND LAYBACK GUTTER - STEEL FLOAT
7. ALL BACKFILL MATERIALS SHALL BE GRANULAR AND APPROVED BY THE SUPERINTENDENT PRIOR TO USE
8. ALL AFFECTED GRASSED AREAS SHALL BE RETURNED WITH NEW TURF MATCHING EXISTING TYPE
9. DO NOT SCALE FROM THE DRAWINGS. DIMENSION AND LARGER SCALE DRAWINGS TAKE PREFERENCE
10. ALL DOWELS SHALL BE HOT DIPPED GALVANISED
11. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED



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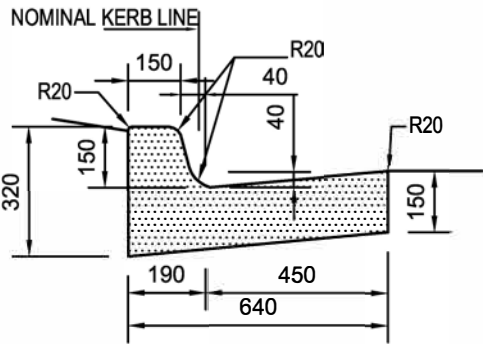
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 AND CONCRETE CYCLEWAY PAVING**

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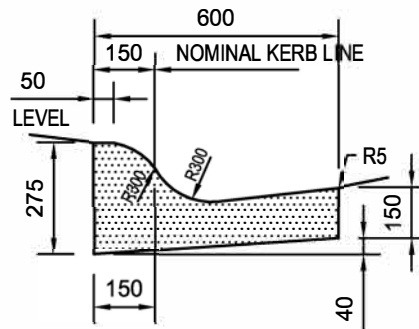
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Sheet: 1 of 1

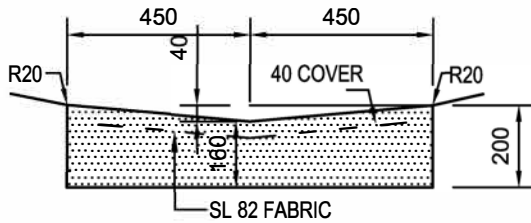
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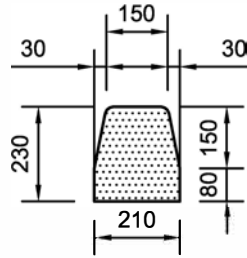
150mm KERB & GUTTER



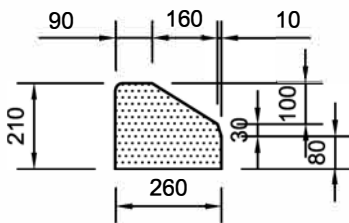
ROLL KERB & GUTTER



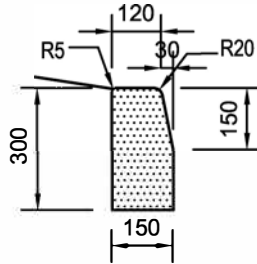
DISH CROSSING



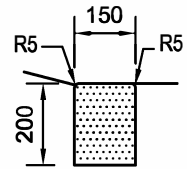
BARRIER KERB



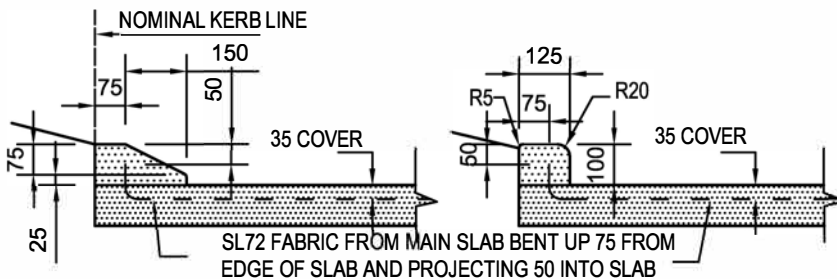
MOUNTABLE KERB



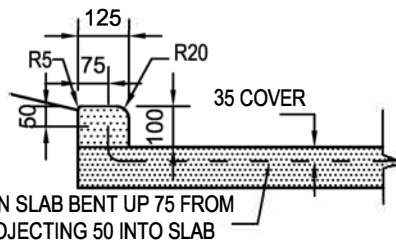
KERB ONLY



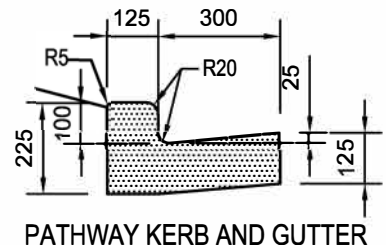
EDGE STRIP



INTEGRAL KERB FOR CONCRETE ACCESSWAYS



INTEGRAL KERB FOR PATHWAYS



PATHWAY KERB AND GUTTER

**NOTES**

1. ROAD SUB-BASE SHALL BE EXTENDED BENEATH KERBS, GUTTERS, APRONS AND DISH CROSSINGS.
2. CONCRETE SHALL BE OF 25 MPa COMPRESSIVE STRENGTH (F<sub>c</sub>) AT 28 DAYS.
3. REINFORCING FABRIC TO A.S. 1304-1991 HARD DRAWN STEEL WIRE REINFORCING FABRIC.
4. WHERE CONDUITS ARE PALCED PRIOR TO KERB CONSTRUCTION, KERB FACES SHALL BE MARKED FOR LOCATION.
5. PROVIDE EXPANSION JOINTS AT 6 METRES ON CENTRES AND WEAKENED PLANE JOINT AT 3 METRES ON CENTRES.
6. ALL UNITS ARE IN MILLIMETRE UNLESS OTHERWISE SPECIFIED.



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TITLE :

**KERBS AND GUTTERS**

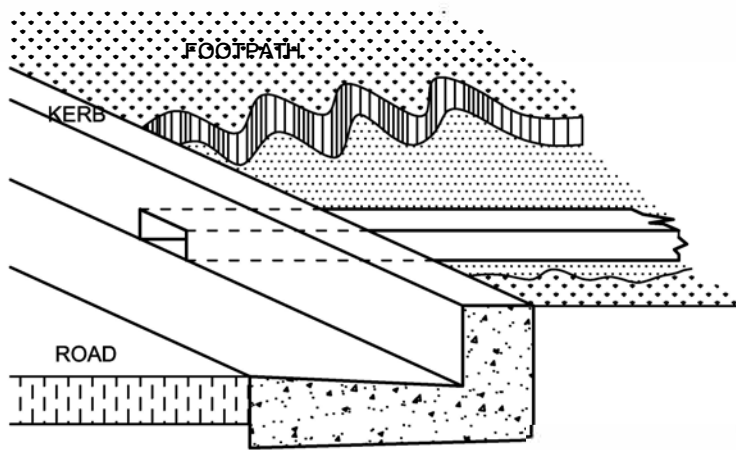
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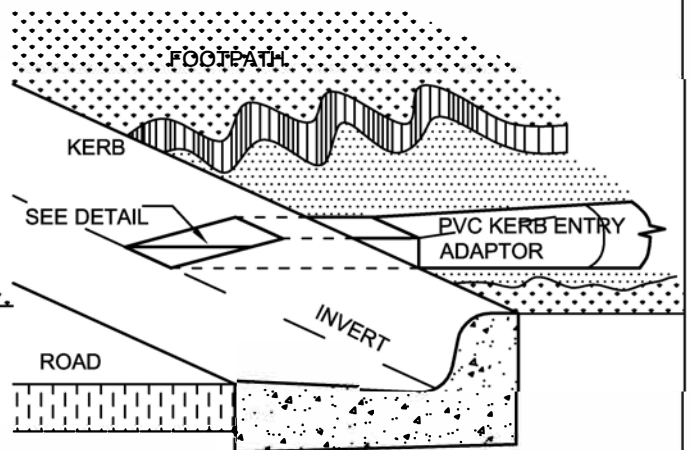
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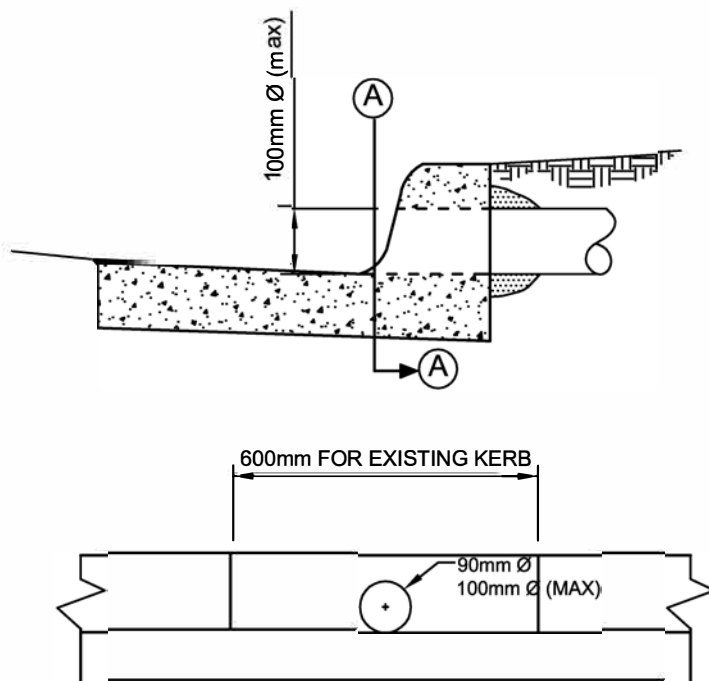




**CASE 2**  
KERB ENTRY WITH  
RHS (100x200)

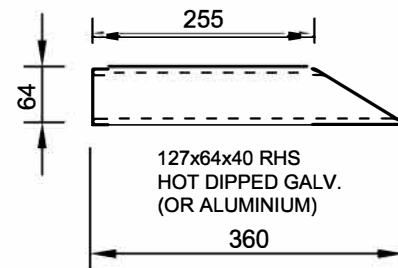


**CASE 3**  
ROLLED KERB AND  
"ANGLE CUT" KERB  
ENTRY ADAPTOR



**SECTION A - A**

**CASE 1**  
NORMAL KERB AND  
CIRCULAR ADAPTOR



**M.S. OR ALUMINIUM  
STORMWATER PIPE  
INSERT FOR RK&G**

**CASE 1**  
PREFERRED CONNECTION FOR  
STANDARD KERB

**CASE 2**  
ALTERNATIVE TO CASE 1.

**CASE 3**  
THIS METHOD OF ROOF WATER  
OUTLET CONNECTION SHALL BE  
USED FOR ROLLED KERB.

**NOTES**

1. ALL DIMENSIONS ARE IN MILLIMETRES (UNO).
2. INVERT OF HOLE SHALL BE FLUSH WITH INVERT OF GUTTER.
3. PIPES ACROSS THE FOOTPATH SHALL BE BUTTED AND CEMENT RENDERED TO THE BACK OF THE KERB.
4. FOR EACH ROOFWATER CONNECTION IN EXISTING KERB A SECTION OF KERB 600mm LONG SHALL BE REMOVED, REFORMED AND POURED TO INCORPORATE STANDARD ROOFWATER OUTLET.



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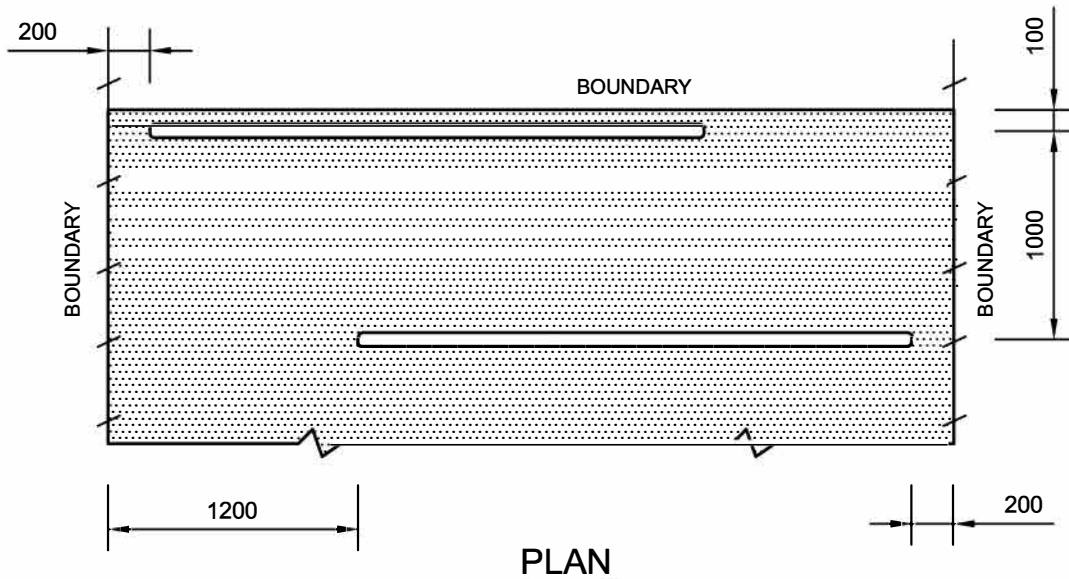
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CONNECTION**

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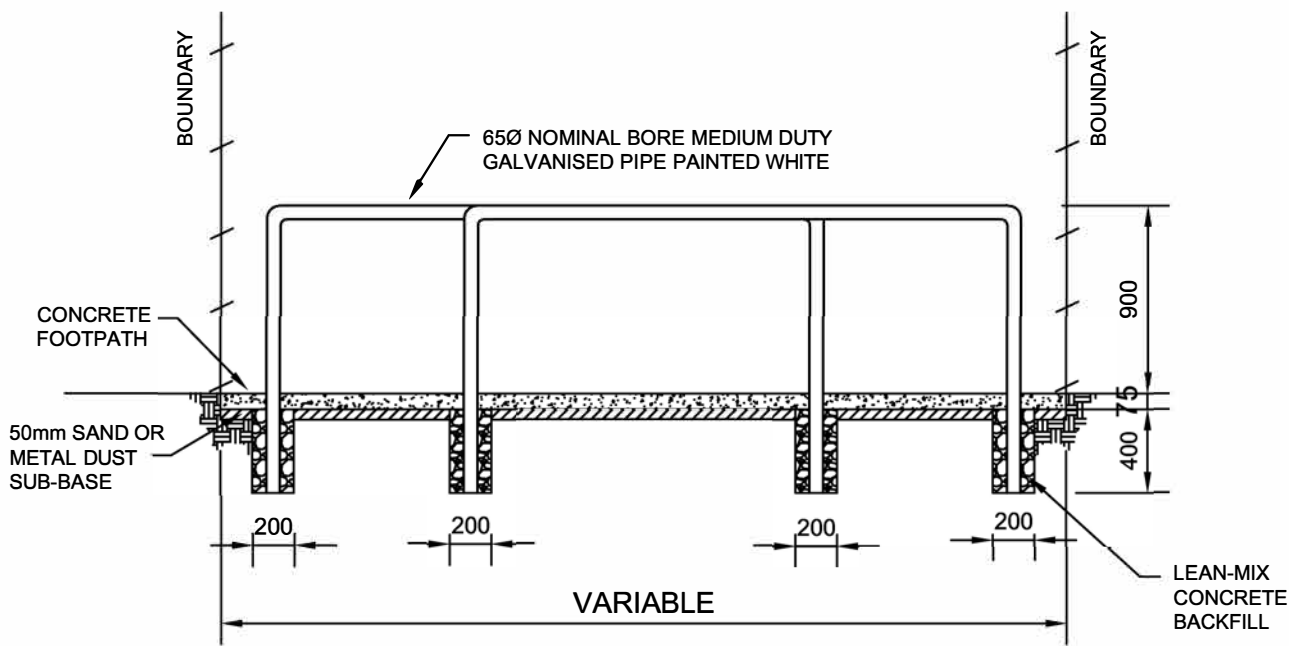
Drawing N° SD 8105

Sheet: 1 of 1

Date: Jan 2017



PLAN



ELEVATION

NOTES:

1. CLASS 1 REFLECTIVE TAPE SHALL BE PLACED ON CROSS RAILS.
2. ALL DIMENSIONS ARE IN MILLIMETERS.



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PROJECT :  
STANDARD DRAWING

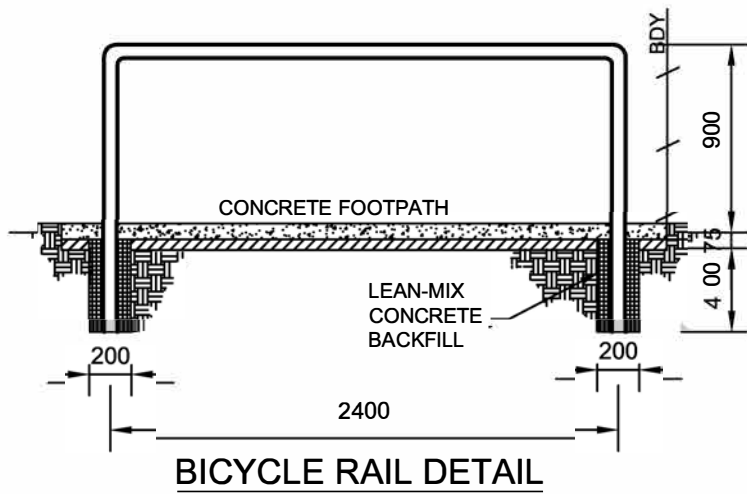
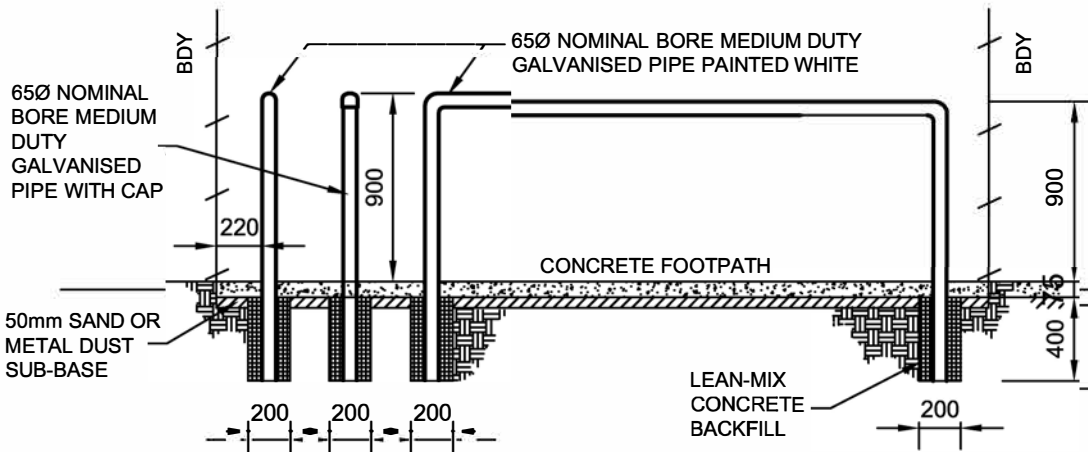
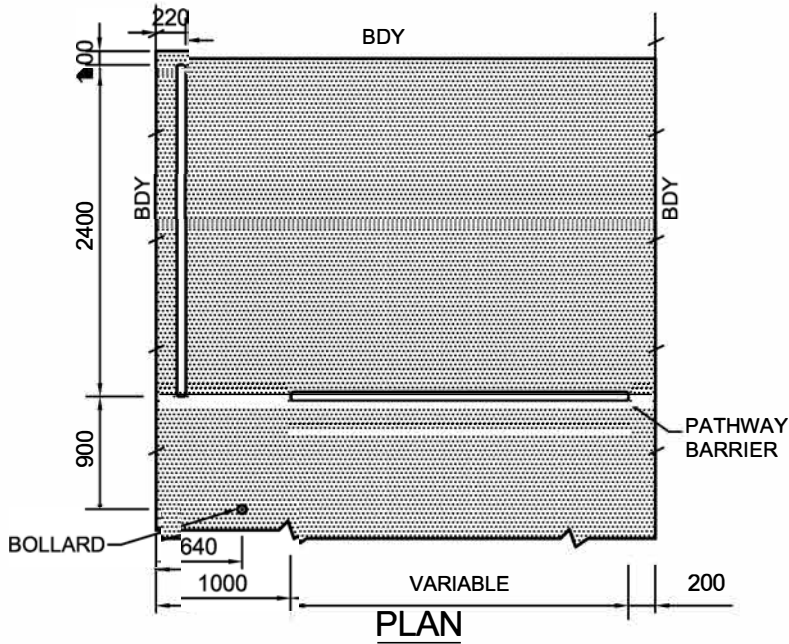
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PEDESTRIAN PATHWAY BARRIER

Date : Jan 2017

Scale: AS SHOWN @ A4 Drawing N

Sheet 1 of 1

SD 8108



**NOTES:**

1. CLASS 1 REFLECTIVE TAPE SHALL BE PLACED ON CROSS RAILS.
2. ALL DIMENSIONS ARE IN MILLIMETERS.



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PROJECT :

STANDARD DRAWING

TITLE :

CYCLEWAY BARRIER

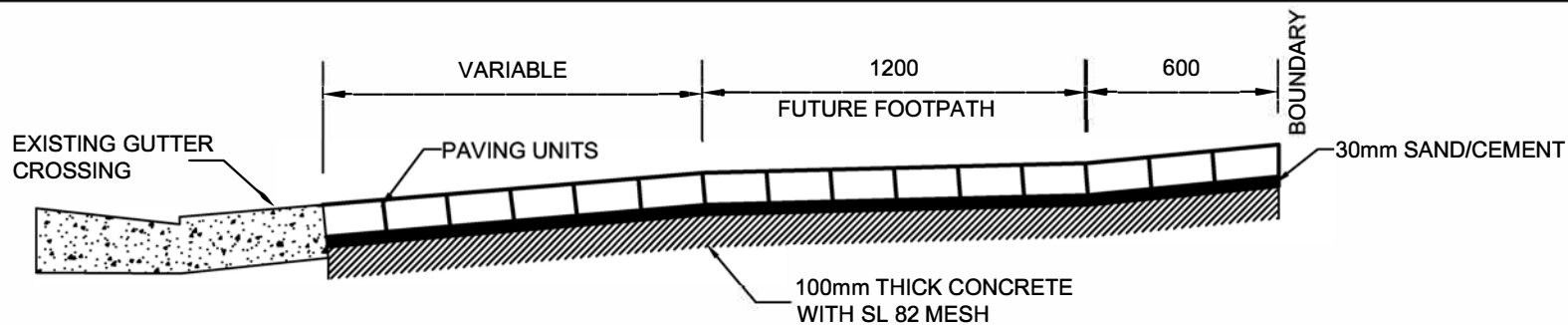
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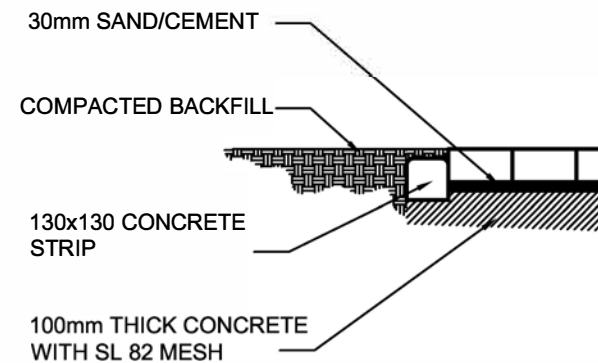
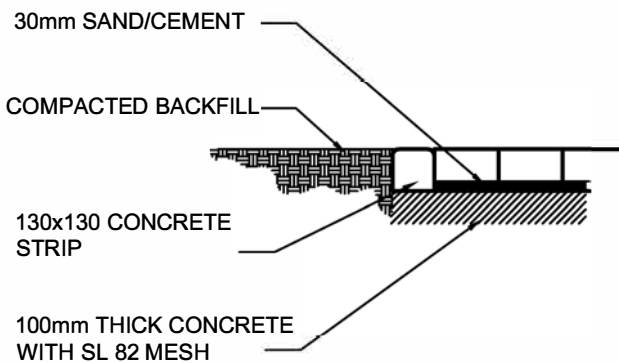
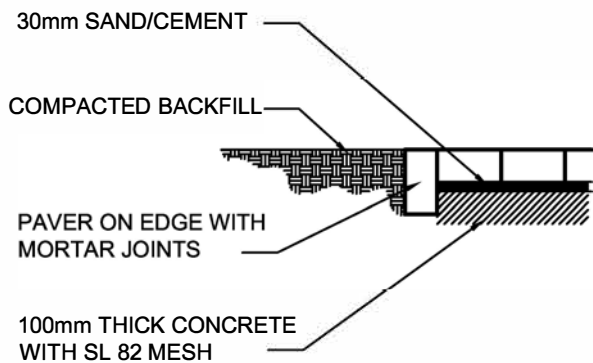
Date : Jan 2017

Sheet 1 of 1

**SD 8109**



**SECTION ACROSS FOOTPATH**



**EDGE RESTRAINT SYSTEMS**

**NOTE:**

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATIONS AND COUNCIL PLAN NO. SD 8100.
2. ALL DIMENSIONS ARE IN MILLIMETER.



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PROJECT :

**STANDARD DRAWING**

TITLE :

**MEDIUM DUTY VEHICULAR CROSSING USING PAVING UNITS**

Approved:

File: Std Drawing 8110.dwg

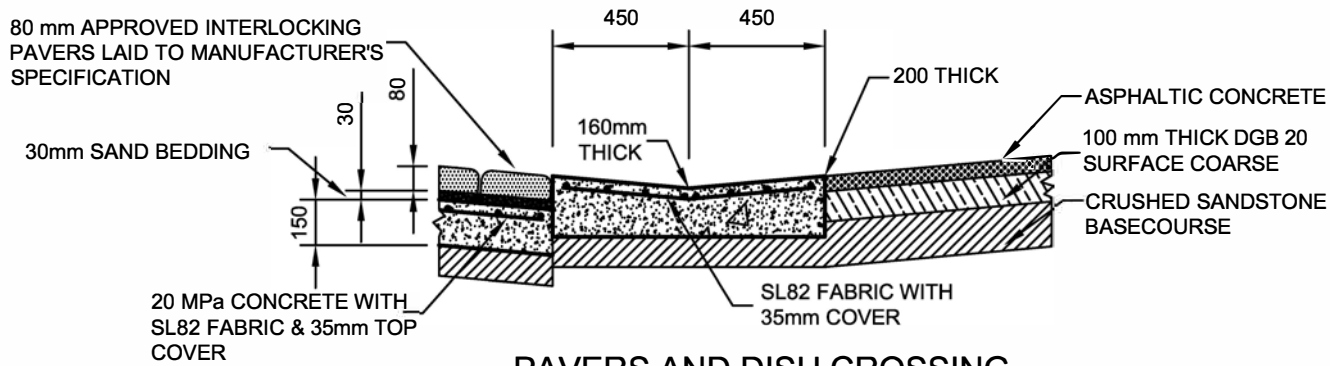
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Drawing N

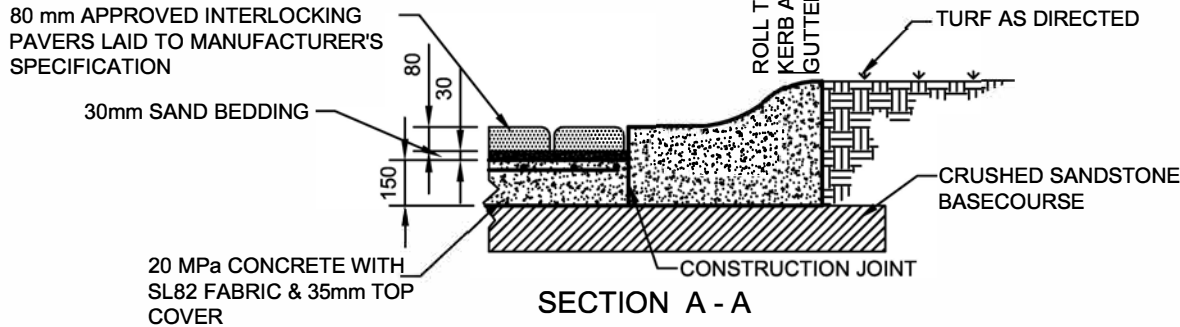
Date: Jan 2017

Sheet: 1 / 1

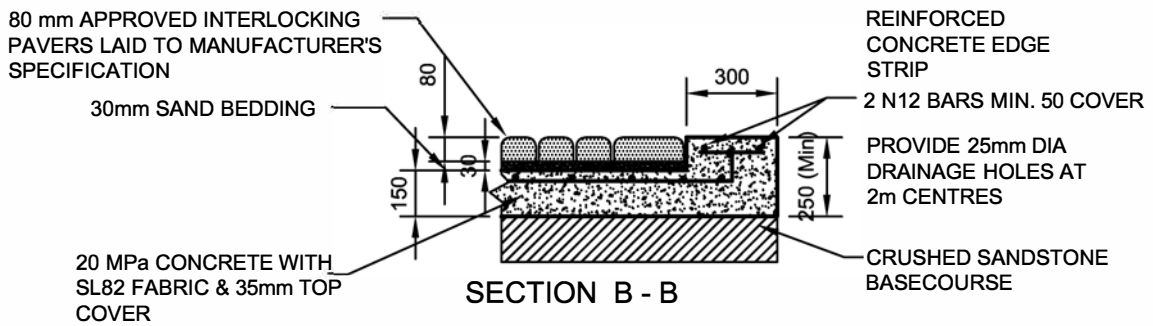
**SD 8110**



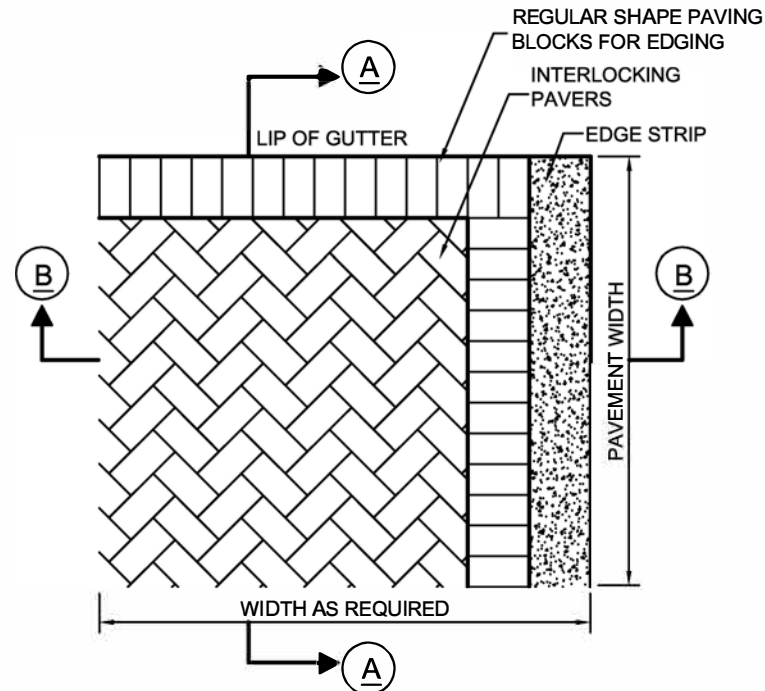
**PAVERS AND DISH CROSSING**



**SECTION A - A  
PAVERS AND ROLL KERB DETAIL**



**SECTION B - B  
PAVERS AND EDGE STRIP DETAIL AT THRESHOLD**



**TYPICAL PAVING PLAN**

**NOTES:**

1. COMPREHENSIVE STRENGTH (F<sub>c</sub>) FOR CAST IN-SITU CONCRETE SHALL BE A MINIMUM 20MPa AT 28 DAYS.
2. REINFORCEMENT SHALL BE SL82 TOP AND BOTTOM WHERE INDICATED AND COLD DRAWN BARS TO RELEVANT AUSTRALIAN STANDARDS.
3. PAVERS SHALL BE 80mm THICK INTERLOCKING TYPE OF APPROVED MANUFACTURER AND SHALL BE LAID IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS ON A MINIMUM 30mm APPROVED SAND BEDDING.
4. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.



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PROJECT : **STANDARD DRAWING**

Surveyed :

Approved:

File: SD 8111.dwg

Date: Jan 2017

TITLE : **TYPICAL ARRANGEMENT OF THRESHOLD PAVEMENTS AT INTERSECTION**

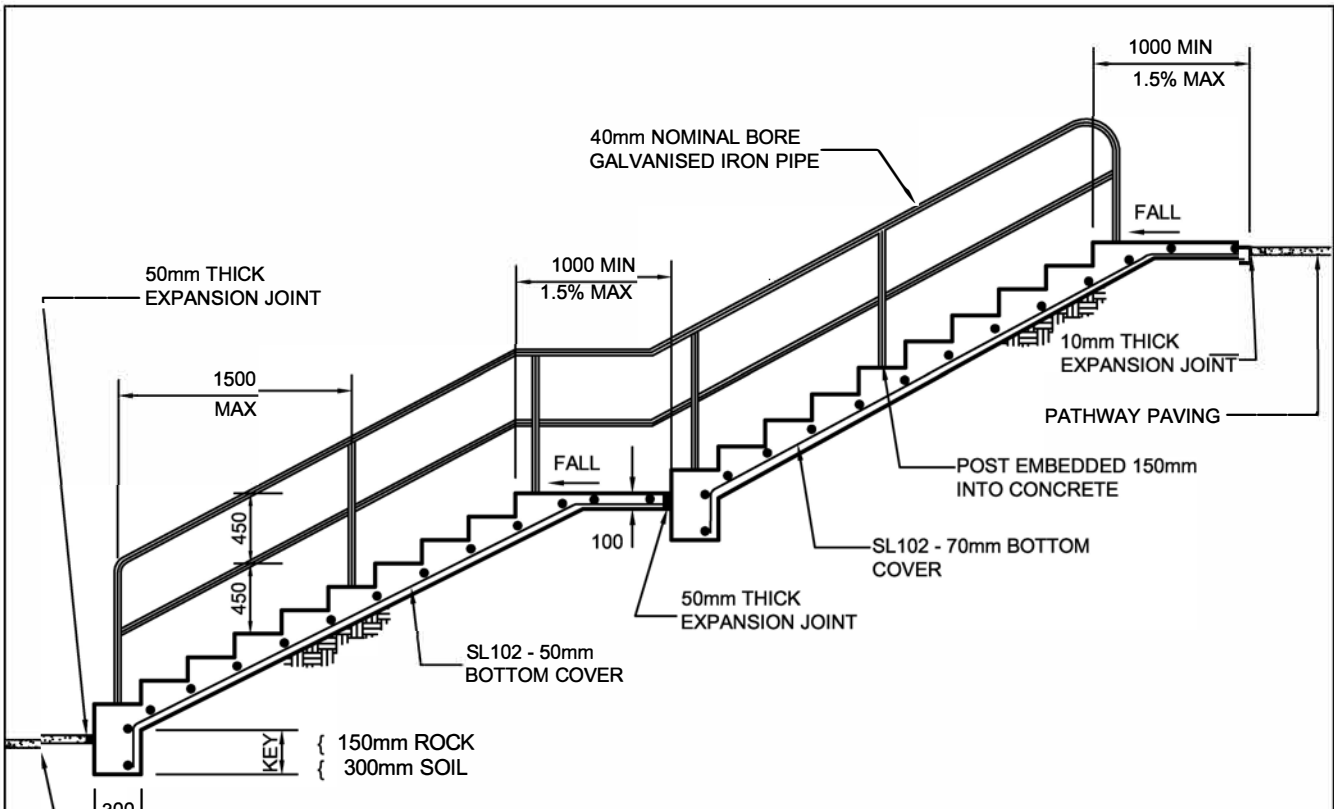
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Sheet: 1 / 1

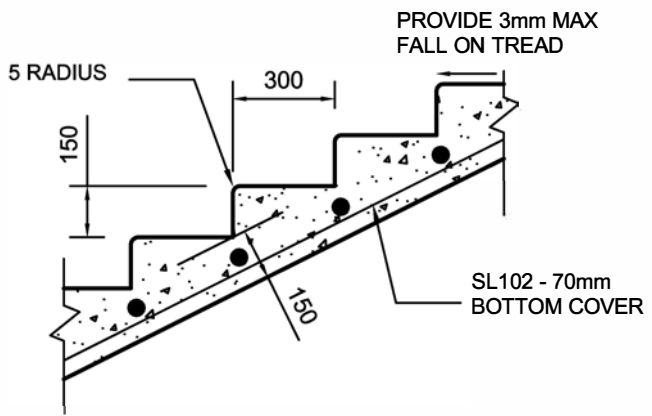
Drawing No

**SD 8111**





**PATHWAY STEPS**



**STEP DETAILS**

**NOTES:**

1. MAXIMUM NUMBER OF STEPS PER FLIGHT = 10
2. MINIMUM NUMBER OF STEPS PER FLIGHT = 2
3. HANDRAILING SHALL BE PROVIDED WHERE THERE ARE MORE THAN 5 RISERS IN ONE FLIGHT AND LOCATED IN CENTRE OF PATHWAY
4. HANDRAILING SHALL BE DIPPED GALVANISED AFTER FABRICATION IN ACCORDANCE WITH A.S.1650 -1981
5. COMPRESSIVE STRENGTH OF CONCRETE (F'c) AT 28 DAYS SHALL BE 25 MPa
6. ALL DIMENSIONS ARE IN MILLIMETRES



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TITLE :

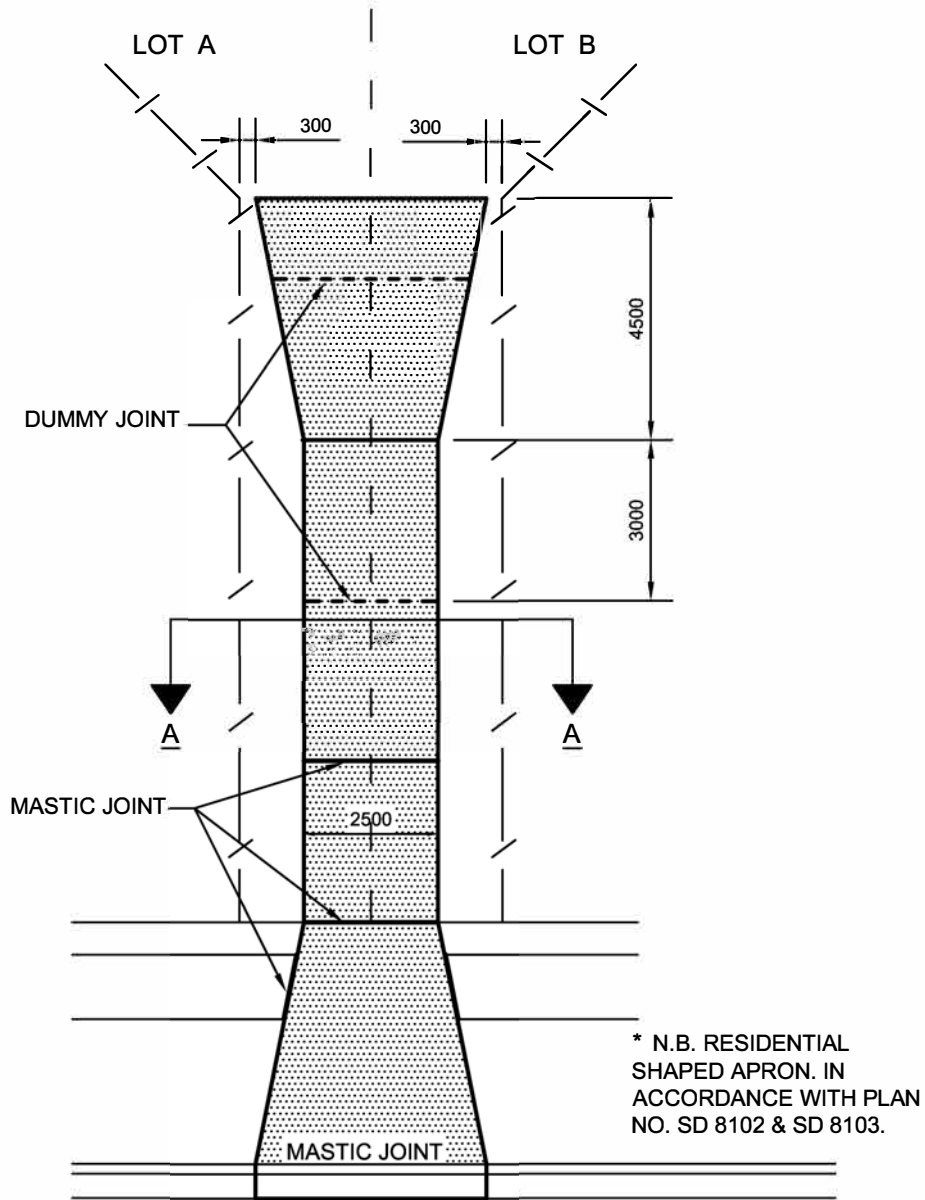
**PATHWAY STEPS**

Scale: NTS

Drawing N° SD 8112

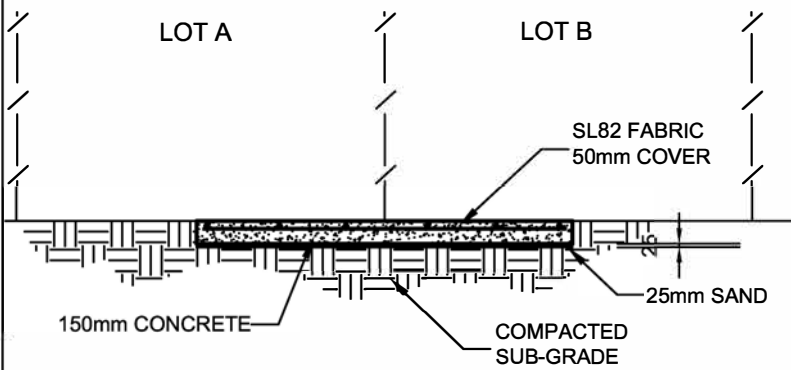
Sheet: 1 of 1

Date: Jan 2017



\* N.B. RESIDENTIAL SHAPED APRON. IN ACCORDANCE WITH PLAN NO. SD 8102 & SD 8103.

PLAN A



SECTION A - A

**NOTE:**

1. WHERE THE VEHICULAR FOOTWAY CROSSING PLAN NO 8102 & 8103 IS CONSTRUCTED CONCURRENTLY WITH THIS ACCESSWAY, THE FOOTWAY CROSSING SHALL BE REINFORCED WITH SL82 HAVING 35mm COVER.
2. APRON SHALL BE IN ACCORDANCE WITH SECTION A-A .
3. ALL DIMENSIONS ARE IN MILLIMETER .

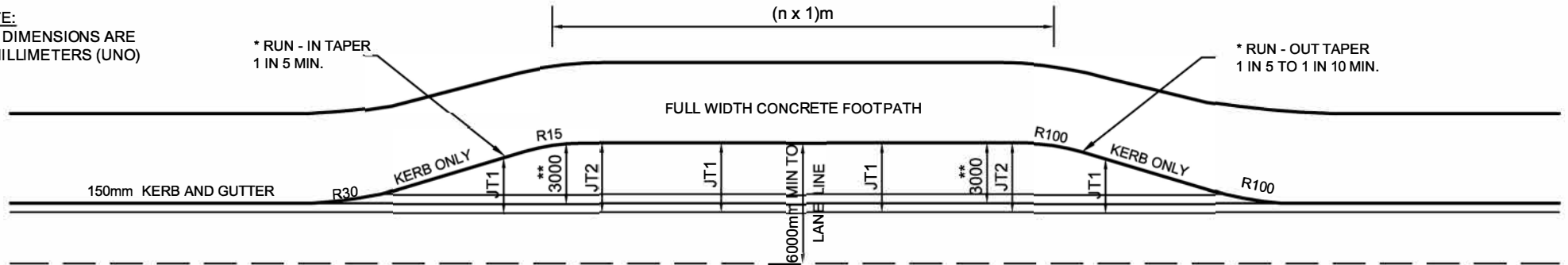


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PROJECT :		TITLE :	
STANDARD DRAWING		ACCESSWAY DETAILS	
Date : Jan 2017		Scale: NTS	Drawing No
		Sheet 1 of 1	<b>SD 8113</b>

**NOTE:**  
ALL DIMENSIONS ARE  
IN MILLIMETERS (UNO)



**PLAN**

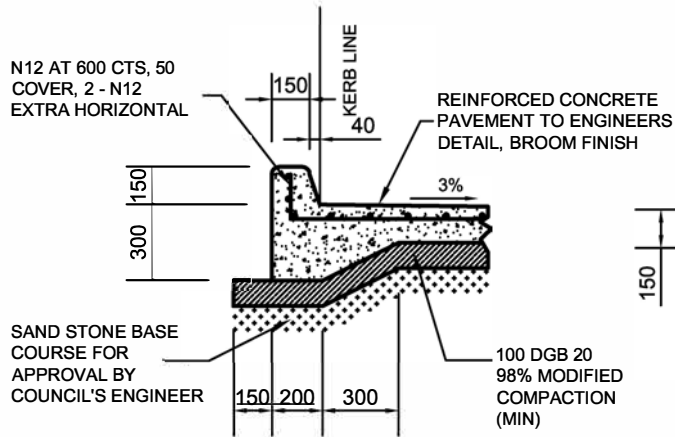
**NOTE**

\* RUN - IN AND RUN - OUT TAPERS MAY NEED TO BE VARIED ACCORDING TO SITE CONDITIONS, TRAFFIC SPEED AND VOLUME ETC.

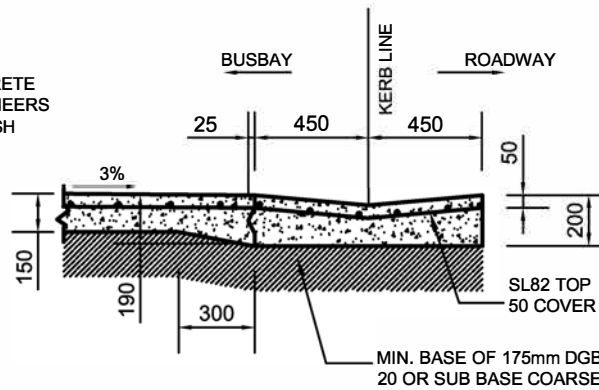
RUN - IN TAPERS SHALL NOT BE LESS THAN 1 IN 5.  
RUN - OUT TAPERS SHALL BE AS LONG AS PRACTICABLE.

\*\* WIDTH (INCLUDING CLEARANCES) MAY NEED TO BE INCREASED WHERE LARGE/WIDE BUSES ARE INVOLVED

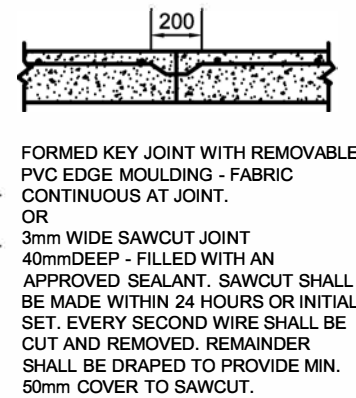
n = NUMBER OF BUSES USING THE STOP SIMULTANEOUSLY.  
L = LENGTH OF BUS (INCLUDING CLEARANCES IF DESIRED).



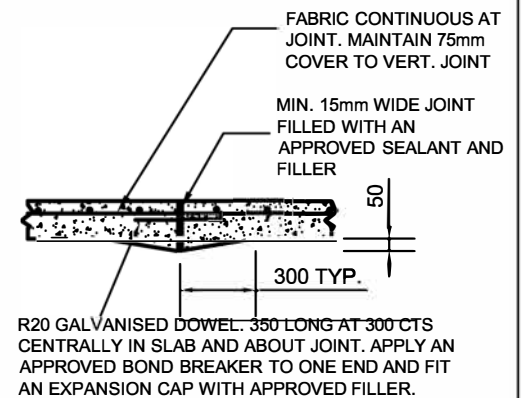
**INTEGRAL STD 150 KERB DETAIL**



**JOINT TYPE 3 (JT3) AND DISH DRAIN**  
ISOLATION JOINT - EDGE THICKENING



**JOINT TYPE 1 (JT1)**  
SAWCUT/FORMED JOINT



**JOINT TYPE 2 (JT2)**  
EXPANSION JOINT



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PROJECT :

**STANDARD DRAWING**

TITLE :

**STANDARD INDENTED BUS BAY**

Approved:

File:

Scale: NTS

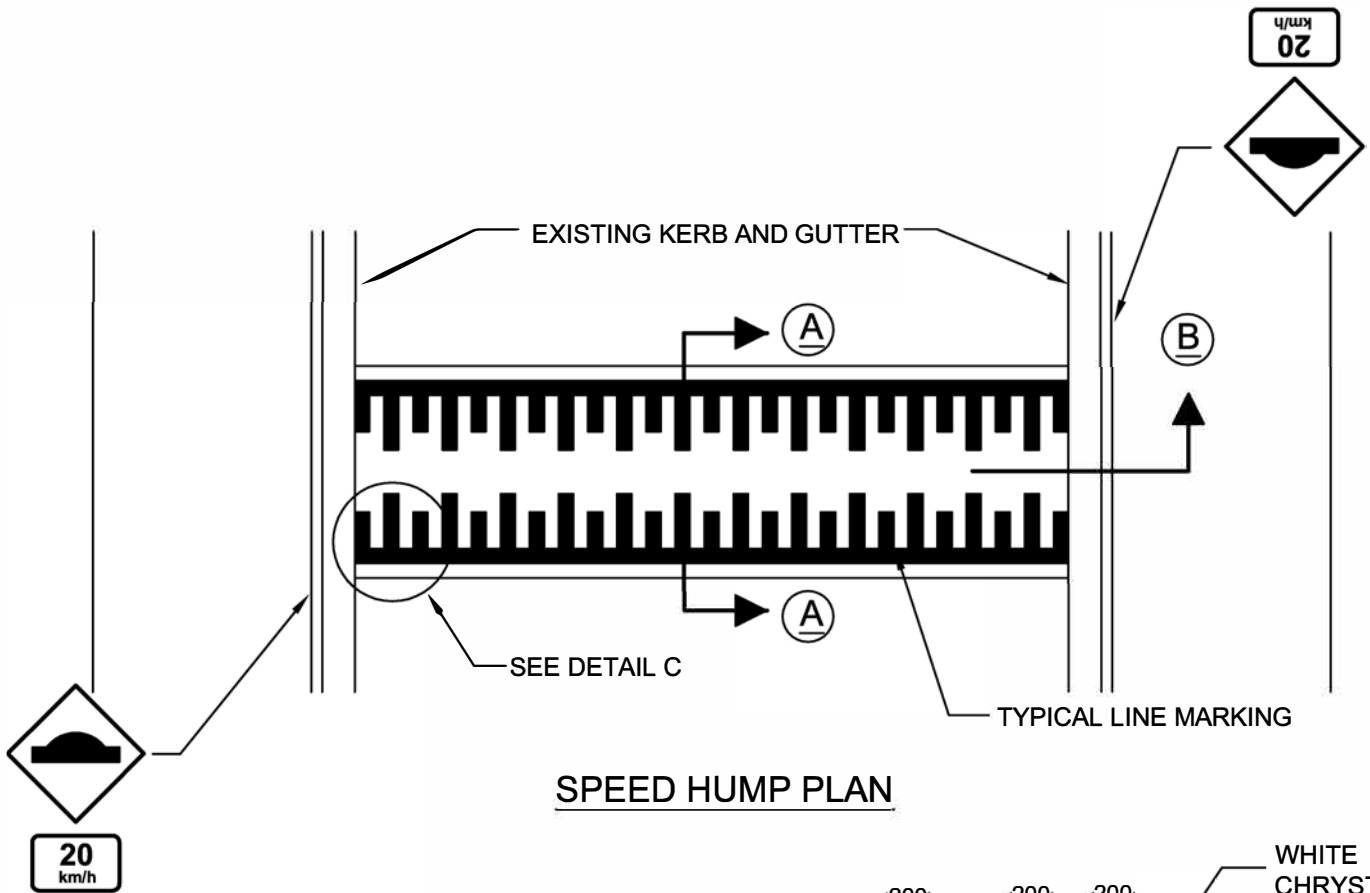
Drawing No

Date: Jan 2017

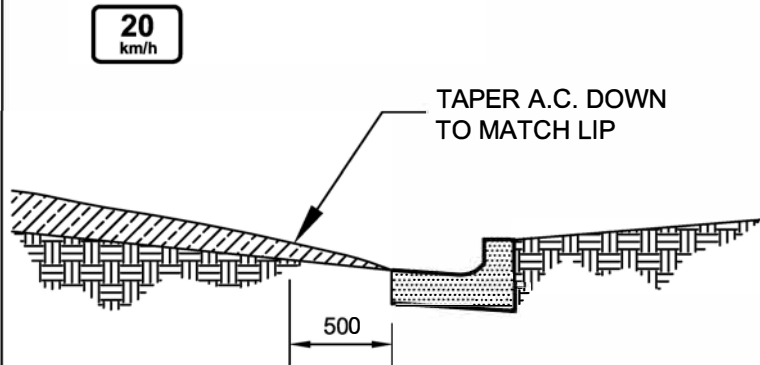
Sheet: 1 / 1

**SD 8114**

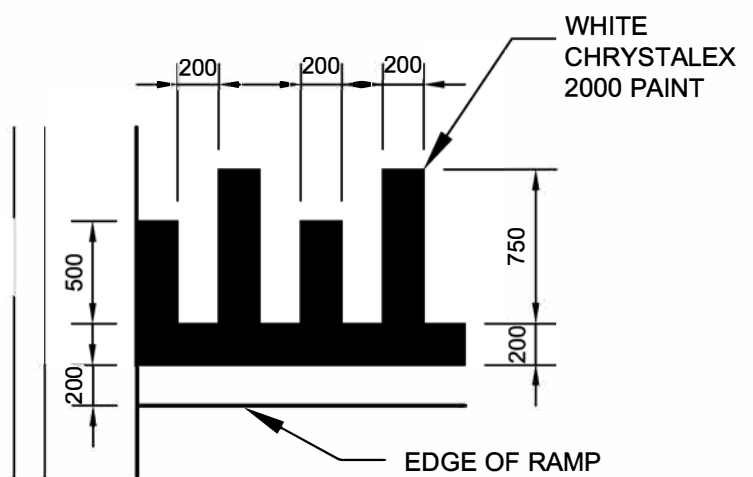




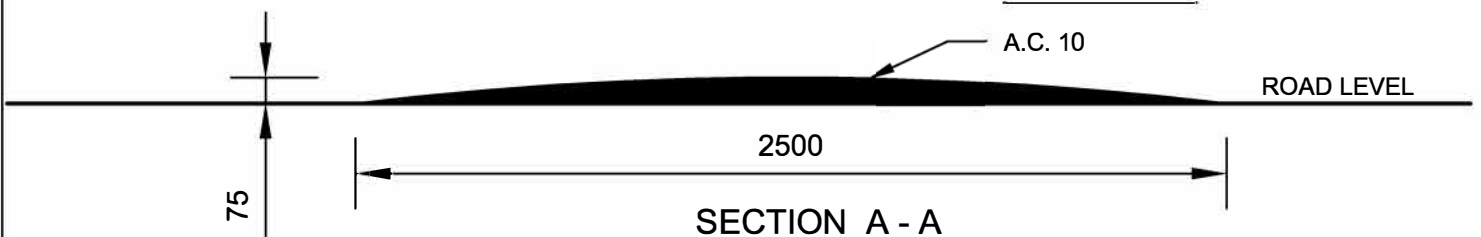
**SPEED HUMP PLAN**



**SECTION B**




**DETAIL C**



**CROSS SECTION OF SPEED HUMPS**

**NOTES:**

1.  W5 - 10 (600 \* 600)
2. THE OUTSIDE EDGES OF THE SPEED HUMPS ARE LOCATED BY DRILLHOLES ON THE TOP OF KERB.



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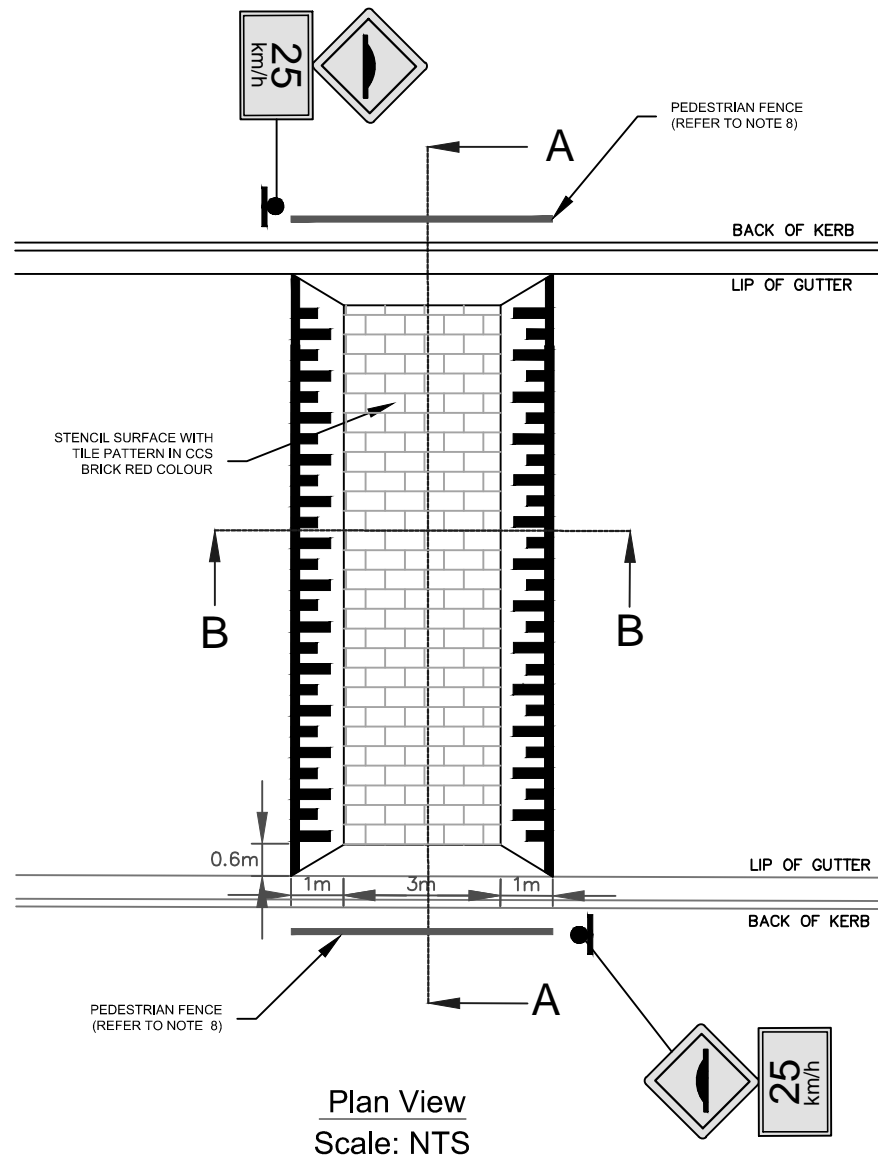
PROJECT : STANDARD DRAWING

Date : Jan 2017

TITLE : SPEED HUMP STANDARD FOR CAR PARKS

Scale: NTS  
 Sheet 1 of 1

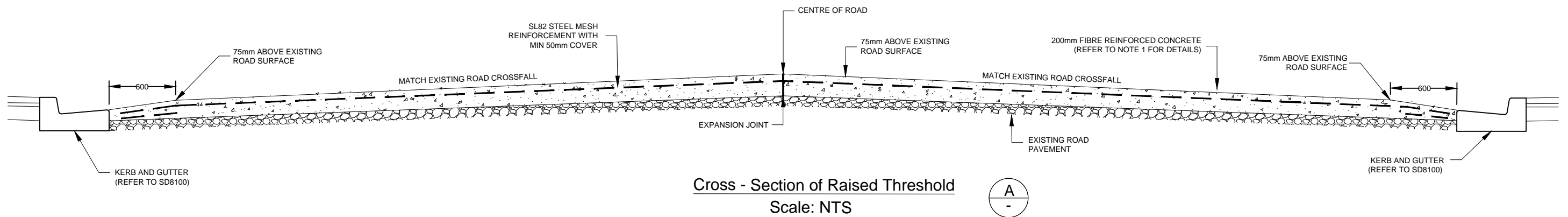
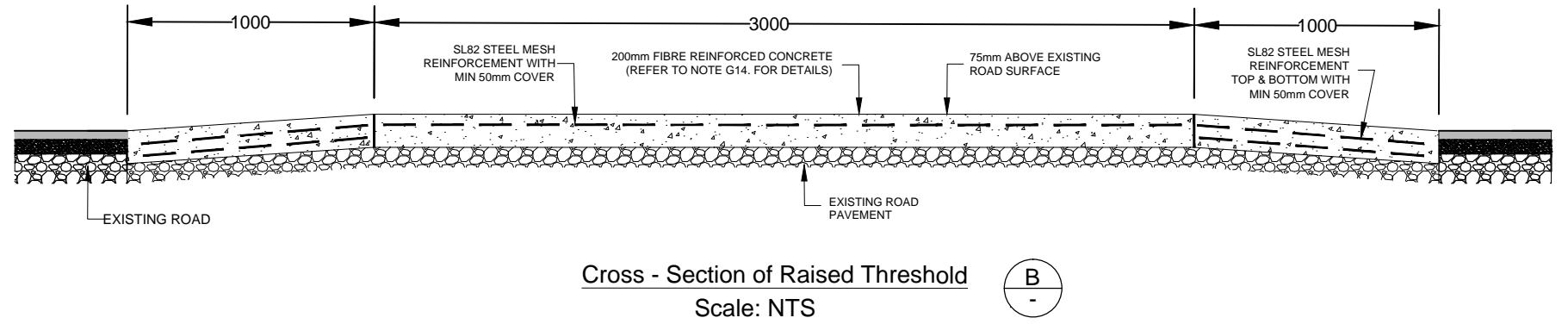
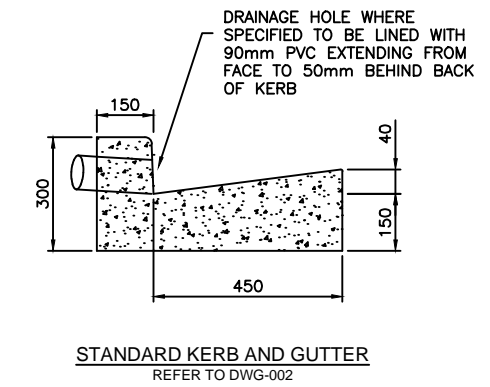
Drawing No  
**SD 8115**



**General Notes:**

- Concrete thresholds shall be constructed with Fibre Reinforced Concrete.  
Specification: Use 38mm Steel Fibres @ the rate of 40kg/cu.m with f'c 40MPa Concrete, Max Agg.20mm, Max. Slump 80mm or approved equivalent.
- This Drawing shall be read in conjunction with all other Technical Documentation and Specifications. Any discrepancies in these Documents shall be referred to Council's Supervising Engineer for a decision before proceeding with the work.
- Provision for traffic during construction shall be in accordance with AS 1742.3 & Work Cover Regulations.
- All works Shall be in accordance with Council's OH&S Policy & Safety Procedures. Appropriate safety signs shall be installed at all times.
- Erosion & Sedimentation control measures shall be installed in accordance with the requirements of "Department of Conservation and Land Management" and Council's Specifications.
- All signage, linemarking & RRPMS shall be in accordance with Australian Standard AS1742.2.
- Ensure all signposts are placed clear of trees, driveways and other street furnitures.
- The length of the pedestrian fence is to be determined by the site engineer on site if there are trees, power poles and utility services near the raised threshold.

NEW TRAFFIC SIGNS SCHEDULE		
SIGN	Sign No.	Quantity
	W5-10	18
	W8-2	18



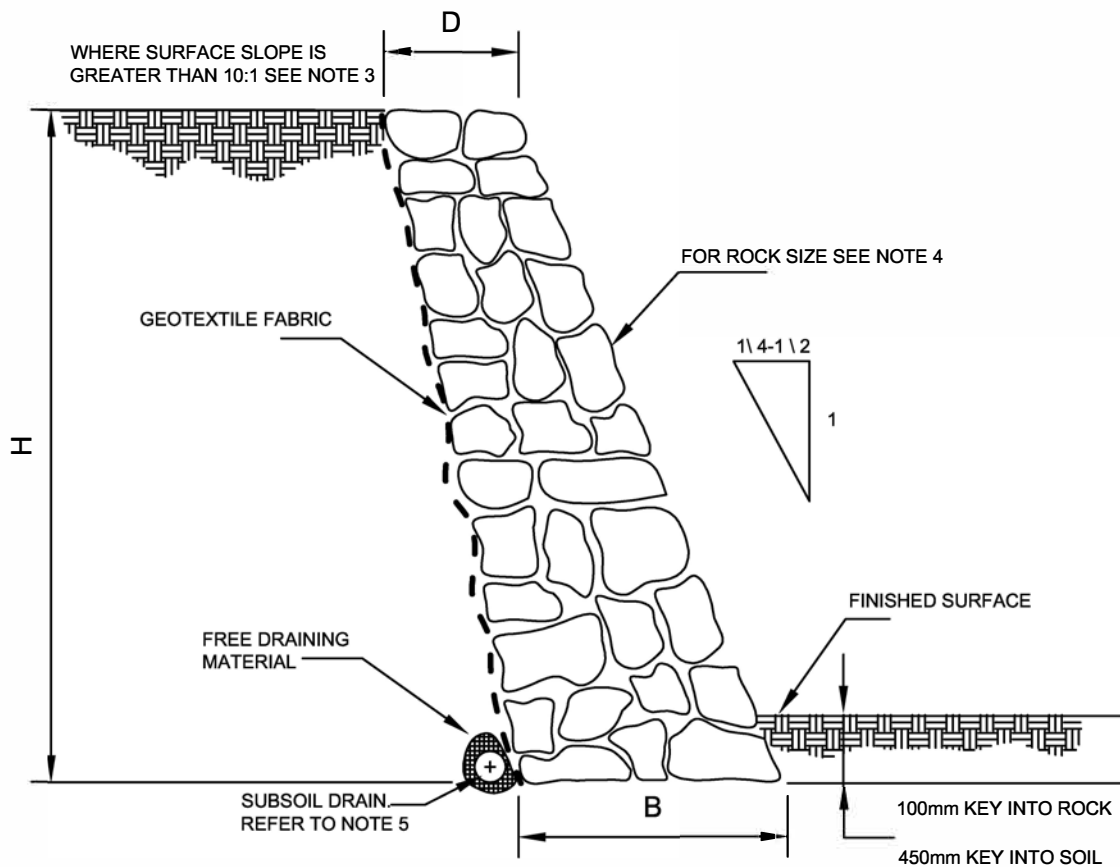
N	DATE	DESCRIPTION



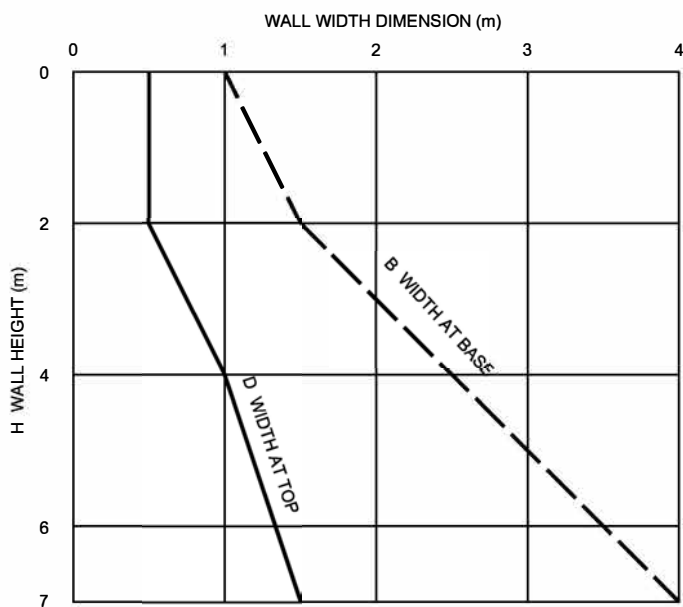
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TITLE : **Raised Concrete Threshold**  
  
Drawn :  
  
Sheet: 1 of 1

DRAWING NO.: **SD 8116**  
  
Scale: NTS  
Date: Jan 2017



**TYPICAL ROCK WALL GEOMETRY**



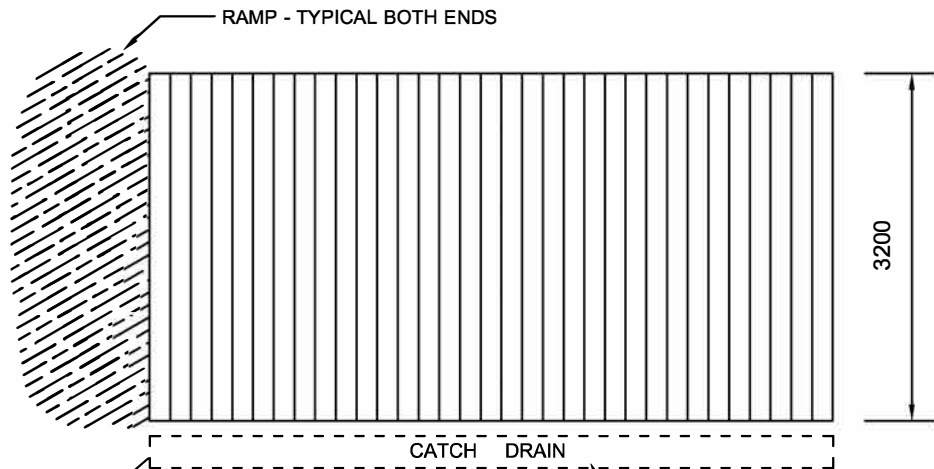
**ROCK WALL DESIGN CHART**

- NOTES:**
1. BACKFILL SHALL BE GRANULAR, FREE DRAINING AND COMPACTED.
  2. FOUNDATION SHALL BE APPROVED FOR A SAFE BEARING CAPACITY OF 200 KPa PRIOR TO CONSTRUCTION.
  3. WHERE THE SURFACE SLOPE OF RETAINED MATERIAL IS BETWEEN 10:1 AND 4:1, THE WALL BASE DIMENSION SHALL BE INCREASED BY 0.50 METRES.
  4. ROCK SHALL BE SOUND DURABLE SANDSTONE OR OTHER APPROVED MATERIAL AND AT LEAST 0.5 SQUARE METRES PLAIN AREA.
  5. A CONTINUOUS 100mm DIA SUBSOIL DRAIN SHALL BE INSTALLED AT THE REAR OF THE WALL WHERE THE WALL HEIGHT EXCEEDS 3.0m OR WHERE THE WALL FOUNDATION CONSISTS OF OTHER THAN ROCK.
  6. ROCKS SHALL BE PLACED IN SUCH A MANNER THAT THEY ARE STABLE AND INTERLOCKING AND LAID ROUGHLY COURSED AND BEDDED ON THEIR BROADEST BASE.
  7. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.



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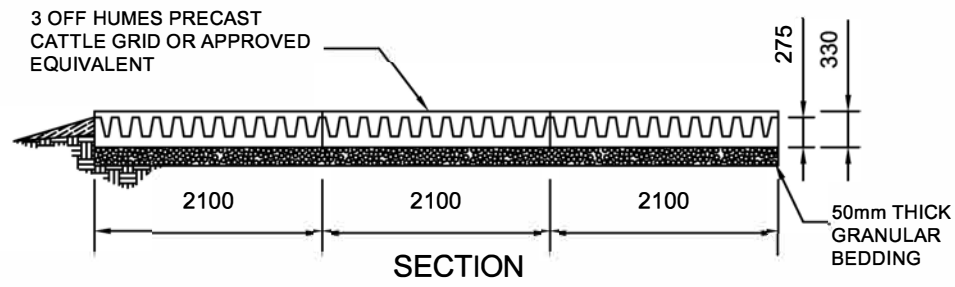
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Sheet: 1 of 1		Date: Jan 2017



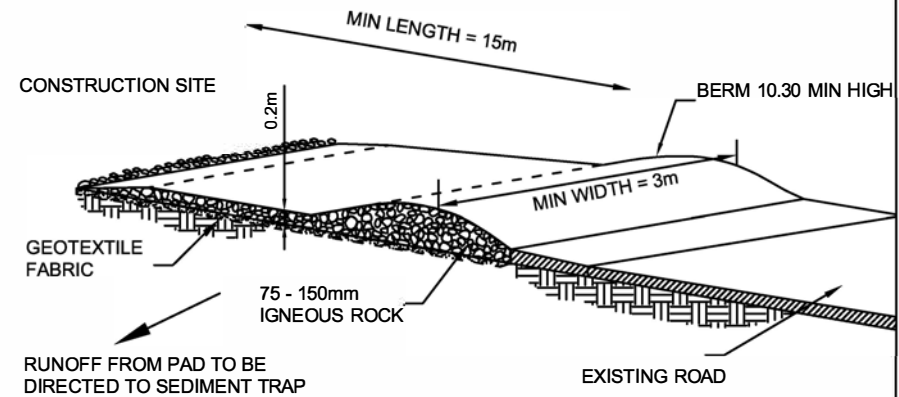
**PLAN**

RUNOFF FROM GRIDS TO BE DIRECTED TO SEDIMENT TRAP

CATCH DRAIN SHALL BE PROVIDED ON BOTH SIDES OF "SHAKE DOWN" WHERE DIRECTED BY COUNCIL ENGINEERS



**CATTLE GRID ALTERNATIVE**  
NOT TO SCALE



**RUBBLE ALTERNATIVE**  
NOT TO SCALE

**NOTES**

1. EXCAVATE AREA APPROX. 3.3m WIDE BY 2.2m LENGTH. THE FLOOR OF THE EXCAVATION MUST BE FLAT, WITHOUT HIGH POINTS. AN EXCAVATED DEPTH OF 100mm ACCOMMODATES A BEDDING LAYER 50mm THICK AND GRID SET DOWN OF 50mm PER UNIT.
2. BEDDING MATERIAL SHALL BE SAND OR OTHER SUITABLE APPROVED MATERIAL. BEDDING MATERIAL SHALL BE EVENLY RAKED OVER FLOOR OF EXCAVATION TO A DEPTH SLIGHTLY MORE THAN 50mm. ENSURE BEDDING IS LEVEL IN BOTH DIRECTIONS.
3. LOWER CATTLE GRID ONTO THE PREPARED BASE. ENSURE THAT NO PART OF THE UNIT IS SITTING ON ANY HIGH POINT.
4. BACKFILL AND COMPACT AROUND GRID. GRADE EXCAVATED MATERIAL UP TO GRID ON EACH SIDE TO FORM A RAMP. IF DEPRESSIONS OCCUR ON THESE RAMPS WITH USE, ADD ADDITIONAL MATERIAL.
5. MAINTAIN SHAKER GRIDS IN CLEAN AND SERVICEABLE CONDITION DURING TOTAL TIME OF USAGE.
6. MINIMUM LENGTH OF SHAKER PAD = 5 UNITS.

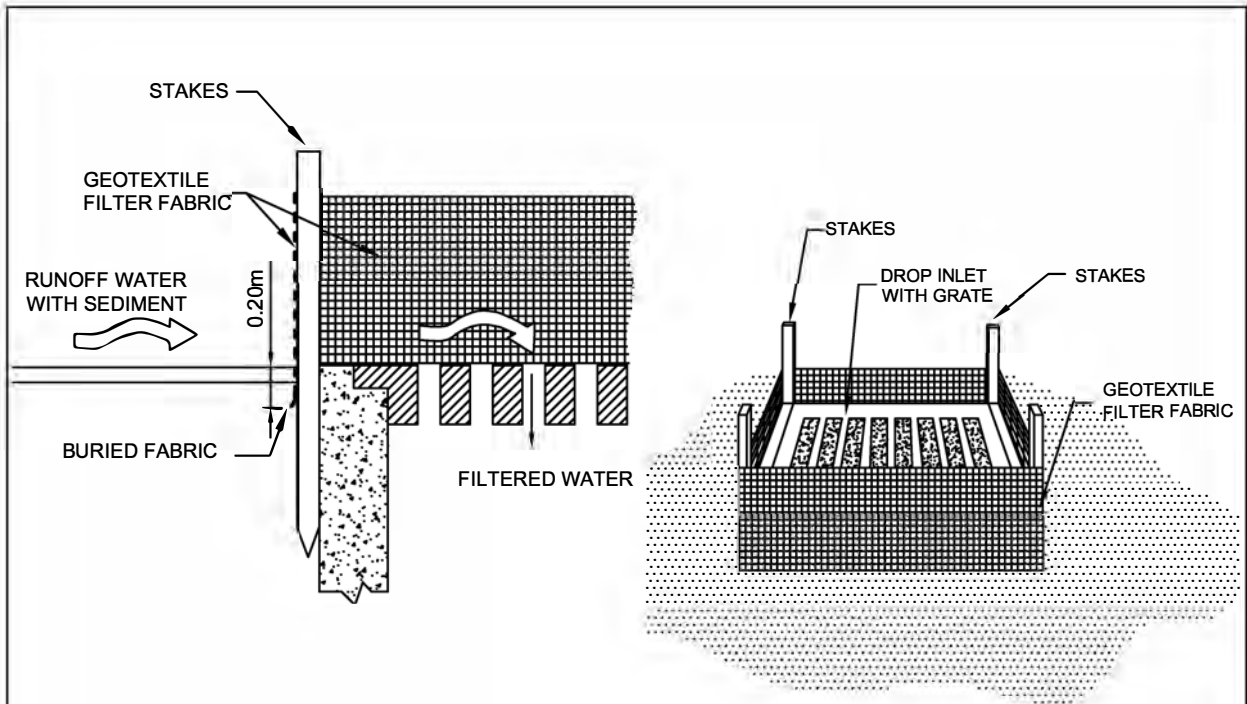


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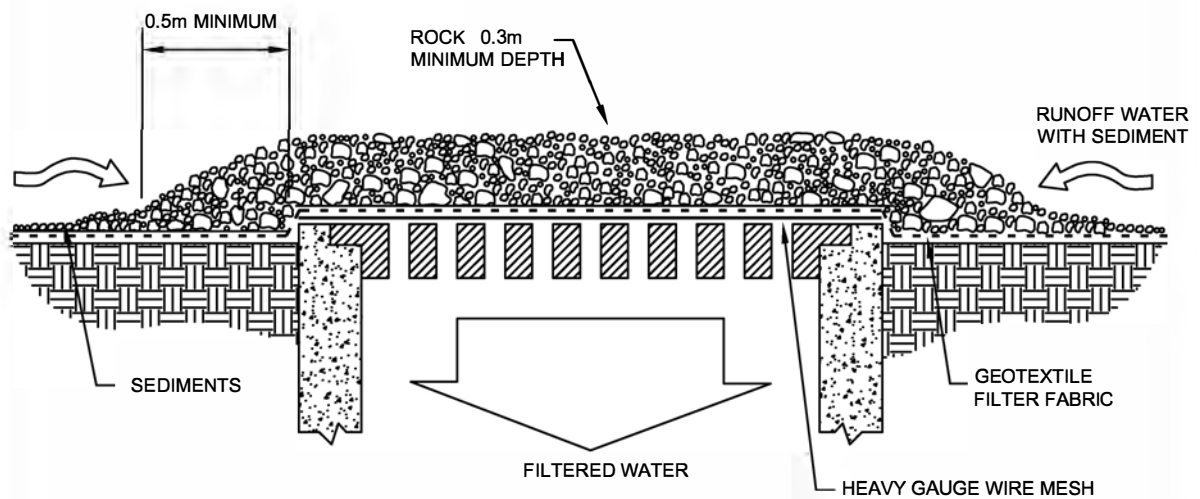
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**TITLE : SEDIMENT CONTROL STRUCTURES**  
CONSTRUCTION TRAFFIC "SHAKE DOWN"

Scale: NTS		Drawing N° SD 8302
Sheet: 1 of 1		Date: Jan 2017



GEOTEXTILE FILTER FABRIC DROP INLET SEDIMENT TRAP



WIRE MESH AND ROCK DROP INLET SEDIMENT TRAP



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ABN 22 798 563 329

TITLE :

**SEDIMENT CONTROL STRUCTURES**

FILTRATION CONTROLS TO SURFACE INLET PITS

Scale : NTS

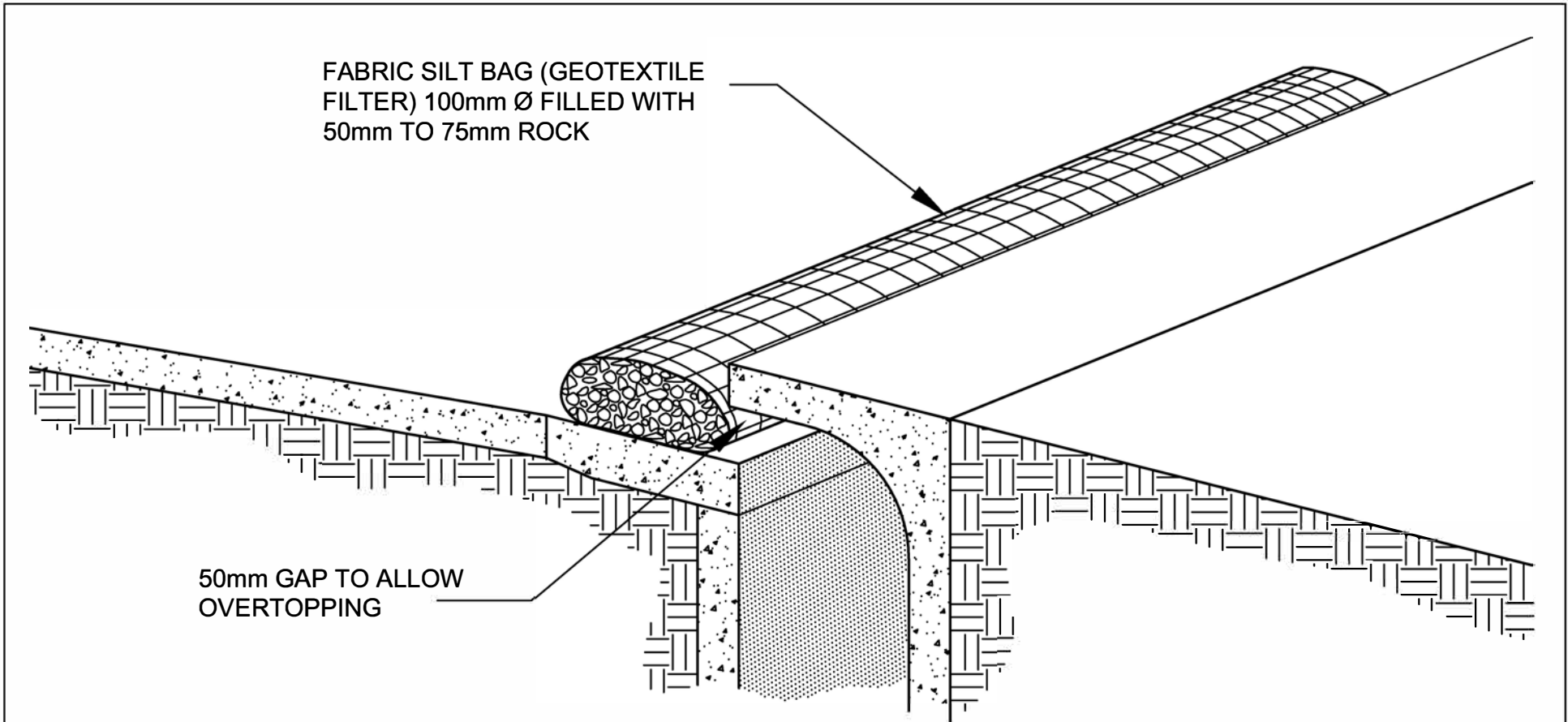
Drawing N° SD 8303

Sheet: 1 of 1

Date :

Jan 2017





**PORTABLE ROCK KERB INLET SEDIMENT TRAP**

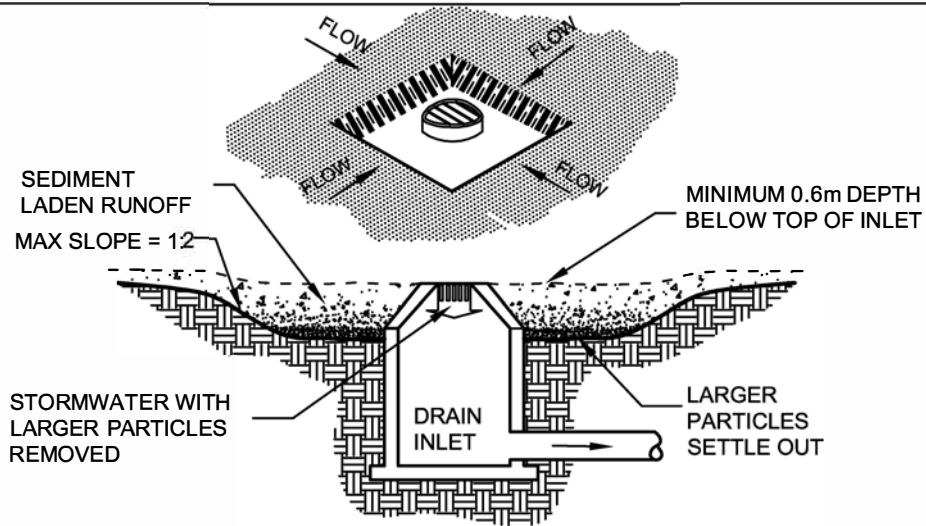


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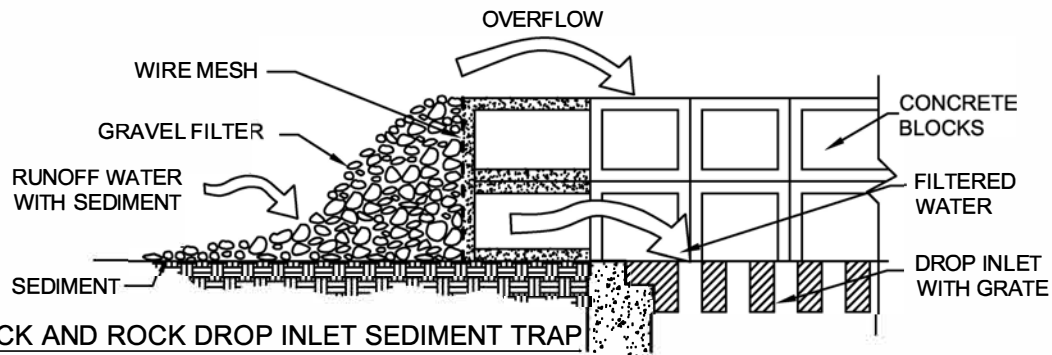
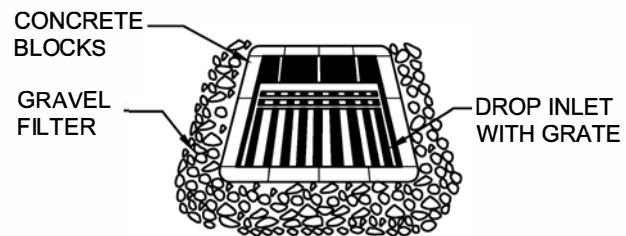
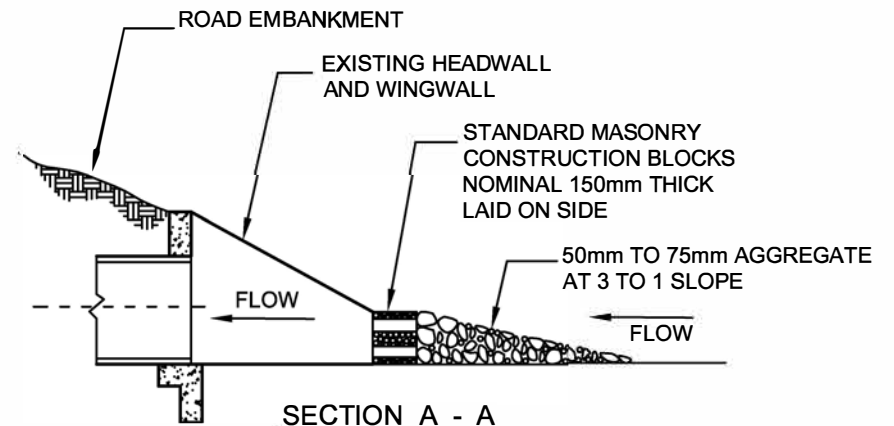
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**TITLE : SEDIMENT CONTROL STRUCTURES**  
 SILTATION PROTECTION TO GULLY PITS

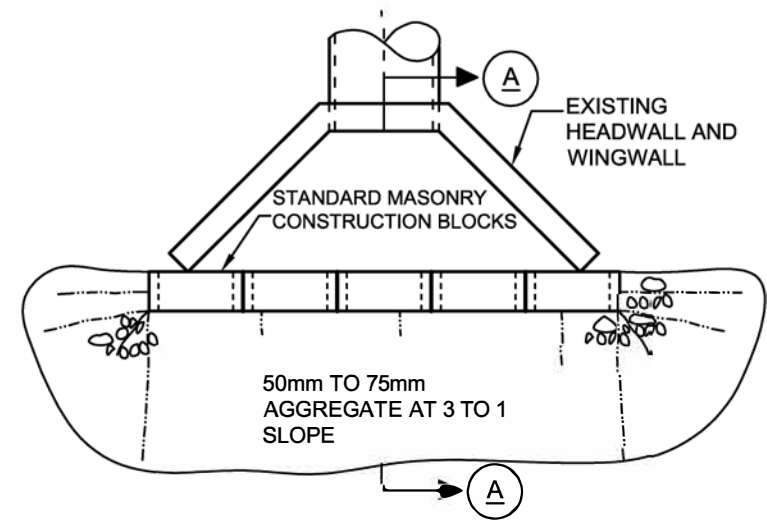
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Sheet: 1 of 1	Date: Jan 2017



**EXCAVATED SEDIMENT TRAP**



**BLOCK AND ROCK DROP INLET SEDIMENT TRAP**



**CULVERT SEDIMENT TRAP**



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**TITLE : SEDIMENT CONTROL STRUCTURES**

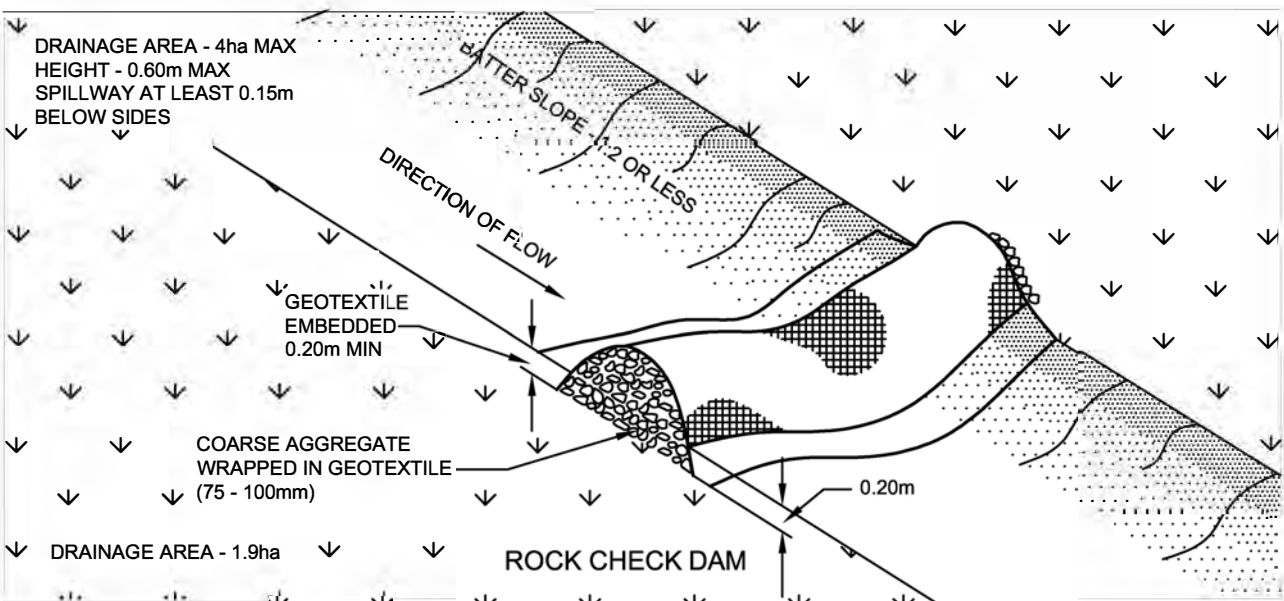
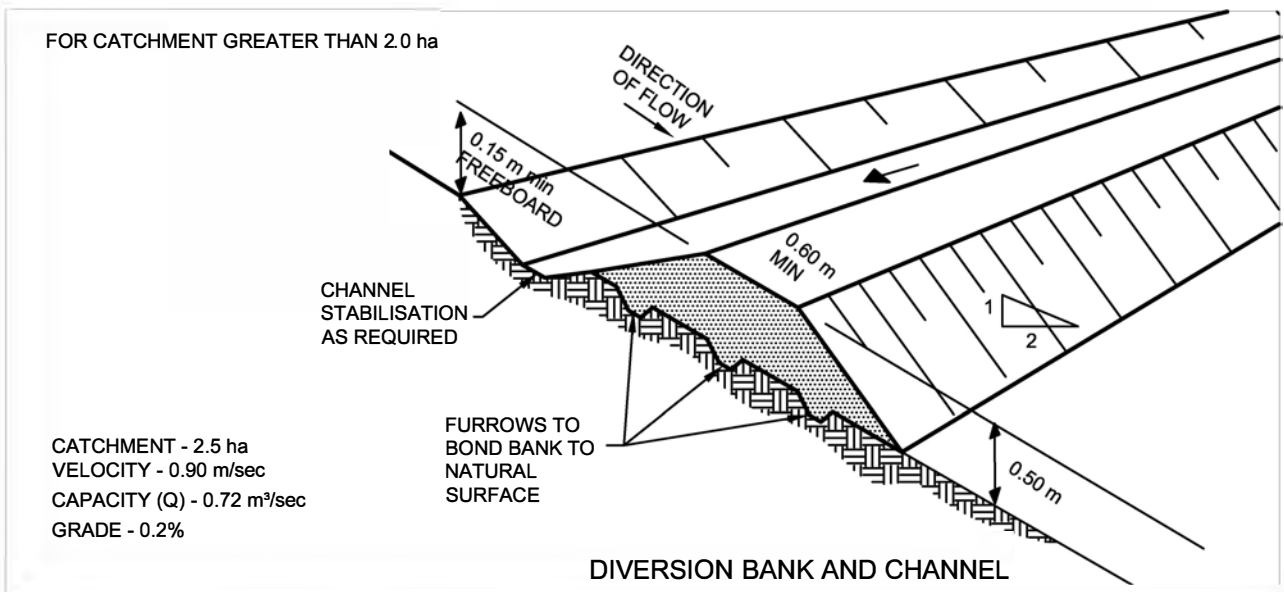
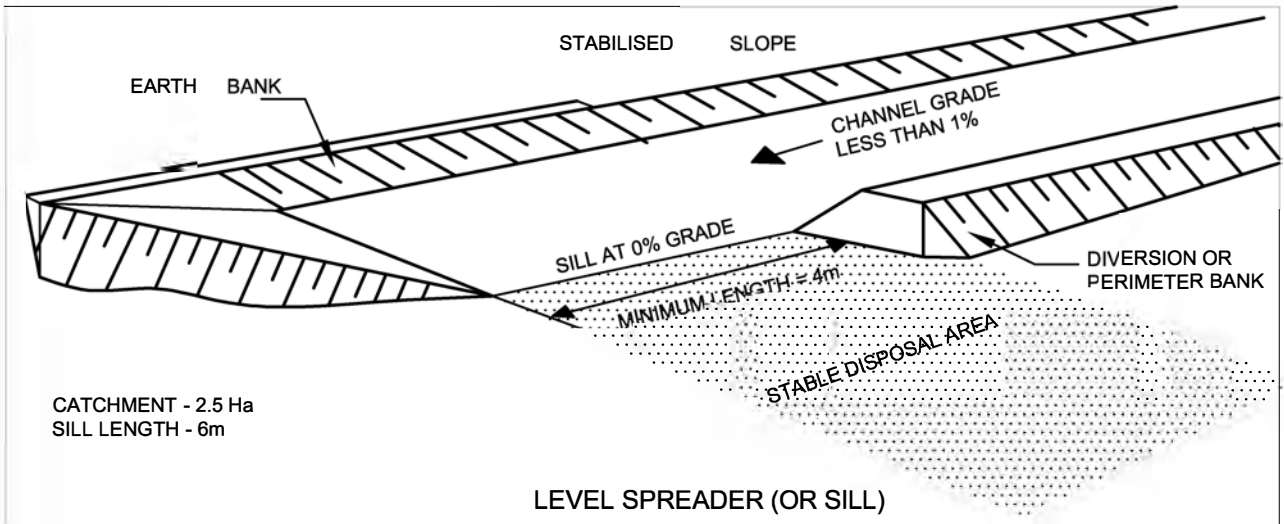
BLOCK AND ROCK DROP INLET SEDIMENT TRAP AND CULVERT SEDIMENT TRAP

Scale: NTS

Drawing N° SD 8305

Sheet: 1 of 1

Date: Jan 2017



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**TITLE : SEDIMENT CONTROL  
STRUCTURES**

LEVEL SPREADER, DIVERSION BANK & CHANNEL AND ROCK CHECK DAM

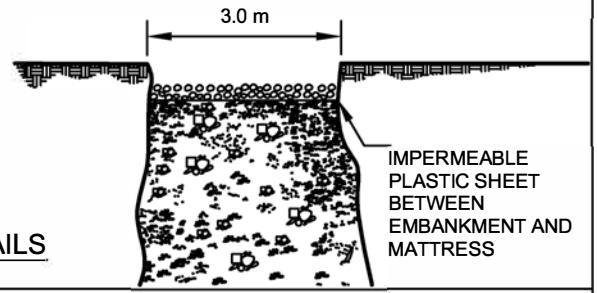
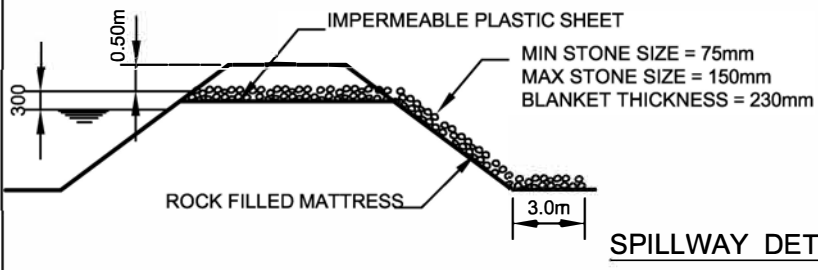
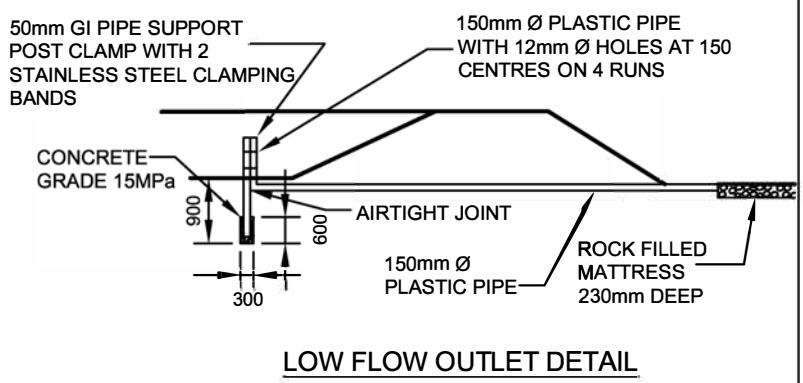
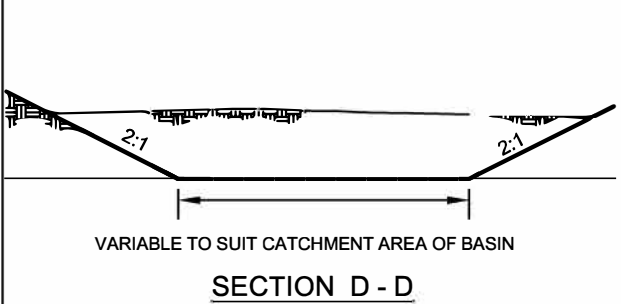
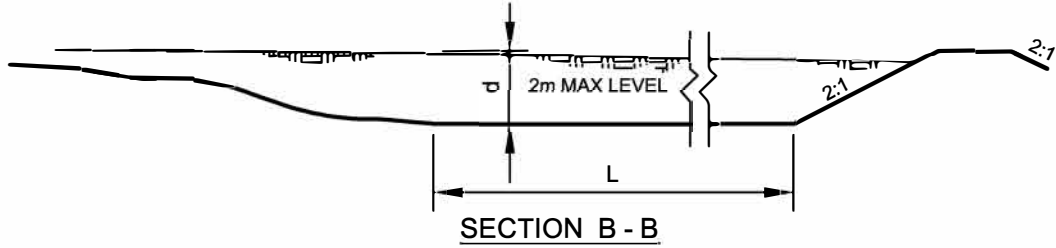
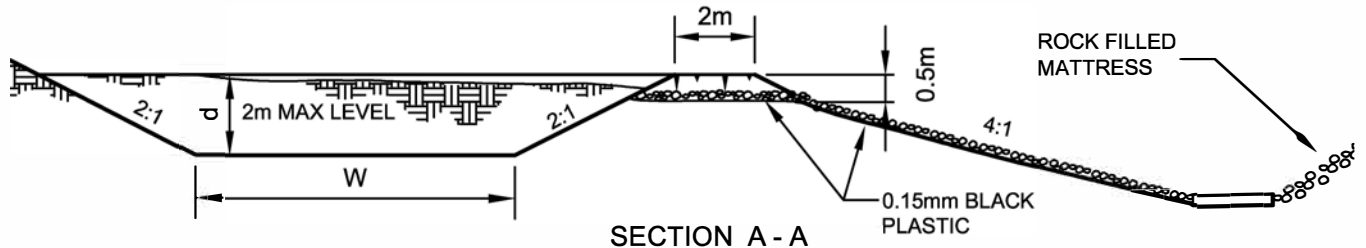
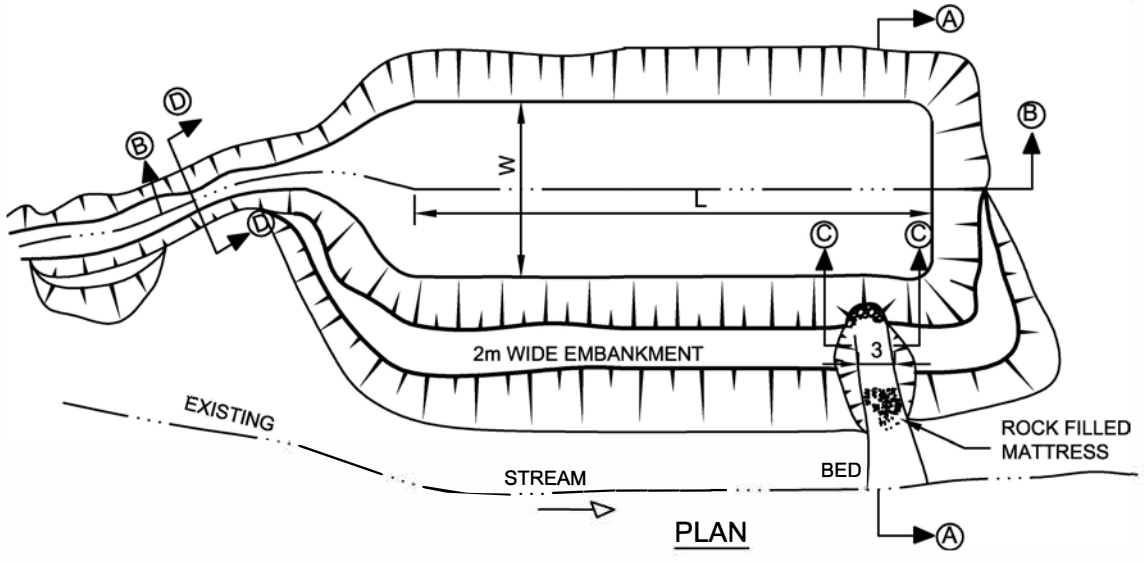
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Sheet: 1 of 1

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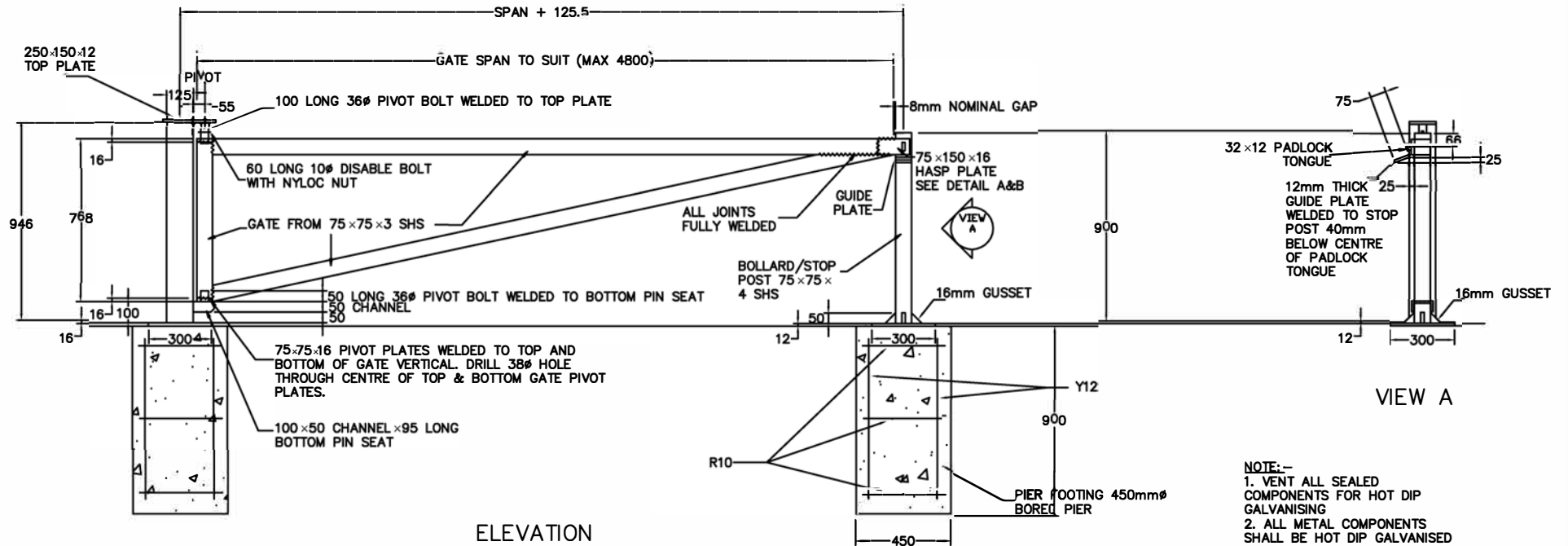
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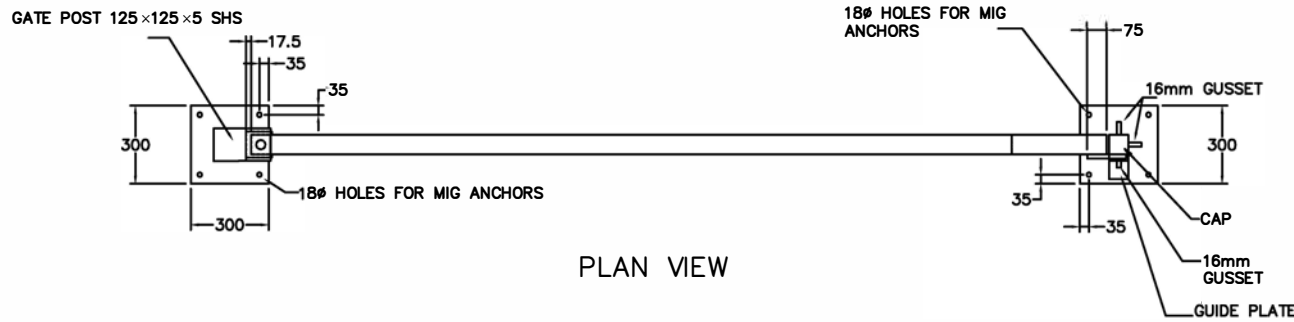
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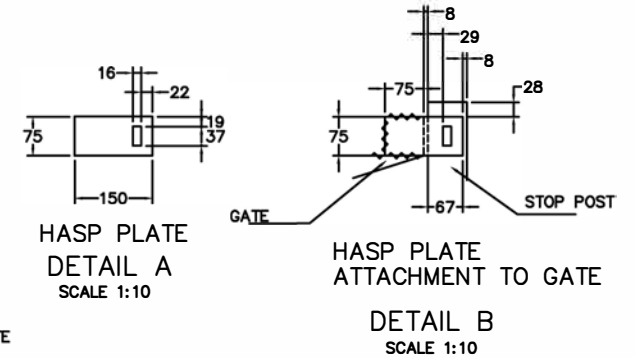
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Sheet: 1 of 1		Date: Jan 2017



ELEVATION



PLAN VIEW



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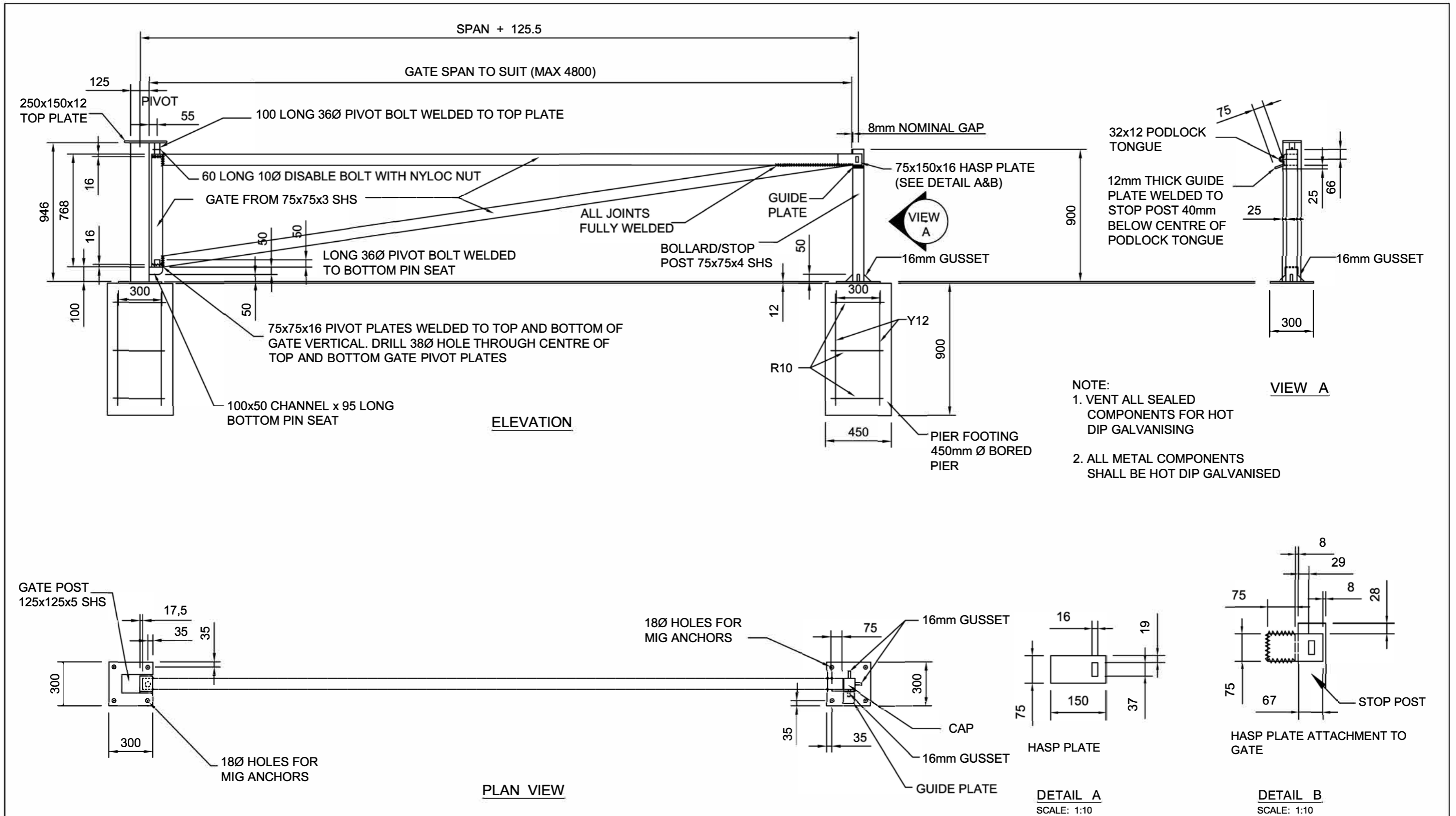
PROJECT :  
STANDARD

TITLE :  
STANDARD SWING GATE

Drawn: \_\_\_\_\_ Checked: \_\_\_\_\_ File Name: SD 8400swing gate  
Designed: \_\_\_\_\_ Approved: \_\_\_\_\_ Date: Apr 17

Scale 1:20 @A3  
Sheet 1 of 1

Drawing N°  
**SD8400**



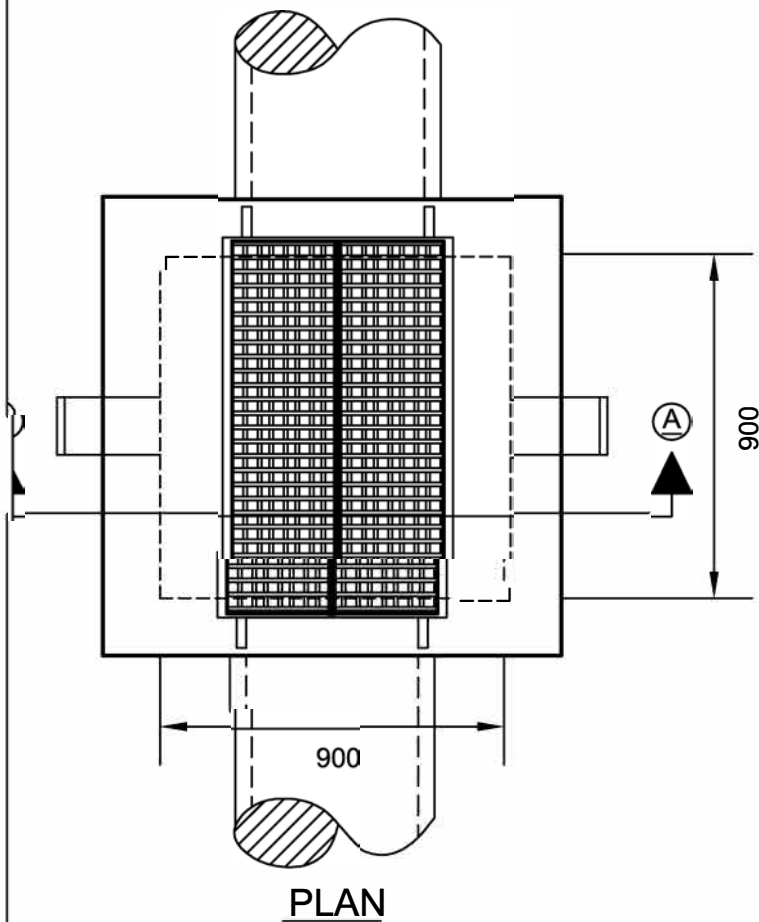
16 Memorial Avenue (PO Box 42)  
MERRYLANDS NSW 2160  
T 02 9840 9840 | F 02 9840 9734  
DX 25408 MERRYLANDS  
TTY 02 9840 9988  
ABN 22 798 563 329

PROJECT :		TITLE :	
STANDARD DRAWING		STANDARD SWING GATE	
Surveyed :	Checked:	File: Std Drawin_g 8400 - B	Scale: As Shown @ A3
-	Approved:	Date: Apr 2017	Sheet: 1 / 1
			Drawing N° <b>SD 8400-B</b>

**NOTES**

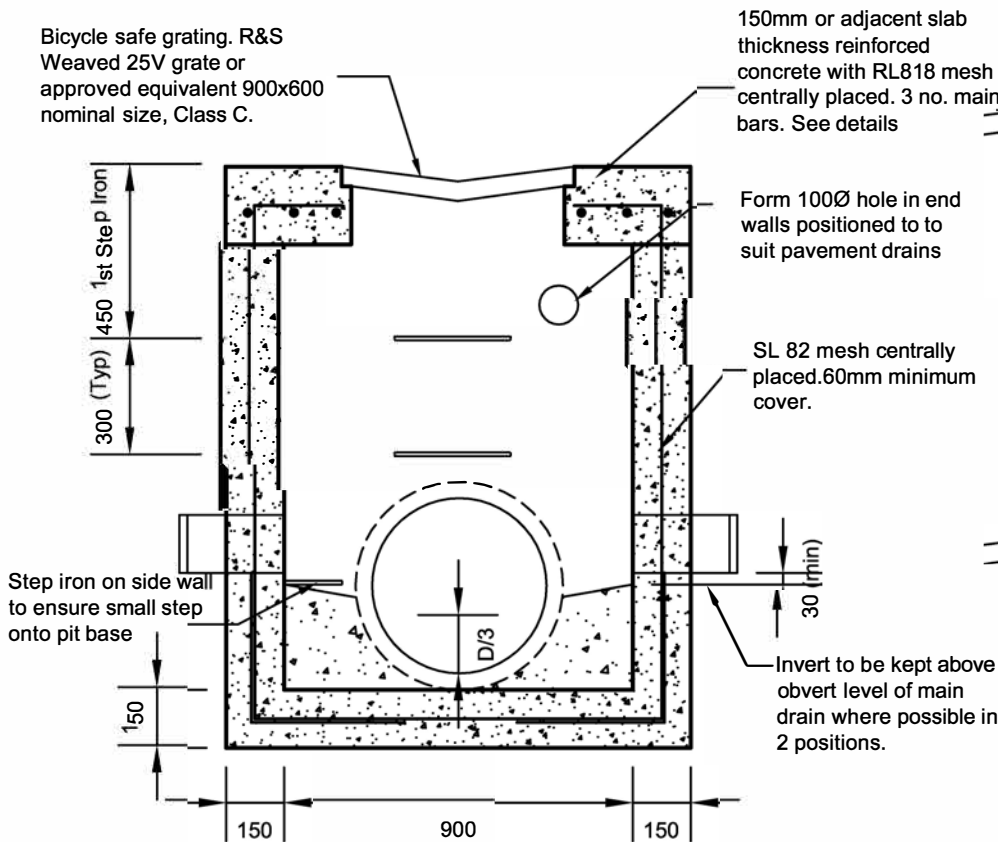
1. Use SL92 reinforcement with 300mm minimum lap length and clear cover of 65mm. Corner return reinforcement may be fabric or equivalent bars.
2. Concrete strength to be 32MPa at 28 days.
3. Pits deeper than 1000mm shall be fitted with large 370mm) plastic coated galvanized mild steel step irons with threaded grip and large reflective patches.
4. Minimum fall across pit base to be 30mm.
5. Use "V" grated pit Type 1 for all pits less than 1.2m deep or where the pipe diameter is 525mm dia or less.
6. Grout: 2 parts sand, 1 part cement and sufficient water to produce mix of suitable consistency.
7. All levels to be within +/- 10mm of design.
8. Frames must have adequate anchorage to ensure that they do not come loose.
9. Concrete infill for cover and frame shall be N32 at 28 days with 10 max size aggregate. Tamp and pencil vibrate.
10. Pits may be precast if approved by Cumberland Council.
11. Precast units may be constructed to the manufacturer's details. The design shall comply with the AS 5100 Bridge Design and the following additional requirements:

- Combined factored lateral pressure at any point at the ultimate limit state shall be not less than 25KPa.
- Adequate drainage shall be provided to pit walls to avoid hydrostatic pressure.
- Vertical load 210KN anywhere on pit.
- Minimum reinforcement area shall be 150mm<sup>2</sup>/mm.
- Concrete shall be normal class N32 standard strength grade or higher complying with requirements of AS 1379 Exposure classifications up to and including B1.

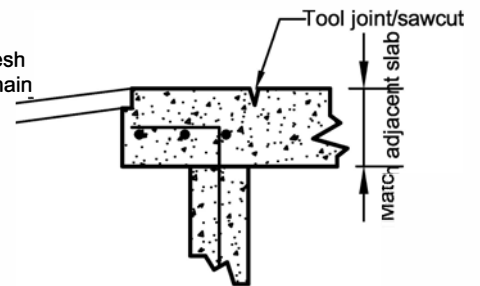


**PLAN**

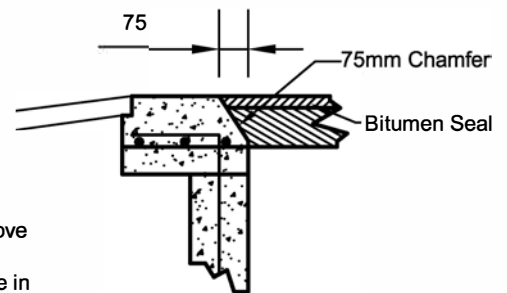
Bicycle safe grating. R&S  
Weaved 25V grate or  
approved equivalent 900x600  
nominal size, Class C.



**SECTION A - A**



**Detail for Concrete Road**



**Detail for Bitumen Road**



**CUMBERLAND  
CITY COUNCIL**

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TTY 02 9840 9988

ABN 22 798 563 329

TITLE :

**"V" GRATED PIT - TYPE 2**

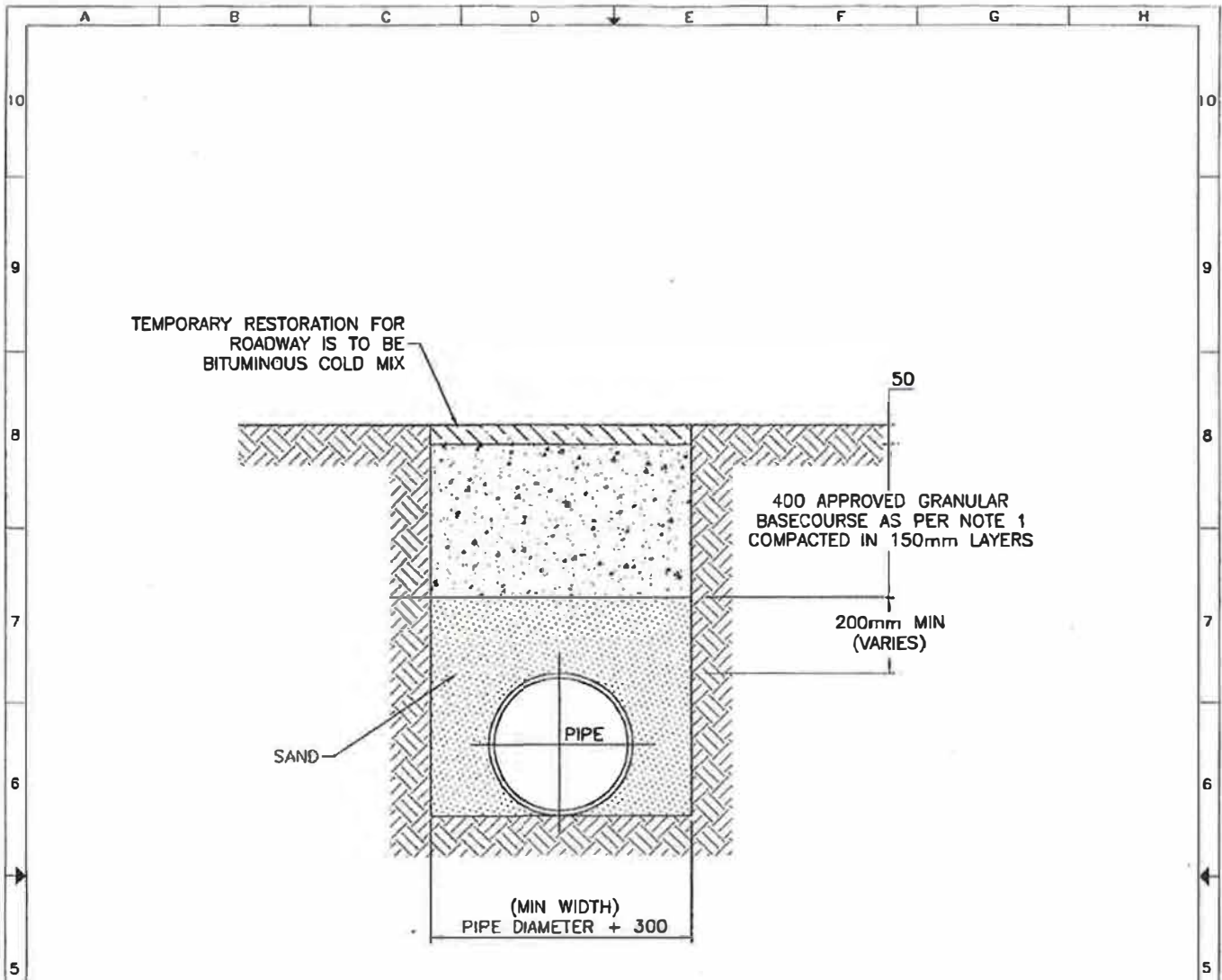
Scale: NTS

Drawing N°: SD 8500

Sheet: 1 of 1

Date: Apr 2017





**NOTES**

- 1) APPROVED GRANULAR BASE COURSE SHALL BE;
  - LIME STABILISED DGB 20
  - DGB 20
  - 20MM CRUSHED CONCRETE
  - COLD MIX SHALL BE 10MM AGGREGATE.
- 2) APPROVED BASE COURSE SHALL BE COMPACTED TO 95% STANDARD COMPACTION AS TESTED INACCORDANCE WITH AS1289.
- 3) SEE DWG-005 AND DWG-006 FOR PIT DETAILS

un Council Standard Drawings DWG-003 Road Restoration.dwg | 31/10/2008 9:28:13 AM



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**STANDARD DRAWING  
 TEMPORARY  
 TRENCH RESTORATION  
 DWG-003**

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