CITY OF SURREY

Engineering Department

Supplementary Master
Municipal Construction Documents

SUPPLEMENTARY GENERAL CONDITIONS

2024

The City of Surrey Supplementary Master Municipal Construction Documents are supplemental to the **Master Municipal Construction Document – 2019 Edition** and take precedence over the General Conditions, Specifications, Standard Detail Drawings and their Amendments.

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1.0 DEFINITIONS

1.1 Abnormal Weather — Delete 1.1.1 and replace with

"Abnormal Weather" means temperature, precipitation, wind or other weather condition, as determined by the Contract Administrator, that prevents the *Contractor* from proceeding with at least 60% of the normal labour and equipment force, for at least 5 hours on a component of the work, which if delayed is on the critical path of the schedule and as such will delay the completion of the Work.

2024

1.40 Hazardous Materials — Delete 1.40.1 and replace with

"*Hazardous Materials*" means any material or substance which is a "hazardous product", "contaminant", "toxic substance", "deleterious substance", "special waste", "dangerous good" or "reportable substance" as determined by the relevant definitions and criteria from applicable statutes, regulations and laws as applied to the *Place of the Work*. Without limitation, materials and substances are not *Hazardous Materials* as determined by the definitions and criteria in the Contaminated Sites Regulation B.C. Reg. 375/96, as amended, unless the concentration levels at the *Place of the Work* exceed the levels stipulated in the Contaminated Sites Regulation for the *Place of the Work*.

1.76 Variance Threshold Percentage — Delete 1.76.1 and replace with

"*Variance Threshold Percentage*" means a variance of 15% between the quantity of a unit price item actually constructed or provided by the time of *Total Performance* and the quantity shown on the tendered *Schedule of Quantities and Prices* for that item. *Variance Threshold Percentage* is not applicable to any items that are paid through units such as 'lump sum', or 'each'.

1.79 Archaeological Artifacts — Add 1.79.1

"Archaeological Artifacts" means any fossils, artifacts, coins, articles of value or antiquity, remains, and other things of geological, archaeological or historical interest or value discovered at the Place of the Work.

1.80 Commencement Date — Add 1.80.1

"Commencement Date" has the meaning set out in paragraph 5.1.2 of the Form of Tender.

1.81 Foreign Material	Add 1.81.1	"Foreign Material" with respect to SGC 11.0 is limited specifically to the following: multiple layers of asphalt or concrete pavement and masses resulting in a cumulative thickness in excess of 300mm; buried railway ties and tracks; and buried corduroy roads, homogenous rocks having an individual volume greater than 1 cubic metre. It does not include *Utilities,* stumps and other subsurface conditions.
1.82 Highway	Add 1.82.1	"Highway" includes a street, road, lane, bridge, thoroughfare, sidewalk, boulevard, viaduct and any other way open to public use.
1.83 Public Art	Add 1.83.1	"Public Art" means publicly accessible original art that the *Owner* separately contracts and is created and/or installed at or near the Work.
1.84 Supplementary General Conditions (SGC)	Add 1.84.1	SGC means those City of Surrey Supplementary General Conditions (SGC's), made up of paragraphs and subparagraphs with the same numbering as the Master Municipal Construction Documents, which are supplementary to and superseding to GC's.
1.85 Supplementary General Conditions, Project (SGCP)	Add 1.85.1	SGCP means project specific supplementary general conditions, made up of paragraphs and subparagraphs with the same numbering as the Master Municipal Construction Document, which are supplementary to and superseding SGC's and GC's.
1.86 Supplementary Specifications (SS)	Add 1.86.1	SS means those City of Surrey Supplementary Specifications (SS), made up of paragraphs and subparagraphs with the same numbering as the Master Municipal Construction Documents, which are supplementary to and superseding the Master Municipal Specifications.
1.87 Supplementary Specifications, Project (SSP)	Add 1.87.1	SSP means project specific supplementary specifications, made up of paragraphs and subparagraphs with the same beginning paragraph numbers as the Master Municipal Construction Document, which are supplementary to and superseding the SS's and Master Municipal Specifications.

1.88 Utilities	Add 1.88.1	"Utilities" is used broadly and includes but is not limited to any and all lines, poles, structures, facilities, infrastructure works, utilities for power, cable TV, telephone, telecommunications and data transmission, all sanitary and drainage infrastructure, all water, oil, gas and electric services, all steam pipes and services, all survey monuments, street lights, traffic lights, traffic detector loops embedded in pavement, rail tracks, and all related infrastructure, whether located above or below ground, whether visible or invisible, whether man-made or natural.
1.89 Municipal Utilities	Add 1.89.1	"Municipal Utilities" includes all utilities under the ownership of the Owner.

2.0 DOCUMENTS

2.1 Execution	Delete 2.1.1 and replace with	The *Owner* shall deliver the *Contract Documents*, in a form ready for signing, to the *Contractor* within 15 *Days* after receipt of all information required to be submitted by the *Contractor* as set out in paragraph 5.1.1 of the Form of Tender.
2.2 Interpretation	Delete 2.2.4(1) and replace with	(1) the *Contract Documents* shall govern and take precedence in the following order with the Agreement taking precedence over all other *Contract Documents*: a) Agreement b) Addenda c) Supplementary General Conditions, Project d) Supplementary General Conditions e) General Conditions f) Supplementary Specifications, Project g) Supplementary Specifications h) Specifications i) Drawings list in Schedule 2 to the Agreement j) Supplementary Detail Drawings k) Standard Detail Drawings l) Executed Form of Tender m) Instructions to Tenderers n) All other *Contract Documents*;

4.0 CONTRACTOR

4.1 Control of Work	Append to 4.1.2	As the *Work* proceeds, or as directed by the *Contract Administrator*, remove and dispose of all rubbish and other deleterious material, remove false-work, forms, temporary structures, all equipment and machinery, and leave the *Work* in a clean, tidy and fully-restored condition. All curbing, sidewalks, drainage ditches and culverts, shrubs, fences and other surface properties that have been removed, damaged or disturbed in the performance of the *Work* shall be restored or replaced to a condition equivalent to that which existed before the *Work* began as determined by the Contract Administrator.
	Add 4.1.3	If the *Contractor* fails to clean up the *Site* when so ordered by the *Contact Administrator*, the *Owner* may proceed to do whatever is necessary to clean up and restore the *Site* and charge any and all costs thereof against the *Contractor* or deduct from payments owing to the *Contractor*.
4.2 Safety	Add 4.2.2	The *Contractor* shall, at its own expense and risk provide full, proper and safe access to, from and past buildings and properties, both for vehicles and pedestrians, and for this purpose construct and maintain, in good order and serviceable condition, suitable and convenient platforms, approaches, structures, bridges, crossings or similar works.
4.3 Protection of Work, Property and the Public	Delete 4.3.1 and replace with	In performing the *Work* the *Contractor* shall protect the Work, the *Owner*'s property and other person's property from damage. The *Contractor* shall, at the *Contractor*'s own expense, make good any such damage and indemnify the *Owner* from any loss or expense which arises as a result of the *Contractor*'s operations.

Delete 4.3.4 and replace with

The *Owner* does not possess complete or accurate information with respect to the occurrence or the location of existing *Utilities* that will or may be encountered by the *Contractor* during the performance of the *Work*. Any plans, surveys, maps or descriptions of *Utilities* given to the *Contractor*, verbal or otherwise, are intended only as an aid to assist the *Contractor* in locating these construction obstacles. However, the *Contractor* is solely responsible to take all steps necessary to investigate, locate, verify and protect all *Utilities*.

Before commencing *Work* the *Contractor* shall:

(1) Complete a BC One Call at least 48 hours in advance.
(2) Expose and determine conclusively in the field the location, elevation, dimensions and material type of all underground *Utilities* and structures indicated on the *Contract Documents* as being at the *Place of Work*.
(3) Consult with all utility corporations that provide electricity, communication, gas or other utility services in the area of the Place of the Work, to similarly expose and conclusively determine the location of all underground *Utilities* for which they have records; and
(4) Similarly expose and conclusively determine the location of any other *Utilities* or underground structures that are reasonably apparent in an inspection of the *Place of the Work*.

Append to 4.3.5

The *Contractor* hereby indemnifies and saves the *Owner*, its elected and appointed officials, employees and agents harmless from and against all liabilities, actions, causes of action, claims, damages, expenses, costs, debts, demands or losses suffered or incurred by them or any of them, including consequential damages and damages to third parties, whether known or unknown, foreseeable or not, for which the *Owner* or any of them might be liable arising from the provision of or failure to provide information regarding *Utilities*.

Delete 4.3.6 and replace with

In performing *Work* on or near *Utilities*, or where it is necessary to cut, move or alter any *Utilities*, the *Contractor* shall communicate and make arrangements with the proper authorities and perform the Work in compliance with any direction or instruction received from that authority. Any damage to *Utilities* by the *Contractor* shall be repaired at the *Contractor*'s expense. Where *Utilities* are serving the public while construction is in progress, it shall be the responsibility of the *Contractor* to plan and execute the Work such that there is no disruption of service by such *Utilities*.

Add 4.3.7

In performing *Work* on or near third-party *Utilities* (BC Hydro, CN Rail, CP Rail, Fiber Optic Fortis, Kinder Morgan, Metro Vancouver, Southern Rail, Shaw, Telus, etc.), or where it is necessary to cut, move or alter these *Utilities*, the *Contractor* shall communicate and coordinate with the third-party companies or authorities as it relates to schedule, timing, site safety and compliance in the utility alterations or relocations as part of performing the overall Work. If the alteration of these *Utilities* impacts the project schedule, the *Contractor* shall allow sufficient time for the companies or authorities to relocate their *Utilities*. It is the *Contractor's* responsibility to ensure all *Work*, including third-party utility relocations, is coordinated and completed in a reasonable time as part of the overall *Work*.

In the event the *Contractor* has been diligent and made significant effort and attempts in coordinating with the third-party companies or authorities and having their relocations accelerated, any and all costs incurred as a result of the third-party companies' ability, or inability, to relocate the *Utilities* are considered incidental and any such Delays are considered *Unavoidable Delays* as per GC 13.3 and beyond the reasonable control of the *Owner.*

Add 4.3.8 *Contractor* shall not deposit any material upon any Highway without first obtaining the approval of the *Contract Administrator* to the location, manner of placement, nature and amount of the material to be deposited and length of time for placement of the material.

Add 4.3.9 Where the *Work* is to be performed on private property, it is the responsibility of the *Owner* to arrange for and acquire required access. The *Contractor* shall not perform *Work* on any private property until the *Contract Administrator* has confirmed to the *Contractor* in writing that the *Work* thereon may proceed.

Add 4.3.10 On completion of any work in a right-of-way or on private property, the *Contractor* shall deliver to the *Contract Administrator*, a formal release in writing, in a form provided by the *Owner*, signed by each owner of private property for work performed in a right-of-way or on private property for which the *Owner* did not arrange for access. The formal release will verify that the *Contractor* has cleaned up the private property to the owner's satisfaction and that the property owner(s) has no claim upon the *Contractor* or the *Owner* as a result of the *Work*.

Add 4.3.11 The *Contractor* shall keep all portions of the *Work* properly and efficiently drained during construction until *Total Performance* and in compliance with any by-laws or requirements of the *Owner*.

Add 4.3.12 The *Contractor* shall protect and maintain access to all existing utilities, properties, solid waste collection receptacles, and mailboxes at all times during construction, including a minimum 1.5m wide and flat accessible path with no safety concerns. If access cannot be maintained, the *Contractor* shall make suitable arrangement for access as requested by the Contract Administrator, including solid waste collection and delivery of mail to the residents affected.

Add 4.3.13 The *Contractor* shall, at its own expense and risk, deliver to businesses and residents copies of letters provided to the *Contractor* by the *Owner*, advising these persons of intended construction activities. The *Contractor* shall deliver these letters no sooner than ten (10) *Days* and no later than five (5) *Days* before the start of construction in the affected area.

Add 4.3.14 The *Contractor* is responsible for the maintenance and repair of any *Highway* affected by the *Work*, including *Highways* used for hauling, trucking and delivery.

Add 4.3.15 *Work* on a *Highway* shall be carried out in such a manner that will not affect traffic on any *Highway* or prevent access to property fronting on the *Highway* without first having obtained written permission to do so from the authorities having jurisdiction. In that regard, the *Contractor* shall perform its *Work* in strict compliance with the requirements, rules, regulations and by-laws of any Federal, Provincial or municipal authority having jurisdiction.

4.6 Construction Schedule

Add 4.6.8 In instances where the *Contractor* is double-shifting, as determined to be either working longer than 12 hours per day or in any 24-hour period, then 2 *Days*, or *Work Days*, will be deducted from the *Contract Time* for every calendar day when such activity is completed.

		The *Contractor* may apply for exemptions to the noise by-law in order to perform portions of the *Work* at night, however the *Owner* does not guarantee that exemptions will be granted, nor shall the *Contractor* rely on exemptions being permitted in order to complete the *Work* in accordance with the *Construction Schedule*.
4.7 Superintendent	Append to 4.7.2	The *Superintendent* shall be in attendance at all times at the *Place(s) of the Work* unless permitted otherwise by the *Contract Administrator*.
	Add 4.7.4	Unless otherwise permitted by the *Owner*, the *Superintendent* shall be the person named in Appendix 3 in the tender submission documents.
4.12 Tests and Inspections	Delete 4.12.1 and replace with	The *Contractor* is solely responsible for ensuring that the *Work* is performed in accordance with the requirements of the *Contract Documents*. The *Contractor* shall perform or cause to be performed all tests, inspections and approvals of the *Work* as required by the *Contract Documents* or as required by the *Contract Administrator* as part of the *Quality Control*. Any reference in the specifications to inspection and testing shall mean that the *Work* described in the specification must be inspected and tested in a manner approved by the Contract Administrator. The *Contractor* shall only employ or engage, as an agent or consultant for testing, a person approved by the *Owner*. Where the specification indicates that the *Contract Administrator* will arrange for testing, the *Contractor* continues to be solely responsible for testing of the *Work*. Upon immediate completion of each test, certified copies of each test shall be submitted by the testing laboratory directly to the *Contract Administrator*. The *Contract Administrator* may perform additional tests for the *Owner*'s sole benefits. The costs of these tests will be the responsibility of the *Owner*.

	Append to 4.12.10	If the *Contractor* performs *Work* for more than 12 hours per *Day*, or work shift, overtime costs incurred by the *Owner* to complete tests, inspections and payment measurements may be charged, at the sole discretion of the *Owner*, to the *Contractor*.

7.0 CHANGES

7.4 Optional Work	Append to 7.4.1	If *Optional Work* is performed prior to the *Contractor* achieving *Substantial Performance*, there shall be no adjustments to the *Contract Time,* unless the *Contractor* can demonstrate that the *Optional Work* will impact the critical path on the *Contractor*'s schedule.

10.0 FORCE ACCOUNT

10.1 Force Account Costs	Append to 10.1.1 (1)	Costs for the *Contractor's Superintendent*, Project Managers, Health and Safety Personnel, and Office/Administration Staff are not eligible labour costs as those costs are considered incidental to the mark up owing for overhead on labour.
	Delete 10.1.1 (2) (a) and replace with	*Contractor* Owned or Bare Rented – at the non-operated hourly rates as set out in the *Approved Equipment Rental Rate Guide* based on the actual hours, in minimum increments of 0.5 hours, without any markup to cover all overhead costs and profits. If equipment is not listed in the *Approved Equipment Rental Rate Guide* then a rate determined by the *Contract Administrator* based on local equipment rental rates; or

11.0 CONCEALED OR UNKNOWN CONDITIONS

11.1 Definition	Delete 11.1.1 and replace with	A *"Concealed or Unknown Condition"* is either *Archaeological Artifacts,* Foreign Material, *Hazardous Materials, Municipal Utilities,* all as defined in GC and SGC paragraph 1.0, that:

(1) occur at the *Place of Work*; and
(2) materially affects the cost of, or the time required for, the performance of the *Work*; and
(3) differs materially from conditions disclosed in the *Contract Documents*, and was not apparent in an examination of the *Place of the Work* or could not be reasonably inferred from geotechnical examinations and as-built utility records.

Add 11.1.2 The risk of, responsibility and liability for *Utilities,* not including *Municipal Utilities*, bird nests, and subsurface soil conditions and groundwater conditions, known or unknown, rests solely with the *Contractor*. The *Contractor* acknowledges and agrees that it has not relied on the accuracy or completeness of any data or information provided by or on behalf the *Owner* in assessing these risks except those defined in SGC 11.1.1 hereof and the *Contract Price* for the *Work* includes for these risks.

11.4 Acknowledgment

Add 11.4.1 The *Contractor* acknowledges and agrees that it has not relied on the accuracy or completeness of any data or information provided by or on behalf of the *Owner* in assessing the risks of a *Concealed or Unknown Condition*.

Add 11.4.2 The *Contractor* acknowledges and agrees that it has conducted its own independent investigation and has taken into account the risks of a *Concealed or Unknown Condition*.

11.5 Archaeological Artifacts

Add 11.5.1 Any *Archaeological Artifacts* discovered by the *Contractor* shall, as between the *Owner* and the *Contractor*, be deemed to be the absolute property of the *Owner*.

Add 11.5.2 The *Contractor* shall immediately advise the *Contract Administrator* of the discovery by the *Contractor* of any *Archaeological Artifacts* and take all reasonable precautions to protect and preserve same.

12.0 HAZARD MATERIALS

12.2 Discovery of Hazardous Materials	Delete 12.2.2 and replace with	If the *Contract Administrator* observes any materials at the *Place of the Work* that the *Contract Administrator* knows or suspects may be *Hazardous Materials* then the *Contact Administrator* shall immediately give written notice to the *Contractor* and the *Contractor* shall immediately stop the *Work* or portion of the *Work* as required by GC 12.2.1 (1).
12.4 Contract Adjustment for Hazardous Materials	Append to 12.4.2	However, the *Contractor* is not entitled to payment of any delay costs associated with suspected or confirmed *Hazardous Materials*.

13.0 DELAYS

13.8 Direction to Stop or Delay	Delete 13.8.2 and replace with	During any such stoppage or delay, the *Contractor* shall be responsible to protect the *Work*. The *Contractor* shall not be entitled to an extension to schedule or claim for costs if the direction to stop or delay was due to work being performed that was inconsistent with the *Contract Documents* or as a result of a safety hazard as deemed by the *Contract Administrator* or *Owner* or *Work Safe BC*.
13.9 Liquidated Damages for Late Completion	Delete 13.9.1 and replace with	If the *Contractor* fails to meet the *Milestone Date* for *Substantial Performance,* or any other specified *Milestone Date,* as set out in the Form of Tender paragraph 2.2, as may be adjusted pursuant to the provisions of the *Contract Documents*, then the *Owner* may deduct from any monies owing to the *Contractor* for the *Work*: (1) as a genuine pre-estimate for the *Owner*'s increased costs for the Contract Administrator and their field representative caused by such delay an amount of $1,500 per calendar day, or pro rata portion, for:

a. each day that the *Work*, or portion of *Work*, was completed after the specified *Milestone Date* for that applicable *Work*, or portion of *Work*; and
b. each day that actual *Substantial Performance* is achieved after the *Substantial Performance Milestone Date*; plus

(2) all direct out of pocket costs, such as, but not limited to: the *Owner*'s own staff costs; costs for safety, security, or equipment rental required; and costs for temporary surface restoration and increased temporary maintenance which may be reasonably incurred by the *Owner* as direct result of such delay; plus

(3) any loss to the *Owner* of third-party funding which the *Owner* was to receive if the Work, or a particular portion thereof, was not completed before a *Milestone Date*.

If the monies owing to the *Contractor* are less than the total amount owing by the *Contractor* to the *Owner* under (1), (2) or (3) then any shortfall shall immediately, upon written notice from the *Owner*, and upon *Substantial Performance*, be due and owing by the *Contractor* to the *Owner*.

15.0 OWNER'S RIGHT ON CONTRACTOR'S DEFAULT

15.2 Notice of Default

Delete 15.2.1 and replace with

On the occurrence of any one or more of the following events:

(1) it is discovered that any representation or warranty made by the *Contractor* was false or materially misleading when made;
(2) the *Contractor* fails to procure or maintain any bonds or required insurance coverage;

(3) the *Contractor* fails to comply with the requirements or obligations of the Workers Compensation Act;
(4) the *Contractor* fails to diligently proceed with and prosecute the Work;
(5) the *Contractor* fails to comply with any requirements of the *Contract*.

The *Owner* may notify the *Contractor* in writing that the *Contractor* is in default of the *Contractor's* obligations and instruct the *Contractor* to correct the default in the 5 *Days* immediately following the receipt of such notice.

15.3 Termination Append to 15.3.1

After receipt of a written notice of termination, and except as otherwise directed by the *Contract Administrator*, the *Contractor* shall:

(1) stop *Work* under the *Contract* on the date and to the extent specified in the notice of termination;
(2) place no further orders or subcontracts except as may be necessary for completion of such portion of the *Work* as is not terminated;
(3) as directed by the *Contract Administrator*, terminate all orders and subcontracts to the extent that they relate to the performance of *Work* terminated by the notice of termination and/or assign, transfer and deliver to the *Owner* or to whom the *Owner* directs in the manner, at the times, and to the extent directed by the *Contract Administrator*, all of the right, title and interest of the *Contractor* under the subcontracts;

(4) transfer title and deliver to the *Owner* in the manner, at the times and to the extent, if any, directed by the *Contract Administrator*, the fabricated or un-fabricated parts of *Work* in process, completed *Work* produced as part of, or acquired in connection with the performance of, the *Work* terminated by the notice of termination and in the *Contractor's* possession or reasonable control;
(5) complete performance of such part of the *Work* as shall not have been terminated by notice of termination; and
(6) mitigate the costs for which the *Owner* may be liable.

16.0 CONTRACTOR'S RISK ON OWNER'S DEFAULT

16.2 Work Stoppage — Delete 16.2.2 and replace with

The *Owner* may, at its discretion, stop all or part of the *Work* in which event, subject to GC 16.4.1, the provisions of GC 13 (Delays) shall apply. If the *Work* stoppage required under this GC 16.2.2 continues for 60 calendar days, and provided the *Work* is not required or requested to accommodate seasonal work or to accommodate the relocation of third-party utilities, the *Contractor* may, by giving written notice to the *Owner*, terminate the *Contract*.

16.4 Termination — Delete 16.4.1 and replace with

If the *Contractor* terminates the *Contract* under the conditions set out in GC 16.2.2., the *Owner* shall pay the *Contractor*:

(1) for *Work* done under the *Contract,* pursuant to the terms of the *Contract*; plus
(2) reimbursement of expenditures, such as products and materials, *Subcontractors* and equipment, which the *Contractor* incurred to the date of termination on account of the remaining *Work*.

The amounts recoverable by the *Contractor* pursuant to this GC 16.4.1 shall be the *Contractor's* sole remedy for any and all costs, damages and expenses resulting from the events giving rise to the termination by the *Contractor*. In no event shall the *Contractor* be entitled to claim or recover against the *Owner* any costs, damages or expenses, whether for breach of *Contract* by the *Owner* or pursuant to the *Contract*, for loss of anticipated profits, consequential damages, impact costs, loss of contribution to overhead or any amount, other than those amounts recoverable pursuant to GC 16.4.1.

17.0 DISPUTES

17.5 Referee

Delete 17.5.2 (2) and replace with

(2) if the parties have not agreed upon a *Referee* within 3 *Days* the submission of names by one party or the other as provided by GC 17.5.2 (1), then the other party may request in writing the Master Municipal Construction Documents Association (The Association) to appoint the *Referee*. The Association will have the authority to appoint a *Referee* without further consultation with the parties and the parties shall accept the Associations appointment. If for any reason the Association fails to appoint a *Referee* within 5 *Days* of the written request then such failure shall be deemed to be an agreement between the parties to omit a review of that *Dispute* by a *Referee* and a party may at the end of the 5 *Days* request a settlement meeting and proceed with the remaining steps in the *Dispute* resolution process as described in this GC.

18.0 PAYMENT

18.5 Payment

Delete 18.5.1 and replace with

The net amount shown for payment on a *Payment Certificate* shall be due and payable to the *Contractor* on or before the thirtieth (30th) calendar day from receipt of the *Payment Certificate* by the *Owner*.

20.0 LAWS, NOTICES, PERMITS, AND FEES

20.2 Permits	Add 20.2.3	Apply for and obtain all necessary permits from the City of Surrey for working within *Highway* Right-of-Way, and for obstructing traffic.
20.4 Fees	Add 20.4.1	The *Contractor* is responsible for paying all fees required to obtain permits from the City of Surrey.
	Add 20.4.2	The *Contractor* is responsible for displaying all permits at the *Place of Work*, and on all vehicles and equipment. If the *Contractor* receives tickets for traffic and bylaw infractions, these fees shall be paid directly to the City of Surrey and failure to pay such may result in a work stoppage or a permanent holdback in the amount due on the *Contractor*'s *Payment Certificate*.

21.0 WORKERS COMPENSATION REGULATION

21.1 Evidence of Compliance	Append to 21.1.1	As a minimum, the evidence to be provided by the *Contractor* shall include the *Contractor's* Workers' Compensation Board registration number and a letter from the Workers' Compensation Board confirming that the *Contractor* is registered in good standing with the Workers' Compensation Board and that all assessments have been paid to the date thereof.
	Add 21.1.3	The *Contractor* agrees that it shall, at its own expense, procure and carry, or cause to be procured, carried and paid for, full Workers' Compensation Board coverage for itself and all workers, employees, servants and others engaged in or upon any *Work*.

21.2 Contractor is "Prime Contractor"	Delete 21.2.1 and replace with	Commencing on the effective date of the *Notice to Proceed* and until such time as the *Contractor* has achieved *Total Performance*, as part of the Work the *Contractor* shall be the "*Prime Contractor"* as defined in the *Workers Compensation Act* and accordingly shall comply with all resulting requirements and obligations including coordination of the health and safety activities of all employees at the *Place of Work*, and complying with the obligations of a *Prime Contractor* for a multi-employer workplace as prescribed by the applicable regulations. For certainty, except for that period during which the *Contractor* is the "*Prime Contractor"* pursuant to this Section 21.2.1, the *Owner* or appointed third party shall be the *"Prime Contractor"* for safety at the *Place of Work*.
	Add 21.2.2	The Contractor agrees that it is the "*Prime Contractor*" for the *Work* as defined in the Workers Compensation Act, R.S.B.C. 2019, c. 1 as amended and will ensure compliance with the Workers Compensation Act and Regulations in respect of the workplace. Without limiting its responsibilities under the legislation, the *Contractor* will coordinate the activities of employers, workers and other persons at the workplace relating to occupational health and safety. The *Contractor* shall have a safety program acceptable to the Workers' Compensation Board, shall provide first aid services, and shall ensure that all Workers' Compensation Board safety rules and regulations are observed during performance of this Agreement, not only by the *Contractor*, but by all sub-*Contractors*, workers, material personnel and others engaged by the Contractor in the performance of this Agreement. The Prime *Contractor* shall appoint a qualified coordinator for the purpose of ensuring the coordination of health and safety activities for the workplace. Prior to commencement of Construction, the Contractor shall complete and file a "Construction Notice of Project" with the Workers' Compensation Board and shall

provide a copy of the same to the *Owner* confirming that the *Contractor* shall be the *Prime Contractor* responsible for coordination of safety and health under Part 3 of the Workers Compensation Act and Part 20 of the WCB Occupational Health & Safety Regulations.

21.3 Compliance with Workers Compensation Requirements

Add 21.3.3 The *Contractor* shall ensure compliance with and conform to all health and safety laws, by-laws or regulations of the Province of British Columbia, including any regulations requiring installation or adoption of safety devices or appliances.

Add 21.3.4 The *Contractor* shall fulfil all its duties, obligations and responsibilities in such a manner that it ensures the safety of the public and in accordance with the safety regulations of the Workers' Compensation Board and shall install signs and barriers as required to ensure the safety of the public and of its employees in the use of Highways and City of Surrey facilities.

Add 21.3.5 The *Contractor* agrees that the Owner has the unfettered right to set off the amount of the unpaid premiums and assessments for the Workers' Compensation Board coverage against any monies owing by the *Owner* to the *Contractor*. The *Owner* shall have the right to withhold payment under this *Contract* until the Workers' Compensation Board premiums, assessments or penalties in respect of the work done or service performed in fulfilling this *Contract* have been paid in full.

22.0 INDEMNIFICATION

22.1 Contractor to Indemnify

Delete 22.1.1 and replace with

Without limiting the generality of any other indemnities granted by the *Contractor* in the *Contract Documents*, the *Contractor* shall indemnify and hold harmless the *Owner*, its elected and appointed officials, employees and agents, and the Contract Administrator, their agents and employees, from and against all liabilities, actions, causes of action, claims, damages, expenses, costs, debts, demands or losses suffered or incurred by them or any of them, including consequential damages and damages to third parties, whether known or unknown, foreseeable or not, that arise out of, or are attributed to, any act or omission or alleged act or omission of the *Contractor*, the *Contractor*'s agents, *Subcontractor*s, Suppliers, corporations and employees engaged in performance of *Work* under this *Contract*.

24.0 INSURANCE

24.1 Required Insurance

Delete 24.1.1 (2) and replace with

(2) Commercial General Liability Insurance through an insurance underwriter licensed to conduct insurance business in the Province of British Columbia, covering bodily injury and property damage with a minimum occurrence and aggregate limit of $5,000,000.00.

The policy will be endorsed to include the *Owner*, the *Contract Administrator* and all *Subcontractors* as additional insureds. Contractual liability coverage will be of sufficient scope to includethe liability assumed by the *Contractor* under the terms of this *Contract* and the on-site creation and installation of any *Public Art* undertaken in conjunction with the *Work*.

The insurance shall include:

(1) Premises and Operations
(2) Broad Form Products and Completed Operations;

(3) Owner's and *Contractor*'s Protective Liability;
(4) Contractor's Contingent Liability;
(5) Blanket Contractual;
(6) Contingent Employer's Liability;
(7) Non-Owned Automobile;
(8) Cross Liability/Severability of Interests;
(9) Employees as Additional Insureds;
(10) Personal Injury;
(11) Broad Form Property Damage;
(12) Sudden and Accident Pollution: Minimum occurrence and aggregate limit shall be $2,000,000 except where the *Work* is within 30 metres of a pipeline owned by Kinder Morgan Canada or Fortis Intermediate or High Pressure Gas Main, the minimum occurrence and aggregate limit shall be $20,000,000.
(13) Shoring, Blasting, Excavating, Underpinning, Demolition, Removal, Pile-driving and Caisson Work, Work Below Ground Surface, Tunnelling and Grading, as applicable;
(14) Elevator and Hoist Liability;
(15) Hook Liability, Riggers Liability
(16) Operation of Attached Machinery;
(17) Where the *Contractor* is providing Shop Drawings or other material sealed by a Professional Engineer the *Contractor*, or their Professional Engineer, shall provide a certificate of insurance for Professional Liability with a minimum occurrence and aggregate limit of $1,000,000.

If a Wrap-up Commercial General Liability policy is not purchased by the *Contractor*, the *Contractor* shall ensure that all *Subcontractors* purchase and maintain during the term of the contract, Commercial General Liability insurance to the minimum levels specified in this agreement.

Any deductible shall be for the account of the *Contractor*. The policy will include coverage for flood and earthquake, and shall extend to cover any *Public Art* undertaken in conjunction with the *Work*, and property at any other location, while in storage, transit and during erection, installation and testing. Coverage shall extend to protect the interest of the *Owner*, and to the extent that the *Owner* has an insurable interest, the policy will have the *Owner* as first loss payee.

Add 24.1.1 (5) The insurance shall include:

(1) a Breach of Conditions clause, "Notwithstanding anything contained elsewhere in this policy, any breach of a condition of the policy, whether by commission or omission, by one of the parties hereby insured shall not prevent recovery by any other party or all parties hereby insured who are innocent of any such act or breach."
(2) coverage of resultant damage from error in design that are carried out by the *Contractor*;
(3) coverage of resultant damage from faulty workmanship; and
(4) coverage of resultant damage from faulty materials.

Add 24.1.1 (6) The *Contractor* shall provide a certificate of insurance in the form attached to the *Contract Documents*. In the event of conflicts between GC 24 and the certificate attached to the *Contract Documents*, the more stringent requirements shall apply.

27.0 PATENTS AND COPYRIGHTS

27.1 Patent and Copyright Compliance

Add 27.1.1 The *Contractor* shall pay all royalties, patents and license fees applicable to any portion of the *Work*. The *Contractor* is obligated to ensure that the *Work* as performed does not breach any copyright, patent or license agreement.

28.0 NON-RESIDENTS

28.1 Non-Residents

Add 28.1.1 If the *Contractor* is a non-resident of Canada, the *Contractor shall*:

(1) obtain all necessary approvals, consents, permits, licenses, certificates, registrations and other authorizations required to comply with all applicable laws, regulations, by-laws or Codes in the performance of the Work;
(2) obtain from the Retail Sales Tax Office, a certificate confirming that the *Contractor* has duly registered, and provide proof of same to the *Contract Administrator*, prior to commencement of the *Work*.

Add 28.1.2 The *Contractor* shall ensure that all *Subcontractors* who are non-resident in British Columbia have obtained all necessary approvals, consents, permits, licenses, certificates, registrations and other authorizations required to comply with all applicable laws, regulations, by-laws or Codes in the performance of the Work, and have registered with the Retail Sales Tax Office, has a Goods and Service Tax registration number, a provincial Retail Sales Tax registration number and a Workers Compensation Office registration number.

Add 28.1.3 The *Contractor* is responsible to ensure that all applicable taxes or remittances are made by itself and its *Subcontractor*s and in relation to non- resident *Subcontractor*s, any applicable retentions or withholdings are made.

Add 28.1.4 If the *Contractor* does not provide to the *Owner* a waiver of regulation letter, or satisfactory evidence to satisfy the conditions of GC 28 then the *Owner* may withhold and remit to the appropriate authority the greater of:

(1) 15% of each payment due to the *Contractor*; or
(2) the amount required under applicable tax legislation.

END OF SECTION

Engineering Department

Supplementary Master Municipal Construction Documents

SUPPLEMENTARY SPECIFICATIONS

2024

The City of Surrey Supplementary Master Municipal Construction Documents are supplemental to the **Master Municipal Construction Document – 2019 Edition** and take precedence over the MMCD General Conditions, Specifications, Standard Detail Drawings and their Amendments.

MMCD Section 01 33 01 Project Record Documents

1.0 GENERAL

	Append to 1.0.1	Operation and Maintenance (O&M) manuals shall be prepared by the Contractor for all projects containing mechanical, electrical or instrumentation materials and equipment, such as but not limited to: pump stations; sewage force mains and siphons; district energy systems; flood boxes, control valves and gates; storm water detention and water quality facilities; reservoirs, pressure reducing stations, wells, flow meters and level meters. O&M manuals shall address all related below-ground and building interior materials and equipment.
1.4 Format	Append to 1.4.2	Binders shall contain DVD's with all documents in PDF format.
	Append to 1.4.3	Groupings should be based on MMS Division or Discipline (i.e. HVAC, electrical, instrumentation, etc.).
	Append to 1.4.7	Drawings to be included in binders shall consist of Contract Drawings and Shop Drawings.
1.5 Contents, Each Volume	Append to 1.5.3	Part number and serial number shall be included in the list of information for each product.
	Append to 1.5.5	The sequence of instructions shall include an Operational Narrative, to be written by the Contract Administrator, that identifies: design objectives and parameters (flows, pressures, velocities); operational and control philosophy, on-off set points, high and low level alarms, primary, duty and secondary control settings and relationship; and emergency power capacity and fuel capacity.

	Append to 1.5.6	Manufacturer's calibration and testing results and certificates for range of parameters and equipment including flow, velocity, pressure, horsepower and air quality emissions.
	Append to 1.5.7	Safety Requirements: list of all hazards and safe practices required, including electrical hazards, confined space areas, fall protection, system isolation, de-pressurising utilities, lockout procedures and required safety training programs.
	Append to 1.5.8	Parts Inventory: a checklist and tabular summary of all critical parts, and their average delivery times, and recommendation on which spare parts should be kept on hand.
1.6 Record Documents and Samples	Add 1.6.1.10	Shop Drawings that require an Engineer's Seal are to be sealed by a Professional Engineer registered in the Province of British Columbia.

END OF SECTION

MMCD Section 01 34 00S Start-up Testing and Commissioning

1.0 GENERAL

1.1 Overview

.1 This section is applicable to all projects containing mechanical, electrical or instrumentation materials and equipment, such as but not limited to: pump stations; sewage force mains and siphons; district energy systems; flood boxes, control valves and gates; storm water detention and water quality facilities; reservoirs, pressure reducing stations and wells; flow and level meters.

The Contractor shall provide, test, commission, and turn over, to the City, a complete operating facility as described in the contract.

1.2 Related Work

.1 Project Record Documents – Section 01 33 01.

1.3 Scheduling of work

.1 The startup testing and commissioning may need to be or be best scheduled at a time where suitable conditions are present to adequately test the equipment or facility, or at a time when it will disrupt the public or services to the residents the least. The Contractor shall schedule the testing and commissioning to suit these conditions and to cause the least disruption.

1.4 Commissioning Planning

.1 The Contractor shall provide a plan and checklist indicating components and systems to be tested, detailed procedure and schedule for testing and commissioning to the Contract Administrator one month, or sooner, in advance of the commissioning. The checklist shall indicate the following:

1. components and systems to be tested or set;
2. test, check or setting result;
3. initials of person doing test, check or setting; and
4. date and time.

The Contract Administrator and the City will review the plan and checklist and provide any comments they have to the Contractor within one week. The Contractor shall update the plan and checklist based on the Contract Administrator's and City's comments as needed.

The Contractor shall provide the final testing and commissioning plan and checklist to the Contract Administrator and the City two weeks in advance of the commissioning.

The testing and commissioning plan and checklist shall be followed during the testing and commissioning of the equipment.

The Contract Administrator may order any changes in testing plan, procedure, operation or schedule at any time before or during testing and commissioning to ensure correct commissioning.

1.8 Payment

.1 Payment for all work performed under this Section will be incidental to payment for work described in other Sections unless shown otherwise in the Schedule of Quantities and Prices.

2.0 PRODUCTS

Not used

3.0 EXECUTION

3.1 Personnel

.1 The Contractor shall provide competent, experienced and trained personnel to supervise the installation, inspection, pre-testing, testing and commissioning of all components and systems installed under this contract. The cost of the personnel supplied by the Contractor, manufacturer and suppliers shall be included in the contract prices.

Operation of any part of the existing system shall be performed by the City.

Contract Administrator, City and Contractor will be present for the testing and commissioning

3.2 Pre-testing

.1 The Contractor shall:

.1 Pre-test all components and systems before start up testing and commissioning where possible, including assistance from the equipment manufacturer's representatives. This must be co- ordinated with the Contract Administrator and Owner.

.2 Inspect all materials and components to ensure that the work is complete and that materials and components are in place and secure.

.3 Ensure that all of the manufacturers and suppliers requirements and recommendations have been complied with.

.4 Clean the facility and equipment.

.5 Pre-test all lights, alarms, locks, and site safety equipment.

.6 Pre-test components and systems by themselves and in combination with related components and systems to ensure they are operating properly and comply with specified requirements.

.7 Pre-test all components over the entire range of operation specified including variations in flow, pressures, speeds and controls/levels.

.8 Pre-test all malfunctions, alarms, safety devices, interlocks and annunciation by simulation of malfunctions as necessary.

Should tests, checks, inspections indicate defective components or work or performance in variance with specifications the Contractor shall correct the defect or performance.

3.3 Testing and Commissioning

.1 .1 In the presence of the Contract Administrator and the City, the Contractor and the manufacturer's representatives shall:

.1 test all individual components and systems individually and in combination with related components and systems to ensure they are operating properly and comply with specified requirements.

.2 test and demonstrate all components and systems over the entire range of operation specified including variations in flow, pressures, speeds and controls.

.3 demonstrate all malfunctions, alarms, safety devices, interlocks and annunciation by simulation of malfunctions as necessary.

.2 Should tests, checks, inspections indicate defective components or work or performance in variance with specifications the Contractor shall correct the defect or performance.

.3 All tests, checks, calibration, adjustments and settings shall be recorded by the Contractor. The record shall be included in the Operation and Maintenance manual.

.4 Provide manufactures certifications as specified before acceptance of the work. The certificates shall be included in the Operation and Maintenance manual.

.5 The Contractor must co-operate with the City during testing, start-up and commissioning and during work by the City to install the pertinent equipment for its SCADA system. The SCADA system back panel will be supplied by the City to the Contractor for installation by the Contractor.

.6 Once the testing of components and systems is considered satisfactory by the Contract Administrator the Contractor shall then operate the entire system in the presence of the Contract Administrator and the City.

.7 Upon achieving Substantial Performance and once the operation of the entire system is considered acceptable and operating successfully for at least 48 hours, or longer duration as directed by the Contract Administrator and City, the City will assume responsibility for the operation of the facility at a time acceptable to the City.

.8 Contractor to completely refuel all generators and fuel storage tanks after testing and prior to transfer to the City.

END OF SECTION

MMCD Section 01 42 00 Referenced Specifications

1.0 GENERAL

1.2 Referenced Specifications	Append to 1.2.15.5	CAN / CSA-A23.5 no longer exists and has been combined into the CSA A3000 Referenced Specification, therefore all references to A23.5 should be changed to CSA A3000.
	Add 1.2.15.15	CAN / CSA-A5 no longer exists and has been combined into the CSA A3000 Referenced Specification, therefore all references to A5 should be changed to CSA A3000.
	Add 1.2.15.16	CAN / CSA-A8 no longer exists and has been combined into the CSA A3000 Referenced Specification, therefore all references to A8 should be changed to CSA A3000.
	Add 1.2.9.46	ASTM D6927-06 Standard Test Method for Marshall Stability and Flow of Asphalt Mixtures.

END OF SECTION

MMCD Section 01 55 00 Traffic Control, Vehicle Access and Parking

1.0 GENERAL

Append to 1.0.1 This section includes requirements for permanent signage.

Add 1.0.6 The Contractor is required to apply for and secure a Traffic Obstruction (TOP) permit to carry out the Work. Contractor shall comply with the terms and conditions stipulated in these traffic control permits.

Add 1.0.7 For *Work* on Local Roads, TOPs request can reference the appropriate figure from the BC Traffic Control Manual and a formal Traffic Management Plan (TMP) is not required for submission to the City, unless Works is within 35m of an arterial road.

Add 1.0.8 For work in intersections, on Collector Roads on Arterial Roads, and where road closures are being proposed, the Contractor shall solely prepare a TMP(s), submit it to the City for consent.

The TMP(s) shall include:

.1 Name of the: Contractor; Traffic Control Person / Subcontractor, Contract Administrator and the related addresses and contact information.
.2 Be prepared by a qualified Traffic Management Company or Subcontractor, and in accordance with the BC Traffic Control Manual for work on Roadways, as amended.
.3 Be prepared using editable computer program, relatively to scale, and submitted in digital PDF 11x17 format.
.4 Include an accurate road configuration, with road names, north arrow marker, speed limit, and proposed extents of the Work.

.5 Indicate placement marker and distance of signs; sign images and sign number; delineators, cones, barricades, etc.; position of certified TCP's and traffic control equipment including FAB's and HLWD's

.6 Include Dynamic Message Signs (DMS) and static Message Signs, as directed by the City, for each direction of each project and provide advance notice for full closures.

.7 Identify the number of lanes to be obstructed, along with taper lengths and widths of lanes.

.8 Include map of full detour routes (if applicable), including the above requirements along each route.

In the event that excessive traffic delays or unsafe conditions result from implementation of the TMP, the City at its sole discretion may suspend the Work, without schedule extensions nor payment of costs, and the Contractor will be required to modify the TMP.

Contractor responsible to allow sufficient time for TCP review, possible modifications, and preparation of signage when preparing the project schedule. No claims for delays or time extensions will be considered due to failure to obtain an approved TMP.

When work is required outside the normal working/construction hours (i.e. night work), the Contractor shall apply for exemptions to noise by-laws. The Contractor shall complete all application forms and pay required fees to the City for exemptions.

1.3 Temporary Parking Areas

Add 1.3.2 Where it is necessary to temporarily disrupt on-street parking for construction:

.1 Distribute 72-hour advance notices to affected residents and businesses.

.2 Supply and erect temporary no-parking signs 72 hours in advance and at the same time as issuing notice to residents and businesses. Temporary no-parking signs shall state hours and dates of when no-parking is permitted, as well as name and phone number of the Contractor.

.3 Do not impound parked vehicles unless instructed to do so by the RCMP, or if authorized by the City's Parking Services in conjunction with the City's By-law Enforcement.

.4 Vehicles may be towed at Contractor's risk and expense to a nearby location. Inform registered owner as soon as possible where vehicle has been relocated. Do not charge vehicle recovery or towing fees to vehicle owner.

.5 Prior to use of pay station areas for construction or storage/laydown of equipment and materials, Contractor to get written authorization in advance from the City and pay/reimburse the City for use of pay station areas.

1.4 Traffic Control

Add 1.4.14 Where business driveways are being obstructed for more than one day the Contractor shall consult with businesses and post signage to direct business patrons to an alternate entrance.

Add 1.4.15 Do not obstruct any travelled way longer than is absolutely necessary.

Add 1.4.16 Unless expressly stated to in the Contract Documents, temporary road closures will not be permitted.

Add 1.4.17 Where temporary traffic obstructions are permitted by the City, advise the Contract Administrator:

.1 At least five (5) Days prior to the date of any desired closures, and

.2 At least 15 Days prior to the date of any desired full closure, so that the Owner may assess traffic control priorities, and advertise the closure. If there are conflicts, the Contractor will be advised of alternate periods during which he may complete the requested traffic control measure;

1.5 Payment

Delete 1.5.1 and replace with

Payment for all work performed under this Section will be on a Lump Sum basis unless noted otherwise in the Schedule of Quantities and Prices. Payment shall be 10% upon preparing TMP's, securing permits and erecting traffic control devices; 80% distributed in monthly Progress Payments for traffic control persons and related control devices; and 10% upon Substantial Performance.

Add 1.5.2

Payment for supply, installation and maintenance of Dynamic Message Signs, also known as Changeable Message Boards, to be on a per sign per calendar week basis, pro-rated based on *Work Days*, unless noted otherwise in the Schedule of Quantities and Prices. Payment shall be for the number of signs requested by the Owner in accordance with the TMP and related permits while the signs are active/in-use, as required by the *City*.

2.0 PRODUCTS

2.1 Temporary Road Markings and Signage

Add 2.1.1

The temporary traffic line shall be a 100mm x 300mm strip of prefabricated reflective yellow tape having an adhesive backing and shall be placed at 10 metre intervals along the center of pavement.

Add 2.1.2

The temporary stop bar shall be 2 - 100mm continuous strips of prefabricated reflective white tape having an adhesive backing and placed across the travel lanes at traffic control intersections.

Add 2.1.3 Notice of Construction signs to be 1200mm x 1200mm and have black printing on fluorescent orange background.

Add 2.1.4 Signs shall be reflectorized to a minimum 3MEngineeringGrade Standard, and include the project and Contractor's name imprinted on the back.

3.0 EXECUTION

3.1 Temporary Road Markings and Signage

Add 3.1.1 Temporary traffic lines and stop bars shall be placed immediately following laying of the asphalt pavement.

Add 3.1.2 Remove the temporary markings when instructed by the Contract Administrator, immediately before placement of the permanent traffic road markings.

Add 3.1.3 Signs that are not conforming to standards will be removed and replaced with suitable signs at Contractor's cost.

Add 3.1.4 Obtain prior approval from the Contract Administrator on construction speed limit changes.

Add 3.1.5 When the permanent signs are removed during construction, the Contractor shall keep and maintain temporary signs of equal quality in place at all times until permanent replacement signs are reinstated.

3.2 Permanent Signage

Add 3.2.1 Prior to commencement of the Work, prepare and deliver a list of all signs, such as traffic control signs, school signs and playground signs. The City will supply sleeves for traffic sign posts. The Contractor shall arrange to pick up the sleeves from the City. The Contractor is responsible for installing the sleeves and coordinating with the City to install the permanent signage. Contractor shall give the City at least ten (10) days' notice before requesting the permanent signs be installed.

Sign sleeves for bus stops will be supplied by Coast Mountain Bus Company and Contractor to coordinate.

END OF SECTION

MMCD Section 01 57 01 Environmental Protection

1.0 GENERAL

	Append to 1.0.4	Work in the vicinity of watercourses is subject to restrictions imposed by Federal and Provincial Agencies.
1.4 Environmental Protection	Add 1.4.2.5	To avoid undue impact to nesting birds, vegetation will not be removed or altered during the sensitive breeding period which is generally between March 15 and August 15. If land clearing is necessary within this window, land clearing will proceed only after the Contractor's Qualified Environmental Professional (QEP) has completed an onsite survey to confirm no impact to nests. If bird nests are found in areas requiring vegetation removal, appropriate buffer zones will be implemented to reduce sensory disturbance until chicks have fledged.
1.6 Payment	Delete 1.6.1 and replace with	Payment for all work performed under this Section will be on a Lump Sum basis unless noted otherwise in the Schedule of Quantities and Prices. Payment shall be 95% distributed evenly in monthly Progress Payments for installation, maintenance and monitoring related work; and 5% upon Total Performance.

2.0 PRODUCTS

	Add 2.1.2	All construction equipment and machinery and generators shall be fitted with standard noise suppression devices. If noise abatement is deemed necessary by the Contract Administrator, mitigation measures, such as time sensitive restrictions or the use of smaller, less disturbing equipment, may be implemented upon the Contractor.

Add 2.1.3 Prior to construction, the Contractor will verify that equipment and machinery used is in good working condition and free of fuel and lubricant leaks. Necessary maintenance oils/lubricants will be stored in a separate, contained lay-down area, and all maintenance activities will be conducted at least 30 metres away from any watercourse.

2.2 Implementation

Add 2.2.1 A fuel spill emergency response kit is to be kept at the place of Work at all times, including at least one for each site/location. The kit should include: material data sheet for hazardous materials being used on site; emergency contact list; absorbent pads; straw bale and poly covers; and floating containment boom for locations adjacent to watercourses.

3.0 EXECUTION

3.1 Implementation

Add 3.1.1 The Contractor is responsible for supply, installation, and maintenance of the necessary environmental protection measures through the entire duration of the Contract, including the clearing and construction stages and through the Maintenance Period, unless noted otherwise in the Contract Documents.

Add 3.1.2 Storm water discharge from the project site must comply with Federal and Provincial laws.

Add 3.1.3 The Contractor shall use appropriate means to protect the water quality of all ditches, watercourses and drainage infrastructure.

Add 3.1.4 All environmental protection measures shall be established in place, and inspected by the Contract Administrator, prior to commencement of any clearing, excavation/stripping and/or placement of fill material.

Exclusion zones around watercourses and wetlands shall be flagged to prevent disturbance of vegetated riparian areas by construction machinery, equipment and personnel.

Filter fabric, particularly at catch basins and drainage inlets, and silt fences shall be kept clean during construction to ensure adequate drainage is maintained.

3.2 Flow Diversion

Add 3.2.1 The Contractor is responsible for management, control and flow diversion, including bypass pumping and water quality treatment, if required, of water from the site, where water includes but not limited to: excavation and trench dewatering, groundwater, surface runoff, sewer and ditch flows, and watercourse flows.

Add 3.2.2 Flow diversion is to be implemented in accordance with Federal and Provincial laws, including discharge quality requirements. If discharge requires third-party permits (i.e. Metro Vancouver, WSA Notification/Approval, DFO Review/Authorization's, etc.) the Contractor is required to apply and secure these permits, including the associated costs, as part of their Work.

Add 3.2.3 If requested by the Contract Administrator, the Contractor shall prepare and submit a Flow Diversion Plan to the Contract Administrator for review prior to works being completed. The Flow Diversion plan should include: map of the site area complete with excavation and trench limits, location of water sources, proposed pumps/intake piping, proposed flow isolation location and proposed discharge locations; construction methodology; pump, piping and well pointing sizes, including flow rates expected. Preparing this plan is considered incident to all other work described in this Section.

Add 3.2.4 If the Work involves construction in and around a watercourse, the Contractor is responsible for site isolation of watercourse flows and fish salvage prior to any dewatering and construction. Related flow diversion during construction shall be completed using gravity piping or pumps equipped with fish screens, in accordance with Federal and Provincial laws and guidelines.

Add 3.2.5 Sediment laden water shall be properly handled by the Contractor and as a minimum be discharged to a flat, vegetated area or an impervious container, before being further controlled and discharged off site.

3.3 Adjustment and Maintenance

Add 3.3.1 The Contractor is responsible for anticipating environmental concerns and adjusting their work plan to mitigate potential risks to ensure all Work is completed in accordance with the Environmental Laws.

Add 3.3.2 For temporary flow diversion pumping systems, which operate on a 24-hour basis, Contractor is responsible for operation and maintenance which includes competent staff to operate and maintain the equipment including re-fuelling the pumps and generators at all times, including night-time and weekends, and have security personal present to ensure equipment is fully functional.

Add 3.3.3 Deficiencies identified by the Contract Administrator and their site representative shall be corrected by the Contractor within a reasonable time frame, and no longer than 48 hours. If additional measures are required to correct the deficiencies then these measures are deemed incidental to other work described in this Section and should the deficiencies not be completed within the set timeframe then the Owner reserves the right to have the works corrected and payment will be deducted, at cost plus 10%, from the Contractor's Progress Certificate with maintenance of the corrected measures to be the Contractor's responsibility.

Add 3.3.3 Where sediment is observed to have been tracked onto a travelled area, as a result of the Contractor's Work, then the Contractor must perform sufficient street cleaning within four (4) hours of notification.

Add 3.3.4 Maintenance and revisions to environmental protection measures are considered incidental to work described herein this Section.

END OF SECTION

MMCD Section 01 58 01 Project Identification

1.0 GENERAL

1.2 Temporary Project Signage

Delete 1.2.1.1 and replace with

1. One week prior to construction, the Contractor shall install information signs.
2. The Contractor shall maintain the signs for the duration of the contract.
3. The Contractor shall remove the signs aftercompletion of construction.

Delete 1.2.1.2 and replace with

The City will provide project notification signage and the Contractor shall delivery the signs to site, supply and install the framing, and erect the signage.

Append to 1.2.2.1

Contractor to deliver to businesses and residents copies of letter, provided by the Owner, advising these persons of intended construction activities. The Contractor shall deliver these letters no sooner than ten (10) Days and no later than five (5) Days before the start of construction in the affected area.

END OF SECTION

MMCD Section 01 62 01S List of Approved Materials and Products

This Section identifies the City of Surrey's List of Approved Products and Materials, and applicable restrictions or specifications, which are to be read in conjunction with, and superseding, products specified within the MMCD Master Specifications. Alternates to the products in this Section require the written approval from the City of Surrey.

MMCD Section	Product	Approved Material / Type	Approved Product / Manufacturer	Restrictions / Additional Specifications
26 56 01	**ROADWAY LIGHTING**			
	Wire Conductor	Aluminium	• Alcan Aluminium Nual • SouthwireSimpull • Prysmian Cable • Northern Cable	Copper conductor is acceptable from handhole to fixture in streetlight pole.
	Luminaires	LED Luminaires	• LED Roadway lighting NXT series Fixture • American Electric AutoBahn fixture	LED Roadway Lighting NXT series fixture, NXT-XX-X-7-2ES-X-XX-3-UL-S-2H with adjustable selectable driver. All X's are attributes to be determined by the lighting Consultant to meet City standards for that area. City may permit American Electric AutoBahn fixture Model No. ATB2-80BLEDEXX-XXX-R2-XX-P7.
33 11 01	**WATERWORKS**			
2.1.4	**Joint Protection**		• Trenton Tec Tape • Denso Petrolatum Tape	Apply joint protection as per Fraser Health requirement.
2.2.1	**Ductile Iron Pipe**	Ductile Iron, zinc-coated	• Canada Pipe • US Pipe • Kubota	AWWA C 151, Pressure Class 350. Nitrile gasket required when hydrocarbons encountered in soil.
2.2.1	**Ductile Iron Pipe**	TR-Xtreme GX-Type	• US Pipe • Kubota	Where required for seismic or restraint considerations

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MMCD Section	Product	Approved Material / Type	Approved Product / Manufacturer	Restrictions / Additional Specifications
2.2.3	**High Density Polyethylene Pipe**	HDPE DR 9	• KWH Sclairpipe • WL Plastics • High Performance	HDPE to AWWA C-906 pipe is permitted for water supply to Agricultural Lands only, and if diameter is 150mm or smaller.
2.2.4	**Fittings**	• Ductile Iron • Compact Ductile Iron	• Terminal City IW • Sigma Products • Star (C153) • OB Waterworks	Cast Iron fittings are not acceptable.
		PVC C 907 Injection moulded 100mm – 300mm Diameter	• IPEX • Westlake Pipe & Fittings	PVC fittings for mainline water mains shall require restrainers to MMCD that do not de-rate the pressure rating of the pipe material.
		PVC C900 Fabricated 150mm – 300mm Diameter	• IPEX • Westlake Pipe & Fittings • Galaxy Plastic • Pro-line Fittings	High Deflection coupling by Certain Tee. PVC DR18, C800, Class 150, 5° bend fitting is acceptable.
		Bolts, Nuts and Tie Rods		Type 304 Grade A stainless steel required for all hardware.
	Couplings and Flange Coupling Adapters	Plain End	• Dresser 38 or 62 • Robar • Smith-Blair • Romac • EBAA 3800 • Ford • Mueller	Type 304 Grade A stainless steel required for all hardware.
		Restrained Flange Adaptors	• Romac RFCA • Uniflange RFAD • EBAA 2100	Type 304 Grade A stainless steel required for all hardware.
		Repair Clamps	• Robar • Romac • Mueller • Canpac	Couplers shall have appropriate adaptor gaskets to suit OD of pipe material(s) being coupled.

MMCD Section	Product	Approved Material / Type	Approved Product / Manufacturer	Restrictions / Additional Specifications
2024	**Tandem Restraint**	Restrained Adaptors	• Sigma Products • EBBA Iron • Star Series (3000)	Tandem joint restraints shall have similar pull out resistance as the Earthquake Resistant Ductile Iron Pipe.
		PVC / PVCO Mains	• EBAA Series 1900 • Uniflange Series 1309, 1399, 1500 • JCM Series 610 • Star Series (1000G2 and 4000)	Restraints for PVC/PVCO shall be approved by pipe manufacturer. Type 304 Grade A stainless steel required for all hardware.
2.3.1	**Gate Valves**	50mm – 250mm Resilient-seated	• Mueller • Clow • AVK • Terminal City	All valves shall have epoxy coated ductile iron body to AWWA C 509.
		300mm Resilient-seated	• Mueller • AVK • Terminal City	Ductile iron body to AWWA C 515. Valves >=300mm shall have brass or stainless steel stems.
2.3.3	**Butterfly Valves**	General		Not permitted unless approved by Engineer.
2.3.4	**Blow-off Valves**	General		Permanent blow-offs shall be as per Standard Drawing. Testing and Temporary blow-offs shall be to MMCD Drawing W8 complete with 50mm gate valve. Temporary valves for testing and flushing shall not be left exposed above grade.
2.3.5	**Air Valve**		• Apco • Val-Matic • Crispin	
2.3.6	**Water Valve Boxes**		• Terminal City • Dobney • Westview • Trojan	Nelson Box will not be allowed. Circular Cast Iron (MR6 Style), 300mm length.

MMCD Section	Product	Approved Material / Type	Approved Product / Manufacturer	Restrictions / Additional Specifications
2.3.7	**Service Valve Boxes**	Curb Stop Box	• Clow • Dobney D-10 • Muller A-726 • Muller A-728 • Trojan	150mm riser pipe with cast iron box (MR6 style). If in driveway, concrete meter box c/w metal lid.
2.5.1	**Water Service Connections**	Pipe Material	Polyethylene	AWWA C-901 c/w #10 tracer wire shall be attached to all services.
2.5.3	**Service Saddles**	Saddles for Ductile Iron Pipe	• Robar • Romac • Smith Blair • Mueller	
		Saddles for PVC Pipe	• Canpac • Mueller • Robar • Romac • Smith Blair	Saddles required for service installation on all PVC mains.
2.6	**Hydrants**		• Terminal City C71P • Canada Valve "Century" • Clow M93 Brigadier	Ductile iron boot shall be installed. Refer to SS for Paint Colours and requirements.
2.7	**Underground Service Line Valves and Fittings**	Corporation Stop	• Cambridge • Ford • Mueller	Shall be full-port ball valve up to 38mm only. Use mainline ball valve for sizes 50mm and larger.
		Curb Stop	• Cambridge • Ford • Mueller	Shall be full-port ball valve to 38mm with 90^0 turn stop. Use gate and check valve, near property line, for sizes 50mm and larger.
2.10	**Casing Spacers**		• Uniflange • Calpico • Raci	Shall be fabricated cast iron or high density polyethylene insulating spacers designed to centre main in the carrier pipe.

2024

MMCD Section	Product	Approved Material / Type	Approved Product / Manufacturer	Restrictions / Additional Specifications
33 30 01	**SANITARY SEWERS**			
2.1	**Concrete Pipe**	Non-reinforced and Reinforced Concrete	• Langley Concrete • Heidelberg Materials	Manufacturers to be PPP or Q-Cast Certified Concrete sewers 200mm to 750mm requires prior approval from the Engineer. Sewers 900mm in diameter and larger shall have factory PVC/HDPE interior liner (T-Lok or Agru).
2.2	**Plastic Pipe, Mainline Smooth Profile**	PVC SDR 35	• IPEX • Westlake Pipe & Fittings • JM Eagle • Northern	Maximum diameter of 750mm Recycled PVC (EnviroTite SDR) is not permitted. No repairs from inside pipe.
2.2 (cont'd)	**High Density Polyethylene Pipe**	HDPE smooth wall pipe with fusion welded joints	• KWH Sclairpipe • WL Plastics • High Performance	Only to be used at location approved by the City. Shall be DR 21 or thicker.
2.3	**Service Connections**	PVC-SDR 28	• IPEX • Westlake Pipe & Fittings • JM Eagle • Northern	Minimum size shall be 100mm.
	Tees and Wyes	PVC-SDR 28	• IPEX • Westlake Pipe & Fittings • JM Eagle • Northern	Manufactured wye fitting shall be used for all connections on new mains.
		Insertable Tee	• Inserta Tee	Insertable tee only permitted for connections to PVC and Concrete mains which are 200mm mains or larger. Connections to 150mm diameter mains, AC and VC mains, require manufactured wye.

MMCD Section	Product	Approved Material / Type	Approved Product / Manufacturer	Restrictions / Additional Specifications
		Saddle	• Robar 3506 • Romac CB	Applicable for connections to AC and Vitrified Clay mainlines. Stainless steel straps required.
	Inspection Chamber	Inspection Chamber	• Pro-Line • Westlake Pipe & Fittings • Galaxy Plastics	IC to have locking lid c/w gasket
		MR Style Concrete Pull Box	• TR 10C • Dobney MR 10-18B • TC 10C	Shall be used in all travelled areas. Cast iron lid permanently marked "Sanitary" OR "Storm", as required.
		Inspection Chamber Back-flow Check Valve	• Pro-line Fittings • Westlake Pipe & Fittings • Galaxy Plastics	Comply with CSA/CAN3 B70-M86.
33 34 01	**SEWAGE FORCE MAINS**			
2.2.1	**Ductile Iron Pipe**	General		Not permitted for sewage forcemains.
2.2.2	**PVC Pressure Pipe**	• PVC C900 • PVCO C909	• Ipex • Westlake Pipe & Fittings •	Permitted for 150mm – 300mm diameter, DR18 or thicker. Shall be pigmented blue, and shall be bell thickened to ASTM D3139 Clause 6.2. Not permitted on Arterial Roads, nor in areas subject to soil liquefaction in seismic events.
2.2.4	**High Density Polyethylene Pipe**	HDPE DR 17 (or thicker)	• KWH Sclairpipe • WL Plastics • High Performance	HDPE comply with AWWA C906 for pipe 100mm diameter and larger. Outside diameter (OD) to iron pipe size (IPS) dimensions.
2.2.5	**Fittings**	Saddle	• Friatec VA • Corix Flo-Control (75-150mm)	Electrofusion Saddle Service for HDPE.

MMCD Section	Product	Approved Material / Type	Approved Product / Manufacturer	Restrictions / Additional Specifications
		Bolts, Nuts and Tie Rods		Type 304 Grade A stainless steel required for all hardware.
2024 **2.2.8**	**Low-pressure Sewage Force mains**	HDPE DR 11 (or thicker)	• KWH Sclairpipe • WL Plastics • High Performance	HDPE comply with AWWA C901 for pipes 75mm diameter and smaller and AWWA C906 for pipe 100mm diameter and larger. Outside diameter (OD) to iron pipe size (IPS) dimensions.
		• PVC C900 • PVCO C909	• Ipex • Westlake Pipe & Fittings	Permitted for 150mm – 300mm diameter, DR18 or thicker. Shall be pigmented blue, and shall be bell thickened to ASTM D3139 Clause 6.2. Not permitted on Arterial Roads, nor in areas subject to soil liquefaction in seismic events.
2.3.2	**Gate Valves**	50mm – 250mm Resilient-seated	• Mueller • Clow • AVK	All valves shall have epoxy coated ductile iron body to AWWA C 509.
		>= 300mm Resilient-seated	• Mueller • AVK	Ductile iron body to AWWA C 515. Valves >300mm shall have brass or stainless steel stems.
2.3.4	**Air Valves**		• Apco • ARI • Val-Matic	25mm valves to be brass.
2.3.6	**Plug Valves**		• APCO series 500 resilient-seated • Milliken Millcentric • Valmatic Eccentric	All Plug Valves to be Full Port. Refer to SS Section 33 34 01, 2.6.

MMCD Section	Product	Approved Material / Type	Approved Product / Manufacturer	Restrictions / Additional Specifications
2.3.7	**Ball Valves**		• Unifid Alloys	All Ball Valves to be Full Port. 50mm and smaller to be brass, larger to be stainless steel and flanged.
2.3.8	**Check Valves**	Ball Check – Cast/Ductile Iron	• Danfoss 408/408FB	Plastic check valves not permitted.
2.5	**Low Pressure Sewage Pumps**	Grinder Pumps	• ABS • Barnes • Environment One • Hydromatic • ITT Flytt / Xylem • Myers • Zoeller	Refer to Design Criteria Manual for more specifications.
33 40 01	**STORM SEWERS**			
2.1	**Concrete Pipe**	Non-reinforced and Reinforced Concrete	• Langley Concrete • Heidelberg Materials	Manufacturers to be PPP or Q-Cast Certified. Not permitted in Lowland areas (below 5.0m ground elev.).
2.2	**PVC Pipe, Mainline Smooth Wall**	PVC SDR 35	• IPEX • Westlake Pipe & Fittings • JM Eagle • Northern	Maximum diameter of 750mm. Recycled PVC (EnviroTite SDR) not permitted. No repairs from inside pipe.
2.3	**PVC Pipe, Mainline Profile**		• IPEX • Westlake Pipe & Fittings (Korflo)	Only permitted in Lowland areas (below 5.0m ground elev.) Only permitted up to 675mm in diameter. Spiral ribbed pipe is not permitted. IPEX Ultra-Rib not permitted. No repairs from inside pipe.

MMCD Section	Product	Approved Material / Type	Approved Product / Manufacturer	Restrictions / Additional Specifications
2.4	**HDPE Pipe, Mainline Open Profile**	HDPE smooth wall pipe with fusion welded joints	• KWH Sclairpipe • WL Plastics • High Performance	Only permitted in Lowland areas (below 5.0m ground elev.) unless approved otherwise by the City. Shall be DR 21 or thicker.
2.5	**Spiral Rib Steel Pipe**		• Not permitted	Steel and CSP pipe is not permitted for storm sewers.
2.6	**Service Connections**	PVC-SDR 28	• IPEX • Westlake Pipe & Fittings • JM Eagle • Northern	Minimum size shall be 150mm.
	Tees and Wyes	PVC-SDR 28	• IPEX • Westlake Pipe & Fittings • JM Eagle • Northern	Manufactured wye fitting shall be used for all connections on new mains.
		Insertable Tee	• Inserta Tee	Insertable tee only permitted for connections to PVC and Concrete mains which are 200mm mains or larger. Connections to 150mm diameter mains, AC and VC mains, require manufactured wye.
		Saddle	• Robar 3506 • Romac CB	Applicable for connections to AC and Vitrified Clay mainlines. Stainless steel straps required.
	Inspection Chamber	Inspection Chamber	• Pro-Line • Westlake Pipe & Fittings • Galaxy Plastics	IC to have locking lid c/w gasket.
		MR Style Concrete Pull Box	• TR 10C • Dobney MR 10-18B • TC 10C	Shall be used in all travelled areas. Cast iron lid permanently marked “Sanitary” OR “Storm”, as required.

MMCD Section	Product	Approved Material / Type	Approved Product / Manufacturer	Restrictions / Additional Specifications
		Inspection Chamber Back-flow Check Valve	• Pro-line • Westlake Pipe & Fittings • Galaxy Plastics	Comply with CSA/CAN3 B70-M86.
2.11	**Polypropylene Pipe, Mainline Open Profile**		• ADS Sanitite HP	Only permitted in Lowland areas (land below 5.0m ground/surface elevation) Service connections on new Open Profile HDPE / Polypropylene mains shall be injection moulded PVC manufactured wyes for mains < 300mm.
33 42 13	**PIPE CULVERTS**			
2.1	**Corrugated Steel Pipe**		• Armtec • Canada Culvert • Atlantic Industries	Only permitted in Lowland areas (land below 5.0m ground/surface elevation) Shall be Aluminized II coating. Requires prior approval from the Engineer.
2.2	**Concrete Pipe**	Non-Reinforced and Reinforced Concrete	• Langley Concrete • Heidelberg Materials	Not permitted in Lowland areas (land below 5.0m ground/surface elevation) Manufacturers to be PPP or Q-Cast Certified.
2.3	**PVC Pipe, Mainline Smooth Wall**	PVC-SDR 35	• IPEX • Westlake Pipe & Fittings	
2.4	**PVC Pipe Profile, Mainline**		• IPEX • Westlake Pipe & Fittings (Kor-flo)	Only permitted in Lowland areas (land below 5.0m ground/surface elevation.) Only permitted up to 675mm in diameter. Spiral ribbed pipe is not permitted. IPEX Ultra-Rib not permitted.

MMCD Section	Product	Approved Material / Type	Approved Product / Manufacturer	Restrictions / Additional Specifications
2.5	**HDPE Plastic Pipe, Open Profile**		• Boss 2000 • ADS N12	Only permitted in Lowland areas (below 5.0m ground elev.) Certified to CSA B182.8-02 Requires prior approval from the Engineer.
2.9	**Polypropylene Open Profile**		• ADS Sanitite HP	Only permitted in Lowland areas (below 5.0m ground elev.) Refer to SS Section 33 42 13.
33 44 01	**MANHOLES AND CATCH BASINS**			
2.1	**Precast Manhole Sections**	Manhole Base and Riser	• Diamond Precast • Langley Concrete • Heidelberg Materials	Manufacturers to have CSA, PPP or Q-Cast Third-Party Certification.
2.1.7	**Manhole Frames and Covers**	Type 1 and 2 Height Adjustable Cast Iron Style		Refer to Supplementary Specification Section 33 44 01 ASTM A48-03, Class 35B Gray cast iron; or ASTM A536 Grade 65/45/12 ductile iron.

		Type 1 and 2 Height Adjustable	• East Jordan IW 00302201 Frame
			• East Jordan IW 00302201A01 Low Profile Frame
			  ○ 00302220 Storm Cover
			  ○ 00302228 Sanitary Sewer Cover
			  ○ 00302227 Water Cover
			• Dobney C-44A Frame and Ring with C724 Style cover	

		Low-profile Frame and Covers		Use of 100mm low profile frames and covers to be approved by the City.

MMCD Section	Product	Approved Material / Type	Approved Product / Manufacturer	Restrictions / Additional Specifications
2.1.13	**Catch Basin and Related Castings**	CB Frame	• Dobney • Westview Sales	Refer to Standard Drawings for required lettering on Manhole Covers for sanitary and storm sewers, including in fish habitat areas. Shall be compatible and interchangeable with existing City castings.
		CB Grate	• Dobney • Westview Sales	Refer to Standard Drawings for required lettering on CB Grates, including in fish habitat areas.
		Lawn Basin Grate	• Dobney • Westview Sales	
2.1.16	**Tapered Adjusting Rings**	• Concrete • Ductile Iron • EPP • HDPE	• Ipex • Dobney • ARPRO	
2.24	**Sealant**	Sealant to be ASTM D 1850	• X-Seal from SealGuard Inc.	
33 41 13	**TRAFFIC SIGNALS**			
2.5	**Junction Boxes (Concrete or Composite)**		• AE Concrete • Pre-Eco-Lite • Langley Concrete	Labelled “ELEC”.
2.6	**Poles and Anchor Bolts**	Poles, Arms, Service Base	• Nova Pole • West Coast Engineering	M.O.T.I/MMCD - Galvanized and powder coated.
2.7	**Conductors and Cables**	Pre-Emption Cable	GTT	Model 138
		Radio Cable	Cat 6 Ethernet cable	Outdoor rated
2.11	**Service Panels**	Service Panel	• Westcoast Electric • Valid Manufacturing	Stainless Steel or Powder Coated Aluminum – See Std Drawings.

MMCD Section	Product	Approved Material / Type	Approved Product / Manufacturer	Restrictions / Additional Specifications
2.16.	**Traffic and Pedestrian Signals**	Signal Heads	• Econolite • Eagle	M.O.T.I/MMCD – Aluminum Housing
		Pedestrian Heads	• McCain • Eagle	Current ITE Specifications – Aluminium Housing
2.17.	**LED Signal Modules**	LED Vehicle Display	• Dialight • Leotek	M.O.T.I - Current ITE Specifications
		LED Pedestrian Displays	• Dialight • Leotek	Current ITE Specifications C/W countdown timer
2.19	**Sign Mounting Hardware**	Overhead Adjustable Bracket	Pelco	Astro-brac
		Side mount Brackets	Greenlite Traffic	M.O.T.I – GEL 189
2.21.	**Pedestrian / Cyclist Pushbuttons**	Push Button Sign Unit	Polara	Navigator APS EZ 2 wire C/W Central Control and Ped Station Monitor Unit.
2.28	**Uninterrupted Power Supply**	UPS	Alpha	FXM Series
2.32	**Extruded Aluminium Signs**	Streetname Sign Mount	Fortran	Can-Brac assembly
		Special Crosswalk Controller	Novax	PXO-II
		Fire Hall Signal Controller	Novax	ELA515

END OF SECTION

MMCD Section 03 30 20 Concrete Walks, Curbs and Gutters

1.0 GENERAL

1.4 Measurement and Payment	Append to 1.4.3	Payment shall also include joint and surface finishing. Curb within the area ramp or driveway crossing is considered regular curb for the purpose of payment.
	Append to 1.4.5	Payment will be on actual area placed, unless noted otherwise in the Schedule of Quantities and Prices.
	Delete 1.4.6 and replace with	Concrete driveway crossing will be based on actual area placed for different types of finishes and thickness. Payment shall be for those driveways noted on the Contract Drawings, and include grading of base gravels, supply and placement of concrete and surface finishing.
	Append to 1.4.8	Adjustment shall include: removal of existing frame and cover; cleaning; re-set to meet new grade, profile and cross fall; replace grade rings.

2.0 PRODUCTS

2.1 Materials	Amend 2.1.5.1	Minimum cement content should be 335 kg/m3.
	Add 2.1.5.3	Exposed Aggregate Concrete shall be 32MPa 9.5mm Chilliwack Exposed mix.
	Add 2.1.7	1. Colored Patterned Surface for median infill, splash strips, and maintenance vehicle parking pads shall be: 100mm thick stamped colored concrete splash strips or median infill except in maintenance vehicle parking area where concrete shall be 120mm thick.

2. Concrete color to be Brick Red or equivalent using Davis Pigment # 160 at rate of 30 pounds per cubic meter. Stamped concrete pattern shall be running bond pattern.

All coloured concrete to be sealed with clear/translucent sealer after installation and surface is swept clean.

2.2 Curbs & Gutters

Add 2.2.1 On all roads with bike lanes, curb/gutter/catch basins adjacent to the bike lane shall be bike friendly as per Standard Drawing.

Add 2.2.2 All references to concrete barrier curb shall be the narrow base barrier curb as per the Standard Detail Drawing C4, unless approved otherwise by the City.

3.0 EXECUTION

3.13 Special Effects

Add 3.13.3 Exposed aggregate concrete shall be placed in similar fashion as regular concrete finish, except:

.1 Concrete surface shall be washed to expose the aggregates underneath after concrete has been set.

.2 During the wash, all washed water shall be collected and disposed in accordance with the local Best Management Practices.

.3 Disposing the washed water into the storm or sanitary system will not be permitted.

In instances where disposal offsite is not achievable, with the approval of the Contract Administrator, the Contractor may install an onsite collection pond to store and dissipate the washed water through infiltration.

END OF SECTION

MMCD Section 03 30 53 Cast-in-Place Concrete

1.0 GENERAL

1.4 Measurement and Payment

Append to 1.5.5

Payment will be on an individual basis for the complete headwall or other structure being constructed.

3.0 EXECUTION

3.5 Acceptance

Add 3.5.1 Concrete shall develop a minimum compressive strength of 32 MPa at 28 days based on standard cylinder test, performed in accordance with CSA A23.2-9C, based on concrete cylinders collected on the day of placement.

Add 3.5.2 One strength test (3 specimen cylinders) shall be made for each 100 square metres of concrete work. In no case, however, shall there be less than one strength test for concrete placed in one day. One cylinder shall be tested at 7 days, 2 cylinders shall be tested at 28 days.

Add 3.5.3 The core test shall be performed in accordance with CSA 23.2-14C. The compressive strength of the concrete, based on core tests, shall be interpreted from CSA A23.1- 94.

Add 3.5.4 In the event that the cylinders, tested at 28 days, fail to achieve the specified 32 MPa, the Contractor shall, upon notification, obtain cores for further testing. The cores are to be drilled from the portions of the structure in question and tested prior to day 38.

Add 3.5.5 Concrete not meeting the minimum compressive strength criteria shall be rejected and must be removed and replaced at the Contractor’s expense.

END OF SECTION

MMCD Section 26 05 34S Conduit for Communication Network

1.0 GENERAL

.1 This Section refers to those portions of the work that are unique to the supply and installation of communications conduit, service boxes, service vaults for Surrey's Communications Network.

1.1 Related Work

.1 Section 31 24 13 Excavating, Trenching and Backfilling.

1.2 References

.1 CSA C22.2 NO. 211.2-[M1984 (R2003)], RIGID PVC (UNPLASTICIZED) CONDUIT.

1.3 Record Drawings

.1 Contractor to provide information on all changes, additions and deletions to Contract Drawings to reflect "as constructed" installation, including final locations of all equipment installed, per Section 01 33 01 Project Record Documents. All drawings must be submitted to the Contract Administrator no later than 14 days after Substantial Performance.

1.3 Measurement and Payment

.1 Payment for the supply and installation of conduits and related appurtenances as specified in the Contract Drawings shall be Lump Sum.

2.0 PRODUCTS

2.1 General

.1 All products must bear evidence of either a mark or a label of a certification agency accredited by the Standards Council of Canada or an approved label issued by the BC Safety Authority.

2.2 Conduit

.1 Rigid PVC Conduit (RPVC):

.1 Conduit-Rigid polyvinyl chloride to conform to CSA C22.2 No. 211.1.
.2 Couples, Adaptors, Bends and Fitting – Rigid polyvinyl chloride to conform to CSA C22.2 No. 85.
.3 Cement-CSA certified as recommended by RPVC manufacturer.

2.3 Trench Marker Tape

.1 Minimum 150 mm wide, minimum 3.5 mm thick, heavy duty polyethylene. Orange with black letters displaying: "WARNING-COMMUNICATIONS CABLE BURIED BELOW".

2.4 Concrete Communication Vaults

.1 Concrete communication vaults to conform to Section 203 Concrete Vaults, Junction Boxes, Manholes, BCMOT E&SMS V1 with the following exception:

.1 Concrete Vaults: Refer to Drawings SSD-E10.11 to E10.13.

3.0 EXECUTION

3.1 General

.1 .1 Lay out work as shown on Contract Drawings.

.2 Confirm location of all works to be installed with Contract Administrator.

.3 Take reasonable precautions necessary to prevent damage to existing utilities. Any damage to utilities must be repaired to satisfaction of Contract Administrator.

3.2 Excavating, Trenching and Backfilling

.1 Refer to Section 31 23 01 – Excavating, Trenching and Backfilling for conduits, boxes, vaults etc.

3.3 Underground Conduit

.1 .1 Install R.PVC underground conduits in open trenches as shown on Standard Detail Drawings unless shown otherwise on Contract Drawings.

.2 Minimum cover over conduits to be 760mm.

.3 Place trench marker tape above installed conduit trench. Trench marker tape not required for conduits installed via trenchless technology.

.4 Conduits shall be blown out with compressed air, from both ends if necessary and then swabbed out to remove stones, dirt, water and other materials which may have entered during installation. If conduit deformation is suspected, use a mandrel ½" smaller than the conduit diameter and prove the conduit.

.6 All empty conduits shall have a 6 mm nylon pull string installed and capped ends.

.7 Unused conduit stub ends to be capped and location marked on as-built records. Marker balls or epoxied surface tags can also be considered for this purpose.

3.4 Conduit Bends

.1 Conduit shall not be bent in the field. Manufactured (factory) bends must be used. Offsets, however, are allowed within manufacturer's specifications. Where specifications do not exist, deflect no more than 10" for a 10' section or 36" for a 20' section of 4" PVC DBII pipe.

All manufactured bends to be 0.914m radius unless otherwise noted.

3.5 Conduit Joints

.1 Solvent cementing procedures are as follows:

.1 Deburr the inside and outside diameters of the spigot end of the conduit.

.2 Remove all dirt and moisture from the outside of the spigot and the inside of the socket.

.3 Before applying the cement, push the spigot into the socket to ensure they fit together properly.

.4 Apply solvent cement to the outside of the spigot and the inside of the socket.

.5 Push the spigot into the socket until it bottoms. Twist it a ¼ turn to ensure that the solvent is spread around the entire joint.

.6 Hold together for a few seconds until a joint is created.

Solvent cemented joints may appear to set immediately, but it can take up to 24 hours for the joint to completely cure.

END OF SECTION

MMCD Section 26 56 01 Roadway Lighting

1.0 GENERAL

1.4 Electrical Energy Supply	Add 1.4.4	The Contractor shall coil and tape conductors out of weather head. Utility company shall complete electrical service connections.

2.0 PRODUCTS

2.1 General	Append to 2.1.2	All products must bear evidence of either a mark or a label of a certification agency accredited by the Standards Council of Canada or an approved label issued by the BC Safety Authority.
	Replace 2.1.3	All products shall be in accordance with Section 01 62 01S.
2.4 Plastic Junction Boxes	Append to 2.4.1	Lids for plastic junction boxes to be galvanized.
2.5 Concrete Junction Boxes	Delete 2.5.1 and replace with	Refer to Drawing SSD-R.E.6 and R.E.7 for concrete junction box details.
2.7 Poles and Anchor Bolts	Append to 2.7.1	Roadway Lighting poles shall be Type S or L Shafts as defined on the Contract Drawings. Pole specifications vary by neighbourhoods and the latest specifications are available from the City's Engineering Traffic Operations Section.
2.8 Conductors and Cables	Add 2.8.5	Roadway Lighting Feeder Conductors: 600V, conductor size (AWG) as noted on Contract Drawings, stranded aluminum type with RW90 polyethylene insulation, to conform to CSA C22.2 No. 38, 90°C, and color coded as per CEC. All new roadway lighting systems shall be constructed with underground aluminum conductors. System bonding conductors shall be aluminum. Service Panel grounding conductor shall be copper. Pole raceway conductors shall be RW90 stranded copper.

2.10 Conductor Connectors	Delete 2.10.1 and replace with	Compression Type: Connectors shall accommodate combinations of aluminum to copper, and aluminum to aluminum conductors. Size to suit conductor gauge and number of conductors.
2.14 Luminaires	Delete 2.14.1 and replace with	All luminaires shall be LED.
	Delete 2.14.2 and replace with	All luminaires shall be LED.
3.0 EXECUTION		
3.1 General	Add 3.1.5	When tying into or upgrading an existing installation, maintain the existing lighting system operation during the hours of darkness.
3.5 Underground Conduits	Delete 3.5.2 and replace with	Minimum cover over conduits to be 600mm in boulevard areas and 900mm in travelled areas.
	Add 3.5.6	Before pulling conductor cable/wire into a run of conduit, the conduit shall be blown out with compressed air, and pull string installed with caps at each end. Conductors shall be pulled in slowly by hand or hand winch, in order to keep close control on pulling tension and prevent cutting the conduit at bends.
3.8 Wiring	Delete 3.8.3 and replace with	See Drawing SSD-R.E.13 for splice details. Delete reference to solderless type connectors as connectors shall be compression type. Use tool recommended by the connector supplier to make splices. Connectors shall be prefilled with an oxide-inhibiting joint compound.
	Delete 3.8.8 and replace with	Secure conductor splices with compression type connectors. Install using manufacturer recognized mechanical or hydraulic compression tools and matching die set. An oxide-inhibiting joint compound shall be used for terminating or splicing all aluminum conductors.

3.10 Luminaires and Photocells	Add 3.10.4	NEMA wattage label shall be visible at the bottom of the luminaire on all fixtures. Place label on the underside of the luminaire for cobra heads and on the neck or top of pole for post tops.

END OF SECTION

MMCD Section 31 05 17 Aggregates & Granular Materials

1.0 GENERAL

1.5 Inspection and Testing	Add to 1.5.2	Sieve analysis and proctors are required for each type of material to be used prior to the commencement of Work and every 1,000 tonnes during the Work.

2.0 PRODUCTS

2.7 Granular Pipe Bedding and Surround Material	Change 2.7	Delete "Recycled concrete free from contaminated and other extraneous material, conforming to the Type 1 gradations, may be used as pipe bedding and surround material.
2.10 Granular Base	Delete 2.10.2	Delete the use of Type 2 – 19mm crushed gravel.

END OF SECTION

MMCD Section 31 11 41 Shrub and Tree Preservation

1.0 GENERAL

1.3 Measurement and Payment

Delete 1.3.1 and replace with

Payment for all shrub and tree preservation, including tree protection fencing, grading, exposing root zone and hand excavation, and works deemed necessary by a certified arborist or the Contract Administrator, is applicable to all work performed under this Section, and incidental to payment for work described in other Sections unless shown otherwise in the Schedule of Quantities and Prices.

END OF SECTION

MMCD Section 31 15 60 Dust Control

3.0 EXECUTION

3.1 Application

Append to 3.1.1

Control of dust and sediment is critical. The Contractor will regularly scrape, sweep and clean the roads. The sites must be maintained in a professional manner to ensure that the works does not adversely affect the residents in the area. Dust and sediment build-up on adjacent surrounding roads or grounds is not permitted and must be immediately removed by the Contractor.

Append to 3.1.3

Aqueous chloride and magnesium cannot be used for work areas within 100m of a watercourse, and work areas that are draining to a watercourse.

Add 3.1.5

The Contract Administrator may request additional street cleaning which shall be promptly undertaken at the Contractor's expense.

Add 3.1.6

If the Contractor fails to maintain dust and sediment control the City can carry out the dust and sediment control as needed and costs will be charged against the Contractor.

END OF SECTION

MMCD Section 31 22 01 Site Grading

1.0 GENERAL

1.4 Measurement and Payment

Delete 1.4.1 and replace with

No separate payment will be made for topsoil stripping, unless noted otherwise in the Schedule of Quantities and Prices, as payment for this work shall be included in rough site grading and common excavation.

Append to 1.4.2

Rough site grading and redistribution of excavated materials to design elevations and grades will be paid on a volumetric basis, measured in cubic meters based on before and after surveyed cross sections measured at a maximum 20 meter interval.

3.0 EXECUTION

3.2 Grading

Delete 3.2.2 and replace with

Works shall be carried out in accordance with Section 31 23 01 - Excavating, Trenching and Backfilling - 3.5.4, except Provincial Highways where the compaction shall be 95% Modified Proctor density.

3.3 Tolerances

Delete 3.3.1 and replace with

Accuracy of subgrade elevations to be within tolerances shown in Table 2.

Table 2: Tolerances for Subgrade where Growing Medium (Topsoil) to be Placed Over Subgrade

Intended Growing Medium Depth	Tolerance
0 – 150mm	25mm +/-
151 – 300mm	25mm +/-
301 – 600mm	50mm +/-

END OF SECTION

MMCD Section 31 23 01 Excavating, Trenching and Backfilling

1.0 GENERAL

1.3 Definitions	Append to 1.3.4	Removals shall also include asphalt; concrete; driveways; street lights and traffic signals and their bases; electrical and communication conduits and vaults; fences; handrails; and similar works.
1.8 Limitations of Open Trench	Append to 1.8.1	If open trench is in, or adjacent to, a road or sidewalk, permission is required from the City and in the event the City permits steel road plates they shall be designed by a Professional Engineer and pinned down.
1.10 Measurement and Payment	Append to 1.10.1	Payment for works in this Section shall include excavation, shoring, trench and site dewatering, hauling and disposal, of surplus soil.
	Append to 1.10.7	Cleaning and deepening of existing channel or ditch shall be paid on a lineal metre basis as measured along centerline, unless noted otherwise in the Schedule of Quantities and Prices.
	Append to 1.10.8	Payment for boulevard swale shall be measured on a lineal metre along centerline, unless noted otherwise in the Schedule of Quantities and Prices.
1.11 Inspection and Testing	Add 1.11.2	For items that are measured by weight, the Contractor shall: .1 Co-ordinate his Work so that no more than one Contract Administrator representative is required to witness, collect and check the weigh tickets at any one time. .2 Arrange weigh tickets to be collected and verified at specific locations on the Site, and on the same day as material is delivered, as agreed by the Contract Administrator.

The Contract Administrator and Owner may refuse approval of tickets received after the day of placement. Payment is only for the material completely incorporated into the Works as witnessed by the Contract Administrator's representative.

2.0 PRODUCTS

2.2 Use of Specified Materials

Delete 2.2.1 and replace with

Backfill for over-excavated trench shall be imported 75mm Pit Run Gravel as specified in Section 31 05 17 - 2.3.

Delete 2.2.3 and replace

Trench backfill to be imported granular material as per Drawing SSD-G.4.

3.0 EXECUTION

3.2 Stockpiling

Add 3.2.2

Carefully dismantle and stockpile items containing materials for salvage, and dispose excess materials after salvage is completed.

3.3 Excavation

Add 3.3.13

Asbestos pipe and products to be removed and disposed by Contractor, in accordance with Work Safe BC requirements.

3.5 Backfill and Compaction

Append to 3.5.4.1

Boulevard and easement along Provincial Highways and shall be compacted to 95% Modified Proctor density.

Add 3.5.4.4

Trench backfill, road subgradeand embankment fill shall be placed and compated in 0.300m vertical lifts, or less, along the entire length. As a minimum, the frequency of quality control testing for compaction densities for trench backfill, road subgrade and embankment fill shall be at least one test per 50 lineal metres of trench, or lane width, and the number of tests shall vary per vertical depth:

.1 Trench backfill, Subgrade and embankment fill 0.600m or less shall include 1 vertical test per 50m;

		.2 Trench backfill, Subgrade and embankment fill between 0.600m and 1.8m shall include 2 vertical test per 50m, with vertical test intervals being equally spaced;
		.3 Trench backfill, Subgrade and embankment fill greater than 1.800m shall include 3 vertical test per 50m, with vertical test intervals being equally spaced;
3.6 Surface Restoration	Delete 3.6.6.1 and 3.6.6.2 and replace with	.1 Place temporary pavement on arterial and collector roads within 72 hours of when the excavation is made. During the 72 hours the use of a steel road plates is required.
		.2 Patch all other roads within 5 calendar days, and by the end of each work week, of when the excavation is made. During the 5 Calendar Days period the road may remain in an even gravel surface, with a minimum of 75mm of 19mm minus granular road base compacted to 95% Modified Proctor density.
	Add 3.6.6.6	.6 Ensure the temporary gravel surface is even and does not have irregularities exceeding 10mm when checked with a 3m straightedge placed in any direction.
	Delete 3.6.7.1 and 3.6.7.5 and replace with	.1 Install permanent pavement within 60 calendar days of placement of temporary patch, weather permitting, and upon confirmation of passed testing results for trench compaction. The *Contractor* may elect to repair the pavement cut with a permanent pavement restoration, and forgo the temporary pavement patch, provided the permanent pavement restoration can be completed within the timeframe specified in Section 3.6.1 and 3.6.2.
		.5 Restore pavement as detailed on Drawing SSD-G5.

Add 3.6.7.11 .11 During the permanent pavement restoration, the permittee may elect to mill the surface of the pavement cut area leaving a portion of the temporary pavement patch, provided the permittee has confirmed by way of test and inspections that:

1.1 All broken, cracked, settled pavement (within the temporary pavement patch location) has been removed. Confirmation will be provided by the permittee by way of pictures and inspections;

1.2 The temporary pavement patch has been installed using hot-mix asphalt and at a consistent pavement thickness in accordance with Drawing SSD-G.5;

1.3 The temporary pavement patch has been tested for asphalt thickness and densities, in accordance with Section 32 12 16 and/or Section 32 12 16; and

1.4 The temporary pavement patch has been installed during dry weather and with temperatures greater than 10 degrees.

END OF SECTION

MMCD Section 31 24 13 Roadway Excavation, Embankment and Compaction

1.0 GENERAL

1.3 Definitions

Amend 1.3.1

Change wording to read "three classes" of excavation and add 1.3.1.3 as follows:

.4 Mass Excavation: As defined as "Removals" under Section 31 23 01 – Excavating, Trenching and Backfilling – 1.3.

1.8 Measurement and Payment

Delete 1.8.4 and replace with

Payment for Mass Excavation (or Removals), as defined in paragraph 1.3.1 of this Section, will be on a Lump Sum basis, unless noted otherwise in the Schedule of Quantities.

Delete 1.8.5 and replace with

Payment for Common Excavation includes that defined in paragraph 1.3.1.2 of this Section including striping, removal and disposal of grass, sod and topsoil.

Payment for Common Excavation shall be as follows, unless noted otherwise in the Schedule of Quantities and Prices:

.1 The initial cross sections will be taken after Mass Excavation and Clearing and Grubbing are complete. The final cross sections will be taken upon completion of excavation to lines and levels required prior to placing of other materials over the excavated surface.

.2 Payment for on-site re-use includes stockpiling, double handling and hauling, moisture conditioning, placement, grading and compaction. Payment will be on a volumetric basis, calculated from cross-sections at sufficient and equal intervals as determined by the Contract Administrator.

	Delete 1.8.9 and replace with	Payment shall include finish grading, removal of surplus material, placement of additional gravels, adjustment of moisture content and compaction to obtain the required grades and cross section. Payment for subgrade preparation under sidewalks, curbs and boulevard strips shall be included in their respective sections.

3.0 EXECUTION

3.5 Compaction	Add 3.5.7	The frequency of density tests shall be one test per 250m^2 per 300mm vertical lift.
3.7 Proof Rolling	Add 3.7.6	If the Contractor disagrees with the Contract Administrator's determination of soft areas, density tests, Benkelman beam testing or other mutually acceptable testing shall be carried out and be the determining criteria.

END OF SECTION

MMCD Section 32 01 11 Pavement Surface Cleaning and Removal of Pavement Markings

1.0 GENERAL

1.2 Measurement and Payment	Delete 1.2 and replace with	Payment for pavement cleaning surfaces, removal of pavement markings and related work will be incidental to Work described in other sections, unless noted otherwise in the Schedule of Quantities.

END OF SECTION

MMCD Section 32 01 16.7 Cold Milling

1.0 GENERAL

1.1 Related Work	Add 1.1.6	Hot-Mix Asphalt Concrete Paving - Section 32 12 16.
	Add 1.1.7	Superpave Hot-Mix Asphalt – Section 32 12 17.
	Add 1.1.8	Full Depth Reclamation - Section 32 01 16.8.
1.5 Measurement and Payment	Append to 1.5.3	Payment for reusing milled material onsite shall also include, stockpiling and double handling, spreading, grading and compacting milled material.
	Add to 1.5.4	Payment for supply, installation and removal of temporary asphalt slope around manholes, valve covers and utility covers is incidental to the milling work.

3.0 EXECUTION

3.1 Equipment	Add 3.1.2	Grader mounted grinders are not acceptable for this Work.
	Add 3.1.3	The existing asphalt concrete shall be milled by equipment suitable to produce a well graded material with the largest aggregate size not exceeding 25mm.
3.2 Preparation	Add 3.2.4	All manhole rims, valve covers, and utility cover lids must have an asphalt slope from the top of the lid to milled surface of sufficient length to prevent damage to vehicular traffic. These slopes are to be completely removed immediately prior to final paving. These appurtenances must be monitored until final paving. Use of temporary sloped collar will also be acceptable for a period of less than 7 days.
	Add 3.2.5	Minimum milling: Depth – 35mm Width – 1.2 metre

3.3 Stockpiled Material	Add 3.3.3	Subject to prior approval of the Contract Administrator, the milled material shall be used onsite for road base and sub-base. The Contract Administrator will determine the mixture ratio between the milled material and the imported base and sub-base material and the method of placing.
3.4 Placing	Append to 3.4.4	The material shall be bladed to proper grade and cross section as directed.
	Add 3.4.6	Unless otherwise specified in writing by the Contract Administrator, the milling of the existing asphalt shall be followed by repaving within five (5) Days of the commencing of the milling. The milled asphalt surface shall be graded, monitored, signed and maintained at no additional cost to the Owner.

END OF SECTION

MMCD Section 32 11 16.1 Granular Subbase

3.0 EXECUTION

3.3 Compaction	Add 3.3.6	The frequency of density tests shall be at least one test per 150 square metres placed, minimum one per day, and test interval shall be consistent and evenly spaced along length and width of Work. For Work that involves roadway, curb and sidewalk, test locations shall be staggered amongst the travelled lanes, curbs and sidewalks.

END OF SECTION

MMCD Section 32 11 23 Granular Base

3.0 EXECUTION

3.3 Compaction	Add 3.3.6	The frequency of density tests shall be at least one test per 150 square metres placed, minimum one per day, and test interval shall be consistent and evenly spaced along length and width of Work. For Work that involves roadway, curb and sidewalk, test locations shall be staggered amongst the travelled lanes, curbs and sidewalks.
3.5 Proof Rolling	Delete 3.5.1 and replace with	Contractor is also responsible for proof rolling granular base course grade prior to paving and placement of concrete curb and sidewalks. Contractor to complete Benkelman Beam testing in the presence of the Contract Administrator prior to any paving work.

END OF SECTION

MMCD Section 32 12 16 Hot-Mix Asphalt Concrete Paving

1.5 Measurement and Payment	Append to 1.5.4	No additional payment will be made for hand formed curbing.
	Delete 1.5.7 and replace with	No additional payment will be made for saw cutting asphalt concrete or curbs; Portland cement concrete or curbs; curbs, gutters, or sidewalks; including the requirement for neat lines and tie-ins. Payment for this work will be incidental to payment for work described in other Sections.
	Delete 1.5.8 and replace with	Payment for permanent reinstatement of pavement includes all work under Section 31 23 01 – 3.6.7.
	Add 1.5.9	Payment for pavement patching is defined as isolated or segmented areas of pavement repair that are less than 10 square meters in area. Payment shall include saw cutting, excavation, and removal of existing asphalt, fine grading and compaction of base, tack coat, prime coat, and all other works described in 1.5.1 of this Section.
	Add 1.5.10	Payment for stamped asphalt concrete surfaces shall be as per 1.5.3 of this Section.
1.6 Inspection and Testing	Add 1.6.3	The frequency of Marshall tests shall be one test for each asphalt type, minimum one per day, per site/location.
	Add 1.6.4	For road paving, core locations will be selected for each pass of the paving machine as follows: .1 Across the width, core locations will be selected randomly from each lane. .2 Along length, core locations should be spaced evenly every 75 metres, with a minimum of 2 core samples required for lengths shorter than 150m.

	Add 1.6.5	For other paving operations, a minimum of one core for every 500 square metres of asphalt mix placed. For area less than 1500 square metres, a minimum of 3 cores will be required. For areas less than 500 square metres, testing frequency will be at the direction of the Contract Administrator.
	Add 1.6.6	A section of pavement is deemed to have met the specification for compaction if the cores average 97% or more of the 75 blow Marshall density obtained in an approved hot mix laboratory test conducted on an actual field sample with no individual core less than 95%. For this purpose, a section of pavement is defined as an area the width of one pass of a paving machine by the length required to obtain 5 consecutive cores.
	Add 1.6.7	A section of pavement is deemed to have met the specification for thickness if the average of 5 consecutive cores is within 5mm tolerance of the design thickness with no individual core more than 6mm thinner than the design thickness.
	Add 1.6.8	Acceptance will be based on an appropriate combination of cores, hot- mix test results, and smoothness / ride ability of the surface.
	Add 1.6.9	Core holes shall be reinstated to the satisfaction of the Contract Administrator.

2.0 PRODUCTS

2.2 Mix Design	Amend 2.2.3.3	Change references to ASTM D1559 to ASTM D6927.
2.3 Stamped Asphalt Surface	Add 2.3.1	Where specified as stamped asphalt, colored patterned surface for median infill, splash strips, and maintenance vehicle parking pads shall be: 50mm thick stamped colored asphalt for splash strips or median infill, and 75mm in maintenance vehicle parking area.

		Asphalt color to be "Terra-cotta" as supplied by Integrated Paving Concepts or Approved Equivalent, and stamped pattern shall be running bond.

3.0 EXECUTION

3.3 Preparation	Append to 3.3.3	Contractor shall inform utility agencies with sufficient notice in regard to the affected utility covers. The Contractor shall loosen the utility covers and make adjustment. Adjustment may be completed by the Agency or deferred to the Contractor. Adjustment shall be completed at least one day prior to paving.
	Append to 3.3.6	Prior to final paving, reinstate disturbed detector loops and complete paving and reconnection of the loops.
	Add 3.3.7	When removing reclaimed asphalt pavement (RAP) for subsequent incorporation into hot mix asphalt concrete paving, prevent contamination with base aggregates.
3.5 Placing	Add 3.5.3.4	The asphalt mix shall be placed at a temperature between 135^{o}C and 163^{o}C measured in the mat immediately behind the paver.
3.7 Joints	Delete 3.7.4 and replace with	All joints shall be butt joints.
3.9 Asphalt Sidewalks and Driveways	Add 3.9.6	Sidewalks and driveways shall not be opened to pedestrians or vehicles until the mix has cooled sufficiently to prevent deformation.
	Add 3.9.7	Curbs shall be machine extruded. The weight of the placing machine shall be such that compaction is obtained without the machine riding above the bed on which the curb in constructed. The machine shall form curbing that is uniform in texture, shape and density.

		The curbs shall be placed to an accurate alignment. The curbs shall be protected from traffic by barricades or other suitable methods until the curb has hardened.
3.9 Finished Tolerances	Append to 3.9.1	Finished asphalt surface to be within 20mm horizontally from design alignment.

END OF SECTION

MMCD Section 32 12 17 Superpave Hot-Mix Asphalt Concrete Paving

1.0 GENERAL

	Add 1.0.6	Work required in this Section shall be in accordance with the latest version of the City's Engineering Department Pavement Cut Practice and Procedure.
	Add 1.0.7	All pavement on Arterial Roads shall be Superpave Hot- Mix Asphalt Concrete.
1.5 Measurement and Payment	Add 1.5.9	Payment for sawcutting asphalt concrete or Portland cement concrete pavement for temporary and permanent pavement restoration will be incidental to payment for work described in other Sections.
1.6 Inspection and Testing	Add 1.6.3	For Superpave Hot-Mix asphalt, the frequency of Gyratory, moisture content, asphalt content and percent fracture tests shall be one test for each asphalt type, minimum one per day and minimum one per 500 tonnes.
	Add 1.6.4	For road paving, random core locations will be selected for each lane, or pass of the paving machine, but not to exceed 75m in length. For other paving operations, a minimum of one core for every 500 square metres of asphalt mix placed. For area less than 1500 square metres, a minimum of 3 cores will be required. For areas less than 500 square metres, testing frequency will be at the direction of the Contract Administrator.
	Add 1.6.5	A section of pavement is deemed to have met the specification for compaction if the cores have achieved the compaction requirements of 3.6 in this Section, when conducted by a CCIL certified asphalt laboratory on actual field hot-mix sample.

Add 1.6.6 A section of pavement is deemed to have met the specification for thickness if the average of 5 consecutive cores is within 5mm tolerance of the design thickness with no individual core more than 6mm thinner than the design thickness.

Add 1.6.7 Acceptance will be based on an appropriate combination of cores, hot-mix test results, and smoothness / ride ability of the surface.

Add 1.6.8 Core holes shall be reinstated to the satisfaction of the Contract Administrator.

2.0 PRODUCTS

2.1 Materials

Append to 2.1.1 Superpave asphalt cement must meet or exceed Performance Grade PG 64-22.

Delete 2.1.2 and replace with Reclaimed asphalt pavement (RAP): processing, quality and use to requirements of NCHRP Report 452 and Table 1, with a RAP incorporation limit not to exceed 10% in lower course Superpave HMA and 10% in upper course Superpave HMA.

Append to 2.1.3.1 Lower course to be Superpave 19mm aggregate size mix, and Upper Course to be Superpave 12.5mm mix.

Amend 2.1.4 In Table 1, maximum allowable RAP shall be 10%.

Add the following notes below Table 1:

.7 The amount of total AC replaced by AC in the RAP will be calculated as follows:

% AC Replacement = (a x b) / c

Where:
a = AC content of RAP
b = RAP percent in mixture by total weight of mix
c = Total percent AC content in mixture

		.8 Rejuvenators and softening agents not permitted
		.9 Asphalt Shingles not permitted.
2.2 Mix Design	Append to 2.2.2	Mix design gradation curve to be based on at least five (5) samples for each aggregate type.
3.0 EXECUTION		
3.1 Plant and Mixing Requirements	Add 3.1.4.4	Air voids shall be between 3.0 – 5.0%.
3.3 Preparation	Append to 3.3.3	Contractor shall inform utility agencies with sufficient notice in regard to the affected utility covers. The Contractor shall loosen the utility covers and make adjustment. Adjustment shall be completed at least one day prior to paving.
	Add 3.3.7	When removing reclaimed asphalt pavement (RAP) for subsequent incorporation into hot mix asphalt concrete paving, prevent contamination with base aggregates.
3.5 Placing	Append to 3.5.1	Contractor shall prepare and submit a Quality Control Plan to the Contract Administrator at least 7 days prior to paving. The plan shall include full details of: .1 Plant test and gradation results, including date sampled / tested .2 Equipment, number of trucks, placement rate .3 Contemplated rolling patterns .4 Testing for control of density
	Add 3.5.3.4	The asphalt mix shall be placed and compacted at a temperature range determined from the Viscosity – Temperature Chart from 250-310 cST (compaction range) for the asphalt cement type being used, and to be measured in the mat immediately behind the paver.
3.7 Joints	Delete 3.7.4 and replace with	Feather joints are not permitted.

3.10 Finished Tolerances	Append to 3.10.1	Finished asphalt surface to be within 20mm horizontally from design alignment.

END OF SECTION

MMCD Section 32 14 01 Unit Paving

1.0 GENERAL

1.6 Measurement and Payment	Delete 1.6.3 and replace with	Payment for unit paving should be measured in square metres, unless noted otherwise in the Schedule of Quantities and Prices. The price shall include the supply and installation of all materials, including pavers of varying color, size and type, edging, granular laying course, bedding sand, joint sand, cutting of all edges to fit, compaction, adjusting, leveling, cleaning surface of excess sand, and sealant.

2.0 PRODUCTS

2.1 Materials	Append to 2.1.4	Granular laying course sand shall have moisture content between 6.0% to 8.0%.
	Append to 2.1.5	Boulevard or sidewalk pavers shall be a minimum 60mm thick.
	Add 2.1.7	Concrete pavers shall conform to ASTM C939 to C982, specifications for solid concrete interlocking paving units.
	Add 2.1.8	All concrete pavers shall be sealed with after installation and surface is swept clean.

3.0 EXECUTION

3.4 Granular Laying Course	Delete 3.4.1 and replace with	Granular laying course shall be spread evenly over the area to receive concrete pavers in one day and protected against weather. This bedding shall have a compacted thickness of 50mm, and graded to meet cross falls in boulevards, sidewalks and driveways.
3.5 Unit Paving	Delete 3.5.4.1 and replace with	Full units shall be installed first and edge pieces fitted subsequently. All pavers to have 3mm +/- joints.

Append to 3.5.4.2 Pavers shall be vibrated to their final level by having not less than 3 passes of a vibrating plate compactor. The compactor shall be a high frequency, low amplitude unit with plate sized to cover at least 12 pavers.

Append to 3.5.4.4 Jointing sand shall be spread over the paver surface and vibrated to completely fill all joints. Jointing sand shall be reinstalled after the first heavy rainstorm.

END OF SECTION

MMCD Section 32 17 23 Painted Pavement Markings

1.0 INTRODUCTION

1.5 Measurement and Payment	Add 1.5.5	Payment for enhanced safety markings covers supplying all materials and completing all permanent enhanced safety markings shown on Contract Drawings.

2.0 PRODUCTS

2.1 Materials	Add 2.1.6.10	The temporary traffic line shall be a 100mm x 300mm strip of prefabricated reflective yellow tape having an adhesive backing and shall be placed at 10 metre intervals along the center of pavement.
	Add 2.1.6.11	The temporary stop bar shall be 2 - 100mm continuous strips of prefabricated reflective white tape having an adhesive backing and placed across the travel lanes at traffic control intersections.
	Add 2.1.7	Permanent Pavement Markings to be as follows: .1 Extruded Thermoplastic screed for line markings, median markings, stop bars and bicycle symbols; .2 Colourized enhanced safety markings, such as "green" bike conflict zones and "red" que jumpers are to be Methyl Methacrylate (MMA).

3.0 EXECUTION

3.3 Application	Append to 3.3.2.1	Survey layout to be at 500mm intervals and markings to be placed within 24 hours of final lift of paving.
	Delete 3.3.3.3 and replace with	Thermoplastic material shall be heated in the melter to a temperature of 195^0 C.

END OF SECTION

MMCD Section 32 31 13 Chain Link Fences and Gates

3.0 EXECUTION

3.3 Installation of Gates	Add 3.3.1	Install gates and gate stops in locations as shown on Contract Drawings.
	Add 3.3.2	Level ground between, and around, gate posts and set gate bottom approximately 40mm above ground surface.
	Add 3.3.3	Determine position of center gate rest for double gate. Cast gate rest in concrete as directed and dome concrete above ground level to shed water.
3.4 Touch Up	Add 3.4.1	Clean damaged surfaces with wire brush removing loose and cracked coatings. Apply two coats of organic zinc-rich paint to damaged areas. Pre-treat damaged surfaces according to manufacturer's instructions for zinc-rich paint.
3.5 Cleaning	Add 3.5.1	Clean and trim areas disturbed by operations. Dispose of surplus material as specified in Contract Documents.

END OF SECTION

MMCD Section 32 91 21 Topsoil and Finish Grading

1.0 GENERAL

1.5 Inspection and Testing

Add 1.5.2

Contractor to provide an analysis of each type of material to be used prior to commencement of the Work and analysis of a minimum of 2 random samples of growing medium taken just before planting.

2.0 PRODUCTS

2.10 Growing Medium

Amend 2.10 as follows

Amend Table 2 in 2.10 to be as follows:

Table 2: Properties of Growing Medium

Criteria	Optimum Specification	Accepted Range
C/N Ratio	30	20 - 35
pH	6.8	6.0 - 7.5
Lime	0	0
Extract Conductivity	3	2.5 - 5
Sand	63%	50 - 68%
Fines	18%	10 - 25%
Organic Matter	19%	13 - 25%
Nitrogen	0.5	0.25 - 1.0
Phosphorus	250	125 - 350
Potassium	1500	1000 - 2500
Calcium	3000	2000 - 4000
Magnesium	400	300 - 600

3.0 EXECUTION

3.4 Placing Growing Medium

Append to 3.4.5

Thickness of growing medium to be in accordance with the Drawings SSD-R.1 to SSD-R.10.

END OF SECTION

MMCD Section 32 92 23 Sodding

2.0 PRODUCTS

2.1 Sod	Add 2.1.8	Sod shall be free of fibrous net.

END OF SECTION

MMCD Section 32 93 01 Planting of Trees, Shrubs and Ground Covers

1.0 GENERAL

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1.9 Measurement and Payment

Append to 1.9.1

Payment shall include excavation of the planter pocket, disposal, and supply and installation of structural topsoil or growing medium. Payment will be 90% upon completion of planting and watering, based on progress payments, and the final 10% will be paid upon achieving Total Performance after a plant/shrub survival count and assessment has been completed by the Contract Administrator.

Add 1.9.3

Bark mulch shall be measured and paid on the basis of square metre of specified thickness. The unit prices shall include the supply and installation of the polyethylene sheets and bark mulch; spreading and grading.

2.0 PRODUCTS

2.1 Plant Material

Add 2.1.13

All Tree and shrub species to be in accordance with the City's Parks, Recreational and Culture Standard Construction Documents, including species, caliper, and branch elevation above finished ground.

3.0 EXECUTION

3.3 Planting

Add 3.3.4.5

Around base of trees and shrubs, apply 75mm thick layer of bark mulch over soil surface, maintaining a separation distance of 100mm between the mulch and the trunk of the tree or shrub.

3.5 Watering

Append to 3.5.1

Frequency of watering to be weekly during summer months, if plantings are less than 4 months of age, otherwise frequency shall be on a monthly basis as a minimum.

END OF SECTION

MMCD Section 33 01 30.1 CCTV Inspection of Pipelines

1.0 GENERAL

1.2 References	Delete 1.2.2.1 and replace with	National Association of Sewer Service Companies (NASSCO), latest version of the Pipeline Assessment and Certification Program (PACP).
	Add 1.2.3	In this Section, replace all references to "NAAPI" with "NASSCO".
	Add 1.2.4	In this Section, replace all references to "WRc" with "PACP".

2.0 PRODUCTS

2.1 Equipment	Add 2.1.1.5	Each unit is to be equipped with fans to remove fog that is present in the sewer at the time of the inspection.
	Add 2.1.3.5	The focal range is to be adjustable from 100mm in front of the camera's lens to infinity. The digital camera is to be capable of producing clear, sharp images at a minimum resolution of 800 x 600.
2.2 Materials	Delete 2.2.3 and replace with	Digital report data and videos to be stored on a USB memory stick or web based server, with hardcopy backup on DVD-R, and provided to the City.

3.0 EXECUTION

3.1 CCTV Inspection	Append to 3.1.6	Conduct all inspections in the direction of flow unless a reverse set-up is required. Inspections are generally to begin with the upstream sewer in the system and proceed downstream in a consecutive manner. Inspection is not to proceed downstream until all contributing upstream sewers have been cleaned.

	Append to 3.1.14	If during the inspection clear water infiltration, flow disparity, or if there is a hole, void or collapse greater than 10%, capture an image and immediately notify the Contract Administrator.
	Append to 3.1.17	If inspection of an entire sewer cannot be completed due to collapse, deformation or solid debris, intruding connections, obstructions or large displaced joints, move the equipment to the upstream manhole and attempt inspection again. If complete inspection cannot be performed notify the Contract Administrator immediately.
3.8 Inspection Reporting Hard Copies & Digital Format	Append to 3.8.4	The digital output files shall be stored in Microsoft Access Database Format (*.mdb) and in a format compatible with the City's GIS (ArcMap) and internal software.
3.9 Flushing and Cleaning	Add 3.9.2	For sewers that are deemed by the Contract Administrator to be unacceptably cleaned, or not clear, CCTV video inspection reports will be rejected and the sewer shall be re-cleaned and re-videoed at the Contractor's expense.
3.11 Flow Reduction	Delete 3.11.1 and replace with	Reduce flow depth, through a combination of measures as outlined in this Section, to approximately 20% of the pipe diameter in order complete CCTV inspection.
3.12 Coding Accuracy	Add 3.12.5	On a random basis, the Contract Administrator may complete an independent Quality Assurance review of the inspection reports.

END OF SECTION

MMCD Section 33 01 30.2 Sewer Cleaning

1.0 GENERAL

	Add 1.0.3	Sewer cleaning shall remove all debris from existing sewers and manholes to: alleviate blockages and prevent sewer backups, overflows and property damage; to restore hydraulic capacity; to reduce odors; to permit thorough CCTV inspection; and to allow rehabilitation works to be performed. Definitions for debris are generally consistent with the nomenclature contained in the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP).
1.5 Measurement and Payment	Delete 1.5.4 and replace with	Solid debris and root cutting and shall include removal and disposal of debris in existing sewers to an approved off-site facility. The length paid will be the total number of lineal meters cut, as authorized and approved by the Contract Administrator, and as verified by pre and post sewer inspection videos.
	Add 1.5.5	Separate payment will not be made for reverse set-up cleaning.

3.0 EXECUTION

3.1 Sewer Cleaning	Add 3.1.1.5	Deliver notification letters to residents and businesses at least five (5) days prior to commencing work.
3.3 Root Removal	Delete 3.3.1 and replace with	Obtain Contract Administrator's approval prior to undertaking any debris removal or root cutting.

END OF SECTION

MMCD Section 33 11 01 Waterworks

1.0 GENERAL

1.8 Measurement and Payment	Delete 1.8.4 and replace with	Payment for service connection includes mainline saddles where specified, corporation stops, curb stops, meter setter, boxes, service pipes and all related fittings and appurtenances specified and/or shown on Drawing SSD-W.1. Payment includes all applicable Work described in 1.8.2. Measurement for service connections will be for each complete service installed, with no regard to length of service pipe installed.
	Append to 1.8.10	Payment for casing pipe shall include the method of construction, such as open cut or trenchless technology, as noted on the Contract Drawings; and payment shall include excavation and backfill for casing pipe of access pits, casing spacers and end seals. Measurement for casing pipe will be made along the centerline of the casing pipe, over surface, after Work has been completed.
	Delete 1.8.12 and replace with	There will be no payment for tie-ins to existing mains or service transfers when all work is to be undertaken by the City's Crew.
	Add 1.8.14	Payment for hydrants includes the hydrant body, lateral connections from mainline tee off water main to hydrants, isolation valve at the mainline tee and curb valve with adjustable valve box, fittings and all other incidental Work as shown on the Drawings.

2.0 PRODUCTS

2.2 Mainline Pipe, Joints and Fittings	Delete 2.2.4.1 and replace with	Grey-iron (cast iron) fittings are not acceptable.

Delete 2.2.4.10.1 and replace with

.1 Tie rods to be continuous threaded stainless steel, Type 304. Tie rods shall be the correct size for the lug opening and installed on all lugs provided with the minimum number of lugs and diameter to be as per the following table in order to achieve a safety factor of 2.0:

Nominal Pipe Size (mm)	Water Pressure (KPa)	Minimum Number of Tie Rods	Tie Rod Diameter
150	1380	2	20mm
200	1380	2	20mm
250	1380	4	20mm
300	1380	4	20mm
350	1380	4	20mm
400	1380	6	20mm
450	1380	8	20mm

Add 2.2.4.7.4

HDPE flanges to have epoxy coated, steel backup rings.

Delete 2.2.4.13.11 and replace with

All joint restraints for PVC and PVCO water mains shall not be wedge style and shall be approved by the City and Manufacturer to not de-rate the pressure rating of the pipe.

Delete 2.2.5 and replace with

Pre-stressed Concrete Pressure Pipe is not acceptable.

Add 2.2.7

Oriented Polyvinyl Chloride (PVCO) Pressure Pipe:

.1 Pipe:
  .1 Pipe to be manufactured to specifications for pipe size ranges as follows:
    .1 Pipes 150 to 300mm dia. - AWWA C909
    .2 Pipes to be pressure rated to minimum operating pressure of 1620 kPa (235psi)

.3 Pipes to be certified by Canadian Standards Association to CSA B137.3.1

.2 Joints: Push-on integrally thickened bell and spigot type to ASTMD 3139 with single elastomeric gasket to ASTM F477.

2.3 Valve Boxes and Lids

Delete 2.3.2.2 and replace with

To AWWA C515: 400mm and larger to working pressure 1725 kPa, non-rising stem, hub, flanged or mechanical joint ends.

Delete 2.3.2.3 and replace with

To AWWA C509: 75mm to 300mm to working pressure 1380 kPa ductile iron body, non-rising stem, hub, flanged or mechanical joint ends.

Delete 2.3.5.1 and replace with

Ductile Iron body.

Add 2.3.6.1.2

Mainline valve boxes shall be MR style.

Delete 2.3.8.1 and replace with

To AWWA C508: 50 to 300mm diameter to 1200 kPa; 400 to 500mm working pressure to 1035 kPa; ductile iron body, clear waterway type, resilient seated, mechanical joint ends to AWWA C111 of flanged ends to AWWA C110.

2.6 Hydrants

Delete 2.6.2 and replace with

Color:
Body shall be painted S/P Urethane Industrial Enamel LF Signal Red General Paint Product # 9811624801.

Nozzle caps shall be painted S/P Urethane Industrial Enamel LF White General Paint Product # 9811601001.

3.0 EXECUTION

Append to 3.6.3

Prior to construction, contractor to confirm tie-in location, elevations, pipe materials and dimensions for at least 1.5m upstream and downstream of the tie-in.

3.6 Pipe Installation

Delete 3.6.6 and replace with

Maximum joint deflection shall be 50% of the manufacturer's recommendation.

Append to 3.6.10.10	Pipe to be installed in accordance with ASTM D2774, and cold bending allowed to a minimum radius of 50 times nominal diameter. All fusing to be completed by personnel trained by the manufacturer.
Append to 3.6.11	Watermain Identification: yellow PVC marker tape to be placed at top of pipe zone. Marker tape to be continuous, 75mm wide and lettered "Watermain" at 1m intervals.
Add 3.6.15	Where casing pipes are installed, provide casing spacers at maximum 3.0m spacing with spacers at each bell and 0.5m from the start and end of the casing pipe.
Add 3.6.16	When joint wrapping is required, all applicable joints shall be wrapped with heat shrink plastic or packed and wrapped with petrolatum tape in accordance to the following standards: .1 ANSI/AWWA C214 (factory applied) .2 ANSI/AWWA C209 (field applied) .3 ANSI/AWWA C217-90 (petrolatum tape) .4 All materials to have zero health hazard. Installation shall be in accordance with the requirements of the Regional Health Engineer under the Health Act.
Add 3.6.17	Anchor weights to be included on PVC, PVCO and HDPE pipe where the pipe is susceptible to floatation caused by soil and groundwater, with anchor weight sized not to cause settlement.
Delete 3.10.6 and replace with	Tapings in PVC mains to AWWA C900 pipe to be with service saddles specified in Section 33 11 01 -2.5.3.3. Nuts on service saddle straps to be tightened to torque range specified by manufacturer approved and in no case in excess of that torque. Only manufacturer approved tapping tool will be allowed. Provide test coupons to Contract Administrator.

3.10 Service Connection Installation	Append to 3.10.1	Service connection and boxes shall also be installed in accordance with the City's Water Meter Design Criteria Manual & Supplementary Specifications.
	Append to 3.10.7	Service connections to HDPE mains shall be connected by methods of thermal butt fusion as outlined in ASTM 2657. Butt fusion tees or couplings shall be used for all service connections. Wet tapping HDPE pipe is not permitted for service connections.
	Delete 3.10.11 and replace with	Install and set plumb stop and valveboxes. Adjust top flush with final grade. Leave curb stop or service valves fully closed.
3.19 Testing Procedure	Delete 3.19.2 and replace with	Before pipe is filled with water, pipe bedding, concreting of all valves and fittings, and backfilling to be completed as required in this specification. Fill each section of pipe and allow to remain full of water for a period of at least 24 hours prior to commencement of any pressure tests. Submit pipeline to a test of 1.5 x working pressure applied at the highest elevation in the each section, with a minimum of 1380 kPa applied at the lowest elevation in the test section. Ensure that test pressure does not exceed pipe or thrust restraint design pressures.
	Add 3.19.7	Pressure and leakage testing of high density polyethylene pipe to consist of an initial expansion phase and a test phase. Prior to testing, pressurize the HDPE pipe to test pressure for 4 hours and maintain pressure on an hourly basis to accommodate the initial expansion. Submit pipeline to a test of 1.5 x working pressure applied at highest elevation in each section, with a minimum of 1380 KPa at lowest point of test section, and under no circumstances should the total time with the pipe at 1.5 x working pressure exceed 8 hours. Immediately upon completion of the initial expansion phase, begin a 2 hour test period. Allowable leakage shall not exceed following:

Normal Pipe Size	Allowable Leakage (L/km)
75mm	18.6
100mm	31.1
150mm	74.5
200mm	124.2
250mm	161.5
300mm	285.6
350mm	335.3

Temperature correction factor to be applied to allowable leakage. Temperature to be taken as temperature of test water in the pipe measured after the initial expansion phase. Temperature correction factor for pressure testing to be:

Temperature (^{0}C)	Correction Factor
23.0	1.0
22.3	0.9
21.0	0.8
19.0	0.7
16.2	0.6
13.0	0.5
9.5	0.4
5.2	0.3
-1.0	0.2

3.20 Disinfection, General

Add 3.20.3

Disinfection, flushing and water quality testing shall be completed by the City and only upon successful pre- pressure testing by the Contractor.

3.23 Connections to Existing Mains

Delete 3.23.1 and replace with

Tie-ins to the existing water mains will be performed by the City, unless noted otherwise in the Contract Documents. The Contractor shall cooperate fully with the City's forces and provide them with suitable working areas and conditions to allow their Work to proceed efficiently. At least 3 weeks notification shall be given to the City's Water Operations Manager before any testing and tie-ins.

Contractor to make all necessary arrangements with Contract Administrator to schedule work to prevent construction delays.

Add 3.23.2 City Crew will complete excavation, tie-in, backfill, compaction and temporary surface restoration for the tie-in works. After tie-ins are complete and temporary surface restored, Contractor shall complete permanent surface restoration, overlays and related maintenance.

END OF SECTION

MMCD Section 33 30 01 Sanitary Sewers

1.0 GENERAL

1.6 Measurement and Payment

Delete 1.6.5 and replace with

Payment for concrete bedding or controlled density fill, where shown on the Contract Drawings, will be made as extra-over payment to sanitary sewer under 1.6.2 of this Section. No payment will be made for concrete bedding or controlled density fill required as a result of unauthorized excavation beyond neat lines or limits of excavation shown on the Contract Drawings.

Add 1.6.8

Payment for casing pipe shall include the method of construction, such as open cut or trenchless technology; excavation and backfill for casing pipe of access pits, casing spacers and end seals. Measurement for casing pipe will be made along the centerline of the casing pipe, over surface, after Work has been completed.

2.0 PRODUCTS

2.1 Concrete Pipe

Add 2.1.5

Interior Lining:

.1 Concrete pipe, 900mm diameter and larger, shall have continuous interior lining of 2mm thickness or greater.

.2 Liner shall be one of the following products:

- .1 Agru Sure Grip Liner – white, grey or yellow high density polyethylene (HDPE) with integral studs, as manufactured by Agru America Inc.
- .2 Ameron T-Lock – white polyvinyl chloride (PVC) with integral “T-Lock” ribs, as manufactured by Ameron International

.3 The liner shall be cast directly into pipe at time of manufacturing and cover 360 degrees of the pipe interior and the two edges of the linershall be welded together, with the weld at the invert of the pipe.

.4 The liner shall withstand a pull test of at least 100 pounds per linear inch, applied perpendicular to the concrete surface for a period of one (1) minute, without rupture of the locking anchors /ribs or yielding and withdraw from embedment.

.5 The liner shall be able to withstand a 105 kPa (15 psi) hydrostatic back pressure applied to the under surface of the lining without losing anchorage and without rupture or leakage.

2.3 Service Connections

Add to 2.3.8.2

Insertable tees are not to be used on 150mm diameter or smaller mainline.

Add 2.3.8.4

Saddles with stainless steel straps must be used for connections to existing Asbestos Cement and Vitrified Clay mainlines.

3.0 EXECUTION

3.6 Pipe Installation

Delete 3.6.6.2 and replace with

Curve linear and bending of sewers is not permitted.

Add 3.6.14

Where casing pipes are installed, provide casing spacers at maximum 3.0m spacing, including spacers at each bell and within 0.5m from the start and end of the casing pipe.

Add 3.6.15 Lined Concrete Pipe, in accordance to 2.1.5 of this Section, shall be installed as follows:

.1 The interior liner shall have either: (1) an overlap joint whereby the liner shall protrude 100mm past the spigot end of the pipe to allow a field joint or (2) a butt edge joint whereby the liner shall be terminated 25mm from the ends of the pipe and a 100mm closure strip shall be field welded across the joint, centred to have at least 25mm overlap on each side of the liner.

.2 Liner shall not be field welded at the pipe joints until the pipe has been backfilled to within 300mm from the final surface elevation. At no time shall there be more than 150m of installed pipe that has not been field welded and successfully tested.

.3 Prior to field welding overlap or butt edge joints, the weld joints shall be clean, free of dirt and water, and roughened using a scraper knife to remove gloss and oxidation.

.4 Prior to welding the closure strip across butt edge joints, the Contractor shall low pressure air test the installed joint and gasket in accordance with ASTM C1103.

.5 All field welding persons shall be trained and certified by the manufacturer for the respective liner being used, and have previous proven liner welding experience along with confined space training and certification. Copies of the training certificates shall be provided to the Contract Administrator at least five (5) days prior to construction.

.6 All field welding shall be completed in accordance with the manufacturer's recommendations, including heat, drying/humidity reduction, and application time adjustments suitable to climate conditions in the pipe at the time of welding.

.7 At the time of welding, the Contract Administrator may request 400mm long x 200mm wide test weld specimens to complete Quality Assurance of liner pull tests.

.8 Each transverse welding strip shall be tested. The welding strip shall extend 50mm below the liner to provide a tab for testing. A 10 pound pull test shall be applied to the tab, perpendicular to the face of the pipe, by means of a spring balance and the liner strip shall adhere to the pipe during the test.

.9 Within three (3) days of the joint being welded, the weld shall be tested with a 20,000 volt electronic holiday detector, as well as physically tested by non-destructive probing through the use of a putty knife.

.10 All patches over holes, or repairs to the liner, wherever damaged has occurred shall be completed in conformance with the manufacturer's recommendation and tested.

.11 Defective welds shall be retested after repairs have been made.

Tabs used for testing shall be trimmed away neatly after the welding strip has passed inspections.

3.10 Service Connection Installation

Append to 3.10.3

Plug for temporary blocking of the inlet of inspection chamber shall be removed upon completion of the Work.

Add 3.10.5

After new service connections are installed and transferred to a new sanitary sewer main, old services are to be abandoned including removing the old inspection chamber and capping the old service.

Add 3.10.6

After new service connections are installed and transferred to an existing sanitary sewer main that will remain in operation, the old services are to be abandoned. Abandonment shall include:

.1 Removal of the old inspection chamber and capping the old service connection pipe at the property line. Drill a 25mm to 37.5mm diameter hole in the end cap to allow for release of air and grouting.

.2 Chemically grout the old service internally through the sewer main. Grouting records need to be submitted along with a video inspection of the sewer main to confirm the grouting has resulted in a sealed service and that there has been no damage to the existing sewer main nor grout residual on the inside of the existing sewer main.

.3 If chemical grout cannot be applied then the service can be capped 1.0m from the sewer main and grouted externally.

3.12 Leakage Testing General

Delete 3.12.1 and replace with

Upon completion of cleaning and flushing of each section, carry out the following testing, which varies by pipe diameter and material type:

.1 Exfiltration Test or Infiltration Test required for all concrete sanitary sewers 675mm diameter and smaller. Exfiltration Test, per 3.13 of this Section, unless the groundwater table is above the crown of pipe and then Infiltration Test as per 3.15 of this Section.

.2 Individual Joint Test for all concrete sanitary sewers 750mm diameter and greater.

.3 If concrete sanitary sewer has interior PVC or HDPE liner, complete liner tests as per 3.6 of this Section.

.4 Low Pressure Air Test required for all PVC and HDPE sanitary sewers and service connections. Tests on PVC shall be as per 3.14 of this Section. Tests on HDPE shall be as per 3.19.7 of Section 33 11 01, with maximum test pressure of 69 kPa and zero leakage permitted.

.5 Short Term Deflection Test required for all PVC and HDPE sanitary sewers as per 3.16 of this Section.

3.17 Individual Joint Test	Delete 3.17.1 and replace with	Each joint on pipes 750mm diameter and greater to be joint tested, in accordance with ASTM C1103.
3.18 Video Inspection	Delete 3.18.1 and replace with	The Contractor shall CCTV all installed sanitary sewers and services, regardless of length, material type and diameter, in accordance with Section 33 01 30.1. CCTV to be completed after sewer installation and backfill to the underside of the final surface treatment (i.e. asphalt) and successful passing is a requirement to achieve Substantial Performance.
	Delete 3.18.2 and replace with	In the event the CCTV indicates apparent deficiencies, Contractor shall correct the deficiencies and re-video at the Contractor's expense.
	Add 3.18.3	The City reserves the right to request the sanitary sewers and service connections to be re-videoed during the Maintenance Period. Costs for re-video shall be paid at the unit rates in the Schedule of Quantities and Prices, unless the re-video is required as a result of deficient work.
	Add 3.18.4	The Contractor shall submit the final video and reports to the Contract Administrator, who shall review and submit the reports to the City indicating their acceptance, or non-acceptance, of the system to the City.

3.19 Installation Standard

Delete 3.19.5.2 and replace with

Mainline sewers and service connections, regardless of pipe material:

.1 100mm to 250mm diameter, inclusive: 10mm maximum ponding over a 3 metre length of pipeline.

.2 300mm diameter and larger: 15mm maximum ponding over a 3 metre length of pipeline.

Delete 3.19.5.3 and replace with

Concrete pipe shall not have cracks exceeding ASTM specifications.

END OF SECTION

MMCD Section 33 34 01 Sewage Forcemains

1.0 GENERAL

1.8 Measurement and Payment

Append to 1.8.4

Payment for casing pipe shall include the method of construction, such as open cut or trenchless technology, as noted on the Contract Drawings; and payment shall include excavation and backfill for casing pipe of access pits, casing spacers and end seals. Measurement for casing pipe will be made along the centerline of the casing pipe, over surface, after Work has been completed.

2.0 PRODUCTS

2024

2.2 Pipe, Joints and Fittings

Delete 2.2.1 and replace with

Ductile iron is not permitted.

Delete 2.2.2 an replace with

PVC C900 and PVCO C909 to be manufactured to specifications for pipe size ranges as follows:

.1 Pipes 150mm to 300mm diameter

.2 Pipes to be pressure rated to minimum operating pressure of 1620 kPa (235psi)

.3 Pipes to be certified by Canadian Standards Association to CSA B137.3.1

.4 Outside diameter to be Cast Iron Pipe Size

.5 To be compatible with specified mechanical joint and push-on joint fittings and valves without use of special adapters

.6 Joints: Push-on integrally thickened bell and spigot type to ASTMD 3139 with single elastomeric gasket to ASTM F477

PVC/PVCO not permitted on Arterial Roads, nor are they permitted in areas subject to soil liquefaction in seismic events.

	Delete 2.2.5.10 and replace with	Tie Rods to be in accordance with Section 33 11 01.
	Delete 2.2.5.13 and replace with	Joint restraints for PVC / PVCO forcemains shall be to MMCD and shall not de-rate the pressure rating of the pipe material.
	Delete 2.2.6 and replace with	Pre-stressed Concrete Pressure pipe is not acceptable.
2024 **2.3 Valves and Vale Boxes**	Delete 2.3.2.2 and replace with	To AWWA C515: 400mm and larger to working pressure 1725 kPa, non-rising stem, hub, flanged or mechanical joint ends.
	Add 2.3.6	Plug Valves to have: .1 Full-port opening not less than 100% of the nominal pipe area. .2 Rating for municipal sewage .3 Minimum rating for operating pressure of 690kpa (100 psi) .4 Valve body and cover: (i) Ductile Iron ASTM A536, grade 65-45-12. .5 Class 125 Flanges to ANSI B16.1 .6 Stainless steel nuts, stud, washers, bolts and stem .7 Seat that is bi-directional welded nickel and corrosion resistant. .8 Side geared valve with actuator

3.0 EXECUTION

3.6 Pipe Installation	Add 3.6.11	Where casing pipes are installed, provide casing spacers at maximum 3.0m spacing, including spacers at each bell and within 0.5m from the start and end of the casing pipe.

3.11 Pipe Surround	Delete 3.11.5 and replace with	Force main identification: Red or Yellow PVC marker tape to be placed at top of the pipe zone. Marker tape shall be continuous, 75mm wide and lettered permanently with "SEWAGE FORCE MAIN" at 1.0 m intervals along tape.
3.15 Pressure Testing Procedure	Delete 3.15.2 and replace with	Force main to be submitted to a test of 2.0 x Working pressure applied at highest elevation in each section minimum 690 kPa. Maximum allowable leakage rate at test pressure varies based on pipe material, diameter and length as outlined in 3.15 of this Section. Minimum duration of test period to be 2 hours.
3.17 Mandrel Inspection	Add 3.17.1	Forcemain to be tested by pigging or passing a mandrel/rubber ball/test plug having 95% of the base inside diameter of the pipe completely through the pipeline A lamp test may not be used in lieu of the ball test. CCTV inspection may be used in lieu of the mandrel inspection.

END OF SECTION

MMCD Section 33 40 01 Storm Sewers

1.0 GENERAL

1.6 Measurement and Payment

Add 1.6.12

Payment for storm sewers undercrossing services will only be made for crossing with use of a pipe casing as shown on the Contract Drawings or directed by the Contract Administrator. Payment includes the pipe casing and all other work and materials as specified in this Section. Payment will be extra over the storm sewer item under 1.6.2 of this Section for each undercrossing installation.

Payment for casing pipe shall include the method of construction, such as open cut or trenchless technology, as noted on the Contract Drawings; and payment shall include excavation and backfill for casing pipe of access pits, casing spacers and end seals. Measurement for casing pipe will be made along the centerline of the casing pipe, over surface, after Work has been completed.

2.0 PRODUCTS

2.3 PVC Pipe Mainline Profile

Add 2.3.6

Spiral rib PVC profile pipe is not acceptable.

2.3 Spiral Rib Pipe – Steel

Delete 2.5 2 and replace with

Pipe material: Aluminized Steel Type II.

2024

2.6 Service Connections

Delete 2.6.8.3 and replace with

Insertable tee's will only be permitted for new service connections to existing sewers. Manufactured wyes shall be used on all other new storm sewer systems.

Add 2.6.11

All new storm sewer service connections should have an inspection chamber, and the lid shall be PVC pigmented green.

3.0 EXECUTION

3.6 Pipe Installation

Delete 3.6.6 and replace with

Pipe bending is not permitted.

	Add 3.6.14	Where casing pipes are installed, provide casing spacers at maximum 3.0m spacing, including spacers at each bell and within 0.5m from the start and end of the casing pipe.
3.10 Service Connection Installation	Add 3.10.5	All existing functional service connections shall be located and marked, and transferred or connected to the new storm sewer. The Contractor is liable for any damages resulting from service connections being left unconnected.
3.12 Video Inspection	Delete 3.12.1 and replace with	The Contractor shall CCTV inspect all installed storm sewers and services, regardless of length, material type and diameter, in accordance with Section 33 01 30.1. CCTV to be completed after sewer installation and backfill to the underside of the final surface treatment (i.e. asphalt) and successful passing is a requirement to achieve Substantial Performance.
	Delete 3.12.2 and replace with	In the event the CCTV inspection indicates apparent deficiencies, Contractor shall correct the deficiencies and re-video at the Contractor's expense.
	Delete 3.12.3 and replace with	The City reserves the right to request the storm sewers and service connections to be re-videoed video inspected during the Maintenance Period. Costs for re- video shall be paid at the unit rates in the Schedule of Quantities and Prices, unless the re-video is required as a result of deficient work.
	Add 3.12.4	The Contractor shall submit the final video and reports to the Contract Administrator, who shall review and submit the reports to the City indicating their acceptance, or non-acceptance, of the system to the City.
3.13 Installation Standard	Add 3.13.6	Concrete pipe shall not have cracks exceeding ASTM specifications.

END OF SECTION

MMCD Section 33 42 13 Pipe Culverts

2.0 PRODUCTS

2.1 Corrugated Steel Pipe	Delete 2.1.6 and replace with	All Corrugated or Steel Spiral Rib Pipe to be Aluminized Steel Type II to CAN3-G401.
2.4 PVC Pipe Profile	Add 2.4.7	Spiral rib PVC profile pipe is not acceptable.
2.8 Polypropylene Profile Pipe	Add 2.8.1	Polypropylene profile pipe; 300mm to 600mm diameter dual wall to ASTM F2736, 750 to 1500mm diameter triple wall to ASTM F2764.
	Add 2.8.2	Bell and Spigot joints including two rubber gaskets to ASTM3212.

END OF SECTION

MMCD Section 33 44 01 Manholes and Catch Basins

1.0 GENERAL

1.5 Measurement and Payment

Delete 1.5.3 and replace with

Frame and Cover Adjustment shall include: removal of existing frame and cover; cleaning; re-set to meet new grade, profile and cross fall; replace grade rings and one ladder rung to suit.

Minor Manhole Replacement shall include: removal of existing frame and cover; supply and install of a new frame and cover (type to vary based on road classification); provide new grade rings, set at new grade, profile and cross fall. Add one ladder rung to suit.

Major Manhole Replacement shall include: removal of existing cast iron frame and cover, grade rings, concrete lid and one riser section if required; supply and install new concrete riser section, with new frame and cover (type to vary based on road classification), grade rings and set to new grade, profile and cross fall. Add two ladder rungs to suit.

Payment for manhole frame and cover adjustments, and adjustment of existing catch basins, cleanouts, valves, inspection chambers and lawn drains shall be incidental to the asphalt or concrete placement, unless noted otherwise in the Schedule of Quantities and Prices.

Payment for Minor and Major Manhole Replacement shall be on an individual basis, varying by type of frame and cover corresponding to the road classification, unless noted otherwise in the Schedule of Quantities and Prices.

2.0 PRODUCTS

2.1 Materials

Delete 2.1.2 and replace with

Concrete strength shall be minimum 30 MPa, at 28 days, unless otherwise stated.

Delete 2.1.6 and replace with

Manhole lids manufactured from precast concrete shall be rated to withstand H25.

Delete 2.1.7 and replace with

Manhole frame and cover shall be rated to withstand H25 loading. Frame and cover, as shown on Standard Drawings, and as specified in this Section.

.1 Frame and cover must be made of the following materials:
   .1 ASTM A48-03, Class 35B grey cast iron
   .2 ASTM A536 Grade 65/45/12 ductile iron
   .3 Austempered ductile iron is not permitted

.2 Frame and cover must be from the same foundry, and imprinted with foundry name, date code and country of origin.

.3 Be height-adjustable to suit the road surface contour by means of integral levelling screws or flanged frame with telescopic extension, as shown on the Standard Drawings, and with exception for manholes on local roads:
   .1 Levelling screws shall be integrally designed with the frame and cover
   .2 Flanged frame with telescopic extension design shall be resilient seated
   .3 Use of shims, wedges, or any materials that will induce point load to the concrete lid or grade ring is not permitted

.4 Any frame and cover assembly creating a point load on the concrete riser rings will not be permitted.

.5 Manhole cover shall have a diameter between 625mm and 660mm, as 565mm diameter cover is not permitted, and weight between 60kg and 70kg.

.6 Bolt down manhole cover is not permitted unless approved by the Contract Administrator.

Delete 2.1.16 and replace with

Adjusting grade rings to be as follows:

.1 Concrete to ASTM C478M, with a minimum thickness of 75mm and maximum thickness of 150mm. Concrete grade rings are only permitted on local roads.

.2 HDPE to ASTM D1248 and rated for H25 loading. To be free of cracks, voids, and other defects. Maximum of three grade rings is permitted.

.3 Expanded Polypropylene (EPP) rated to H25 loading, and free of cracks, voids, and other defects. Maximum of three grade rings is permitted.

Delete 2.1.17 and replace with

Concrete bricks are not permitted.

Delete 2.1.23 and replace with

Pre-fabricated Corrugated Steel Pipe Manholes are not permitted.

Add 2.1.24

Anchor bolts, hex nuts and washers to be as follows:

.1 Anchor bolts minimum 5/8 inch diameter and to ASTM 307 Grade C, and hot dip galvanized.
.2 Hex bolts to ASTM A563 Grade A.
.3 Washers to ASTM F844 Grade A.

Add 2.1.25

Sealant: Sealant between manhole risers, and between grade rings and casting, shall be hydrophobic polyurethane sealant and adhesive.

Add 2.1.26

In areas where groundwater table is above pipe invert, manholes to be sealed watertight at all pipe connections with epoxy gel or polyurethane product to ASTM D 1850.

3.0 EXECUTION

3.3 Manhole Installation

Delete 3.3.12.2 and replace with	For local roads only, allowable product is: cast-in-place form system; or pre-cast concrete grade rings as per 2.1.16 of this Section.
Delete 3.3.12.5 and replace with	Proper layer of grout between the grade rings and spacers, covering the entire surface of the rings, should be utilized.
Append to 3.3.13.6	Set height adjustable frame in direct contact and centered on non-concrete grade rings, and secure frame and adjustment rings to manhole lid by pre-set anchor bolts for new installation or Hilti bolt for rehabilitation. Anchor bolts, hex nuts and washer to be as per 2.1.24 of this Section. In case where the existing road grade exceeds 8%, taper riser rings shall be used in conjunction with the height adjustable manhole to supplement the additional inclination.
Append to 3.3.13.7	For leveling screw style height adjustable manhole frame and cover, 30MPa concrete with 10mm aggregate shall be used to infill void space between the leveling screws.
Delete 3.3.13.8 and replace with	Watertight sealant to fill gap between frame and adjustment ring, and between adjustment ring and concrete lid.
Append to 3.3.17	Prior to paving the base lift, Contractor shall confirm the accuracy of the base gravel preparation, pavement contours, and appurtenance adjustments. Road grade and elevations shall be verified with string line or other method to ensure the cover match the grade and cross fall of the road.

	Final cover grade shall be set within 3mm from the surrounding road surface. The Contractor Administrator reserves the right to request the Contractor to repair the manhole and the pavement should the manhole settle more than 5mm from the surrounding road surface within the Maintenance Period.
Delete 3.3.18 and replace with	Pre-fabricated Corrugated Steel Pipe Manholes are not permitted.

END OF SECTION

MMCD Section 34 41 13 Traffic Signals

1.0 GENERAL

1.4 Electrical Energy Supply	Add 1.4.4	The *Contractor* shall coil and tape conductors out of weatherhead. Utility company shall complete electrical service connections.
1.9 Measurement and Payment	Append to 1.9.1	Payment shall include excavation, disposal of surplus excavated material, bedding, supply and installation of all pipe and materials, concrete encasement, import or native backfill as shown on the *Contract Drawings*, and all surface restoration.

2.0 PRODUCTS

2.1 General	Delete 2.1.2 and replace with	All products supplied to be new, and in accordance with *Contract Documents*. All products must bear evidence of either a mark or a label of a certification agency accredited by the Standards Council of Canada or an approved label issued by the BC Safety Authority.
	Delete 2.1.3 and replace with	All products shall be in accordance with Section 01 62 01S, and where the product is not listed in this Section then *Contractor* to contact the *Contract Administrator* for a current list.
2.4 Plastic Junction Boxes	Append to 2.4.1	Plastic junction box lid to be galvanized.
2.5 Concrete Junction Boxes	Delete 2.5 and replace with 2.5.1	Refer to Drawing SSD-R.E.6 and –R.E.7 for concrete junction box details.
2.6 Poles and Anchor Bolts	Append to 2.6.1	Traffic Signal poles shall be Type S or L Shafts as defined on the Contract Drawings. Traffic pole specifications vary by neighbourhoods and the latest specifications are available from the City of Surrey.
2.7 Conductors and Cables	Add 2.7.5	For Roadway Lighting conductors refer to Supplemental Specifications Section 26 56 01.

	Add 2.7.6	Shielded cables for emergency vehicle pre-emption system shall be "GTT Opticom Cable, model 138" and no alternates are permitted unless noted otherwise.
2.9 Conductors Connectors	Add 2.9.1.3	For Roadway Lighting conductor connectors refer to Section 26 56 01.
2.11 Service Panels	Delete 2.11.1 and replace with	Service panels shall be as shown on Contract Drawings.
2.16 Traffic and Pedestrian Signals	Append to 2.16.1	Traffic signal heads and pedestrian signal heads shall be aluminum. Each primary signal and special crosswalk head section shall be designed for a 300mm diameter LED display and have a matching cowl visor. Each secondary signal head section shall be designed for a 300mm diameter LED display and shall have a 300mm long tunnel visor. Each pedestrian signal head shall be designed for a 450mm bi-modal LED display with countdown. All signal heads shall have yellow aluminum backboards with 75mm border of yellow prismatic retro-reflective sheeting (3M™ Scotchlite™ Diamond Grade™ VIP, Series 3990).
	Delete 2.16.2 and replace with	Traffic and pedestrian signal head housing shall be green. Special crosswalk head housing shall be yellow.
	Add 2.16.3	Fire signal heads shall have special yellow backboards as shown on Drawing SSD-R.E.9.
2.21 Pedestrian / Cyclist Pushbuttons	Append to 2.21.1	All pedestrian pushbuttons shall be Accessible Pedestrian Signal (APS) type with the exception of special crosswalk signals. Special crosswalk and cyclist pushbuttons shall have audible and visual actuation indicators.
	Delete 2.21.8 and replace with	Cyclist pushbuttons shall have white background and black raised characters.
2.22 Luminaires	Delete 2.22 and replace with	All luminaires shall be LED. Refer to Section 26 56 01.

2.26 NEMA Traffic Controllers	Delete 2.26 and replace with	NEMA Controllers are not permitted.
2.29 Illuminated Crosswalk Signs	Add 2.29.2	Crosswalk internal illumination and downlight shall be LED.
2.34 Advance Warning Signs	Add 2.34.1	Advance warning signs shall have illustration details in yellow prismatic retro-reflective sheeting (3M™ Scotchlite™ Diamond Grade™ VIP, Series 3990. Signal heads shall be 300mm green aluminum with yellow LED and cowl visors.

3.0 EXECUTION

3.1 General	Add 3.1.5	When tying into or upgrading an existing installation, maintain the existing traffic signal operation at all times.
3.3 Concrete Bases	Append to 3.3.1	Refer to Drawing SSD-R.E.5 for controller base details.
3.4 Junction Boxes and Vaults	Append to 3.4.1	All conduits shall enter the box through knockouts in the side as opposed to the bottom.
3.5 Underground Conduit	Append to 3.5.1	The conduit shall not be bent in the field by deflecting joints. Only factory bends will be accepted.
	Delete 3.5.2 and replace with	Minimum cover over conduits to be 600mm in boulevard areas and 900mm in travelled areas.
	Delete 3.5.5 and replace with	Before pulling conductor cable/wire into a run of conduit, the conduit shall be blown out with compressed air, and pull string installed with caps at each end. Conductors shall be pulled in slowly by hand or hand winch, in order to keep close control on pulling tension and prevent cutting the conduit at bends.
3.6 Poles and Related Equipment	Delete 3.6.7 and replace with	Field Drilling of holes larger than 33mm diameter not allowed in Type 1, 3, 6, 7, L & S shafts, and all arms and extension. Where larger holes are required, reinforce holes with welded bushing prior to galvanizing.

	Append to 3.6.9	Poles shall be erected plumb, using the shims supplied if required. No more than 4 shims shall be used for any one bolt. If pole can't be installed with 4 shims of less than foundation shall be adjusted. After traffic signal poles are installed, there shall be at least one thread of the anchor bolts exposed on top of all nuts.
3.7 Traffic and Pedestrian Signal Head Mounting	Append to 3.7.4	Traffic signal head lenses and pedestrian signal head lenses shall be cleaned prior to signal start-up.
	Add 3.7.5	Primary traffic signal heads shall be mounted to pole arms as per Standard Drawings. Primary traffic signal heads shall be safety cabled to the pole arm using 3/32" galvanized steel aircraft cable looped through the traffic signal backboard and fastened with a rope clip (VAN-RC18 or approved alternate).
	Add 3.7.6	Secondary traffic signal head and pedestrian head mounting brackets and hardware shall be installed as per Standard Detail Drawing E5.2. Traffic signal poles shall be drilled such that all wiring shall be located within the poles and traffic signal brackets.
	Add 3.7.7	Secondary and Pedestrian signal head mounting arms at skewed intersections are to be drilled in the field in order to achieve optimum viewing angles.
3.10 Luminaires and Photocells	Delete 3.10.2 and replace with	Luminaires shall be securely fastened to the poles, leveled and cleaned after pole erection and plumbing is complete.
	Add 3.10.4	NEMA wattage label must be visible at the bottom of the luminaire on all cobra head style fixtures.
3.13 Electrical Service Panels	Add 3.13.2	The electrical service panel shall be installed a minimum of 2.5m from the traffic controller.
3.14 Wiring	Add 3.14.14	Looping of feeder conductors with "T" taps shall not be permitted.

3.16 Traffic Controller	Add 3.16.8	Duct-seal shall be placed over/in all underground conduits entering traffic signal cabinet. All unused conduits shall be capped with an R.PVC cap, and cap not to be glued.
	Add 3.16.9	Surrey will supply two (2) traffic signal cabinet padlocks and one (1) electrical service panel padlock. Contractor to install.
	Add 3.16.10	Traffic signal cabinet interior must be kept dry during inclement weather.
3.17 Detector Loops	Delete 3.17.1 and replace with	Detector loops shall be as per Drawing SSD-R.E.12 and installed per Standard Detail Drawings E8.1 to E8.7.
	Delete 3.17.2 and replace with	Detector loop shall be installed in the base lift of asphalt when possible. Loops in adjacent lanes shall be wound in opposite directions, i.e.; clockwise, counter clockwise, clockwise, etc.
	Add 3.17.3	Each shielded cable shall run continuously with no splices from the traffic signal cabinet to the junction box. Splices between the detector loop and the shielded cable shall be connected with solder less type connectors and dipped in 3M ScotchKote™.
3.19 Advance Warning Signs	Add 3.19.2	Advance warning signs shall be completely covered with burlap sack until system start-up.
3.20 Grounding & Bonding	Add 3.20.5	No grounding rod or plate electrodes shall be installed inside the traffic signal cabinet base.
3.22 Pole Application Finish	Append to 3.22.1	Poles shall powder coated and in accordance with section 26 56 01. Pole color shall be as per City Specifications for each neighbourhood.

	Append to 3.22.4	Contractor shall clean and wire brush galvanized surfaces, touch up scratches and abrasions with prime coat (General Paint META Prime, vinyl wash), and apply finish coat of non-alkyds color base paint. Poles must be free from moisture (rain, dew, frost, fog). No pole refinishing shall be undertaken if frost is predicted within 24 hours of the work.
3.28 Emergency Vehicle Pre-emption	Add 3.28.1	The Contractor shall install, as noted on Contract Drawings, emergency vehicle pre-emption (Opticom) infrared receiver units on signal pole arms as per manufacturer's instructions. The Contractor shall provide aiming, testing and commissioning of this equipment required for correct operation.
	Add 3.28.2	Opticom receiver units shall be supplied by the City.
3.29 Streetname Signs	Add 3.29.1	Streetname signs to be installed as per Drawing SSD- R.E.8, and safety cabled to the pole arm using 3/32" galvanized steel aircraft cable looped through the street name sign and fastened with a rope clip.

END OF SECTION

CITY OF SURREY

Engineering Department

Supplementary Master Municipal Construction Documents

SUPPLEMENTARY STANDARD DRAWINGS

2024

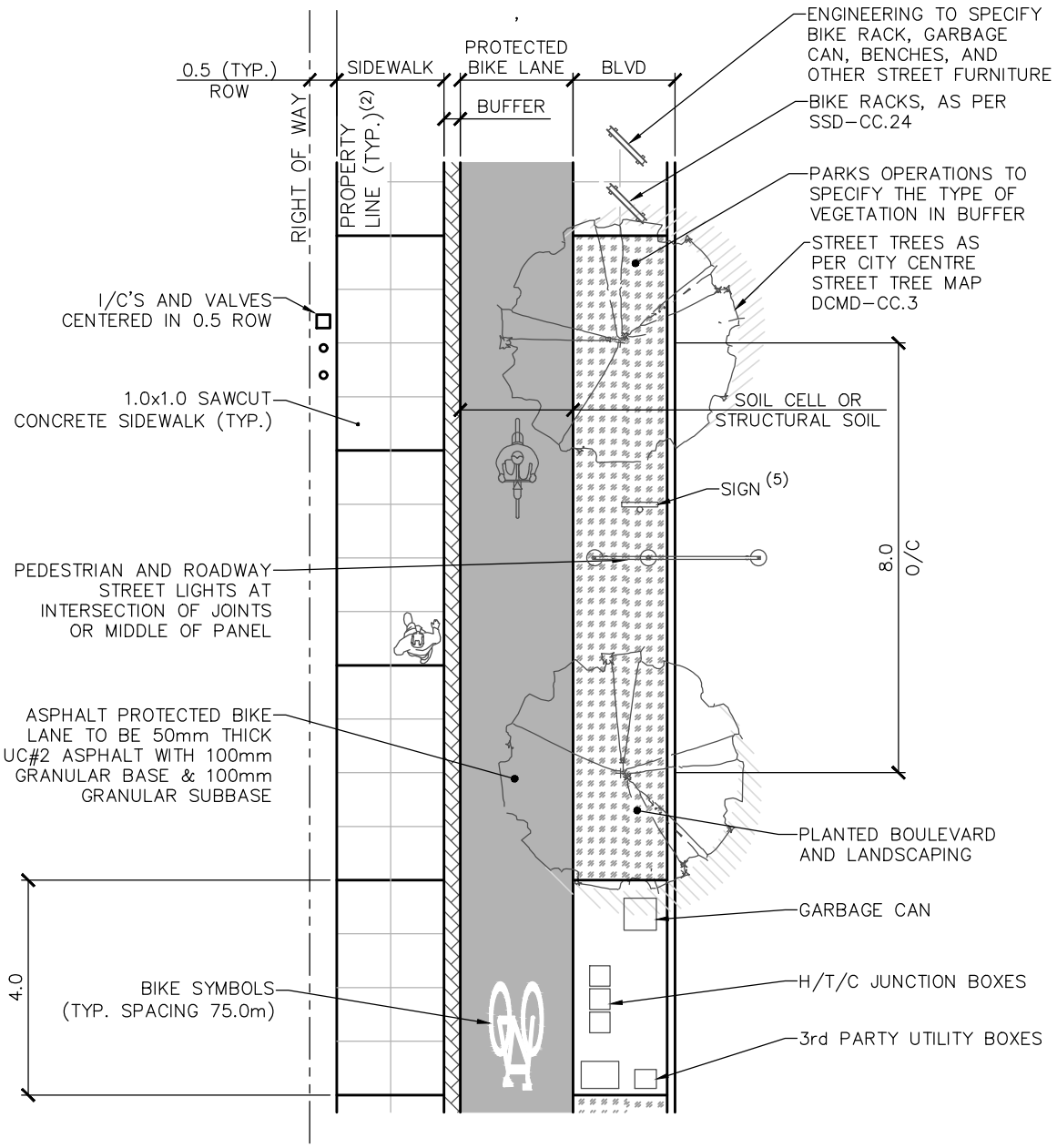
The City of Surrey Supplementary Master Municipal Construction Documents are supplemental to the **Master Municipal Construction Document – 2019 Edition** and take precedence over the MMCD General Conditions, Specifications, Standard Detail Drawings and their Amendments.

The following table serves as amendments to the **Master Municipal Construction Document – 2019 Edition** which have been adopted by the City of Surrey ("City") and are to be included within the City's Supplementary Specifications.

MMCD Drawing	Amendment / Supplementary Drawing
Drawings CE 1.3, CE 1.4, CE 1.5 and CE 1.7	References to Drawing E 8.3 should be changed to E 7.3 for conduit layout
Drawing E 5.7	References to Drawing E 6.8 should be changed to E 5.8
Drawings E 7.2 and CE 7.3	Delete references to Drawings A 8.2 and A 8.3
Drawings E 7.5 and CE 7.6	References to Drawing E 8.10 should be changed to E 7.10 for ground plate detail
Drawing E 7.7	References to Drawing E 8.8 should be changed to E 7.8 for ground plate detail
Drawing S6	Flow direction is incorrect and should be pointing to the right

The City has developed Supplementary Standard Drawings (SSD's) which supplement, and where applicable overwrite, the Standard Detail Drawings within the MMCD 2019 Edition. A list of the City's SSD's and a concordance table with references to the MMCD Standard Detail Drawings is included at the end of the Supplementary Specifications.

Drawing Table of Contents



NOTES:

1. IF BUILDING NOT ADJACENT TO SIDEWALK, ADD ON ADDITIONAL 0.5m TO ROW.
2. STRUCTURAL SOIL TO MEET SECTION 02727 SURREY PARK STANDARDS.
3. 600mm DEPTH FOR GROWING MEDIUM (TYPICALLY FOR MEDIAN) AND/OR 450mm DEPTH FOR INSTALLATION OF SOD (TYPICALLY FOR BOULEVARD).
4. DESIRED OFFSET FROM FACE OF CURB TO EDGE OF SIGN PANEL SHALL BE 0.3m (MAXIMUM OFFSET IS TO BE 2.0m)

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **TYPICAL ARTERIAL ROAD SIDEWALK / BIKE LANE PLAN VIEW**

CITY OF SURREY the future lives here.

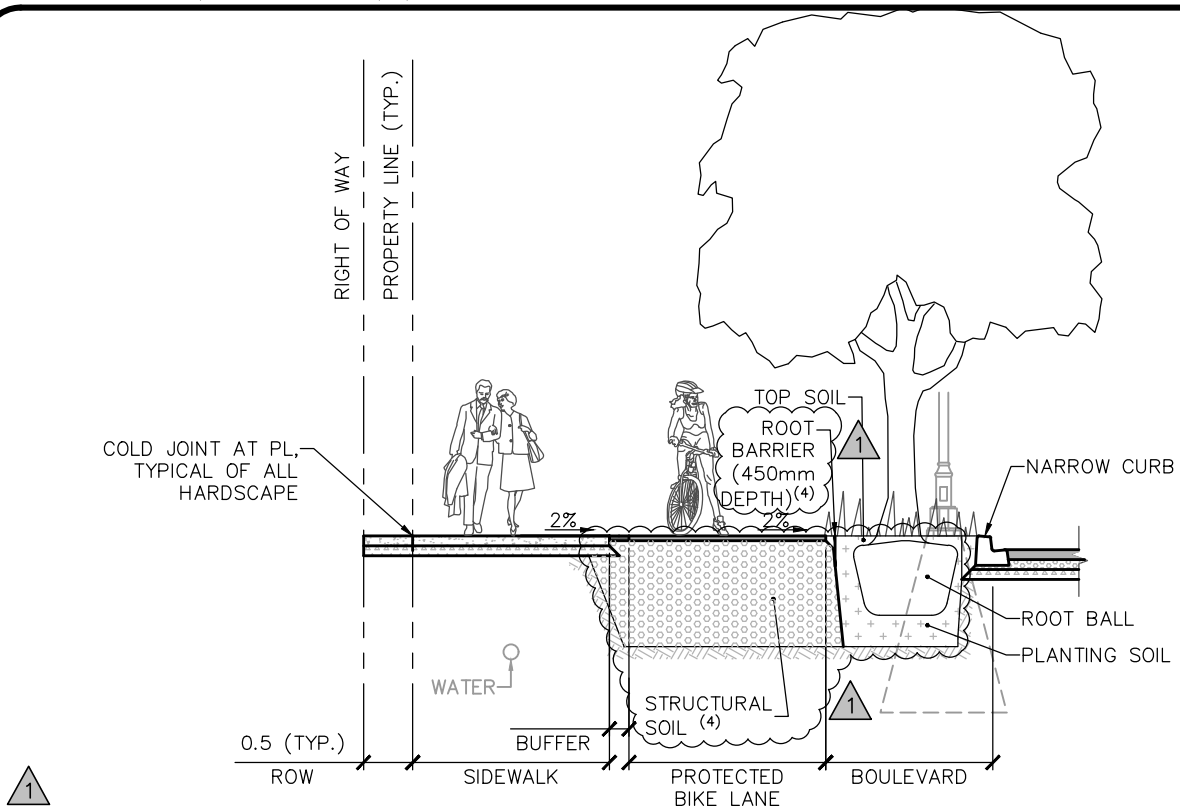
CITY CENTRE STANDARD DRAWINGS

Approved By :

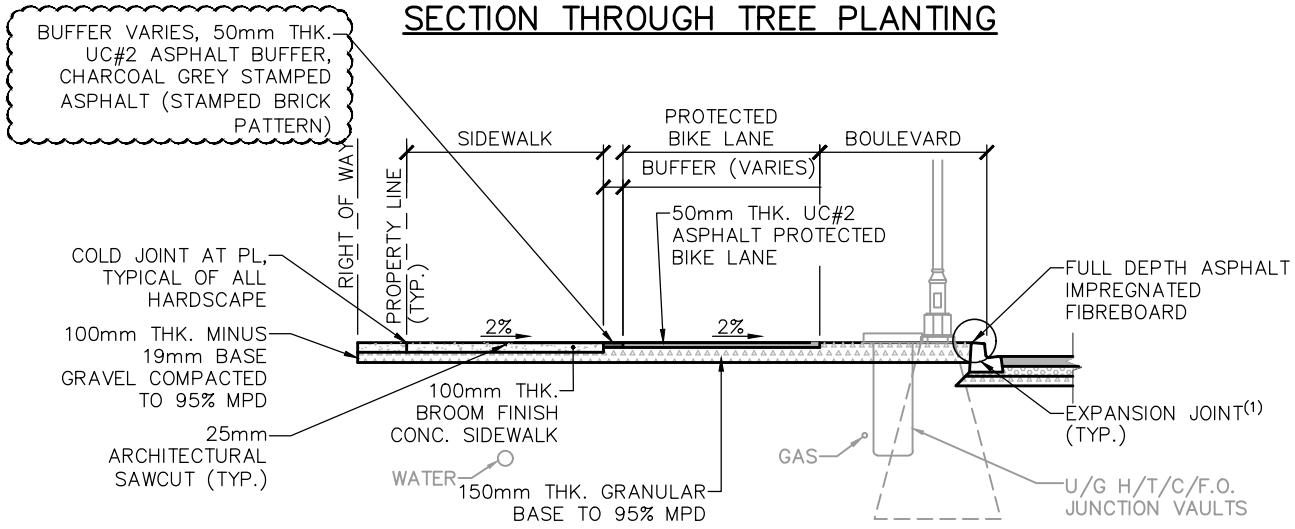
2024 G.M. Engineering

DRAWING NUMBER: SSD-CC.1

1



SECTION THROUGH TREE PLANTING



SECTION THROUGH CUT THROUGH

NOTES:

1. EXPANSION JOINTS SHALL USE FULL DEPTH ASPHALT IMPREGNATED FIBREBOARD @ MAXIMUM 9m LONGITUDINAL SPACING. EXPANSION JOINTS SHALL BE PROVIDED AGAINST ALL VERTICAL EDGES AND CHANGE IN MATERIALS.
2. CONTROL JOINTS SHALL HAVE A MAXIMUM 3m SPACING. CONTROL JOINTS SHALL BE SAWCUT ONLY.
3. CONCRETE EDGE ALONG PROPERTY LINE TO HAVE 150mm TROWEL FINISH. ALL SCORE LINES TO STOP PRIOR TO TROWELED EDGE..
4. CONCRETE PROPOSED TO BE POURED UP TO OR BEYOND THE PROPERTY LIMIT TO HAVE A COLD JOINT PLACED ALONG THE EXTENT OF PROPERTY LIMIT TO ALLOW FOR FUTURE MAINTENANCE AND REPAIRS.

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	AUGUST 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **TYPICAL ARTERIAL ROAD SIDEWALK / BIKE LANE SECTION**

CITY OF SURREY the future lives here.

CITY CENTRE STANDARD DRAWINGS

Approved By :

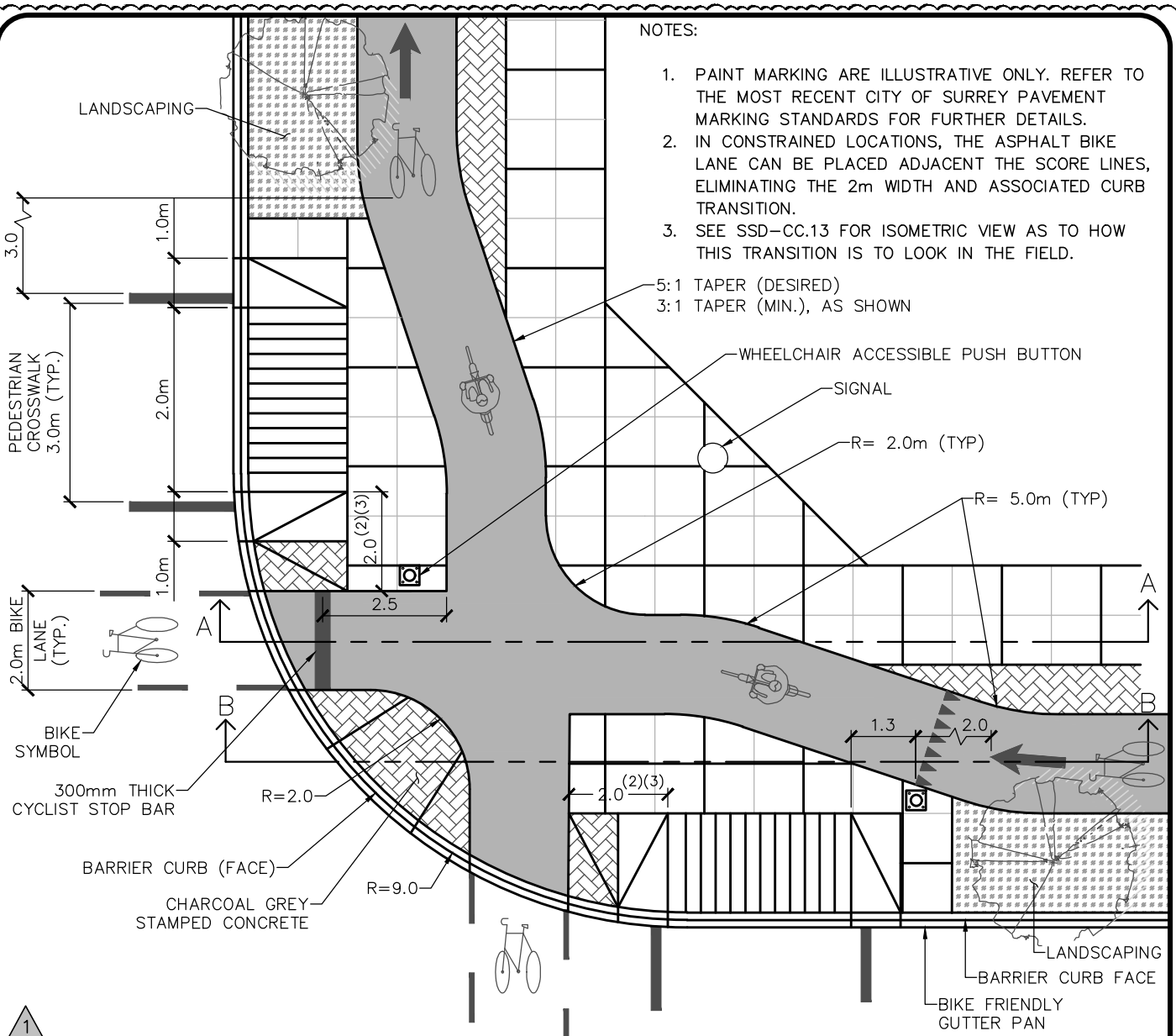
2024 G.M. Engineering

DRAWING NUMBER: SSD-CC.2

1

NOTES:

1. PAINT MARKING ARE ILLUSTRATIVE ONLY. REFER TO THE MOST RECENT CITY OF SURREY PAVEMENT MARKING STANDARDS FOR FURTHER DETAILS.
2. IN CONSTRAINED LOCATIONS, THE ASPHALT BIKE LANE CAN BE PLACED ADJACENT THE SCORE LINES, ELIMINATING THE 2m WIDTH AND ASSOCIATED CURB TRANSITION.
3. SEE SSD–CC.13 FOR ISOMETRIC VIEW AS TO HOW THIS TRANSITION IS TO LOOK IN THE FIELD.



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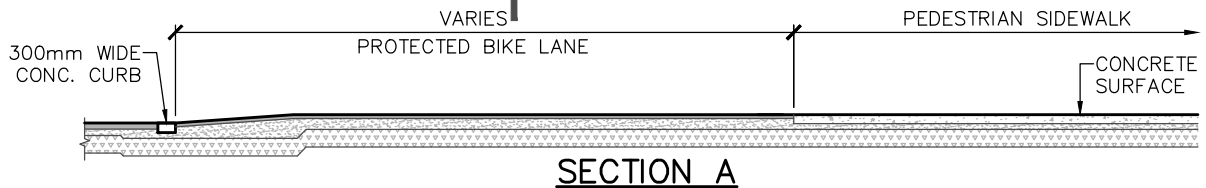
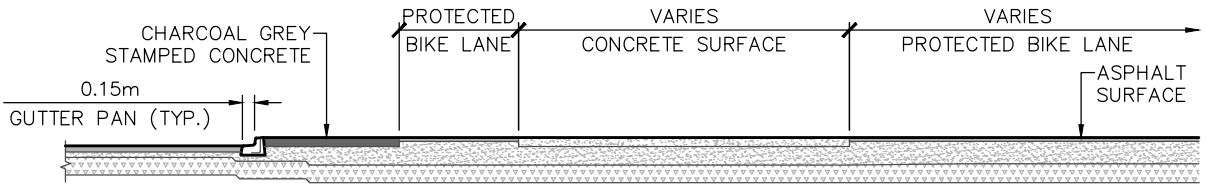


SECTION A



SECTION B

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **TYPICAL ARTERIAL/COLLECTOR ROAD INTERSECTION PLAN VIEW**

CITY OF SURREY
the future lives here.

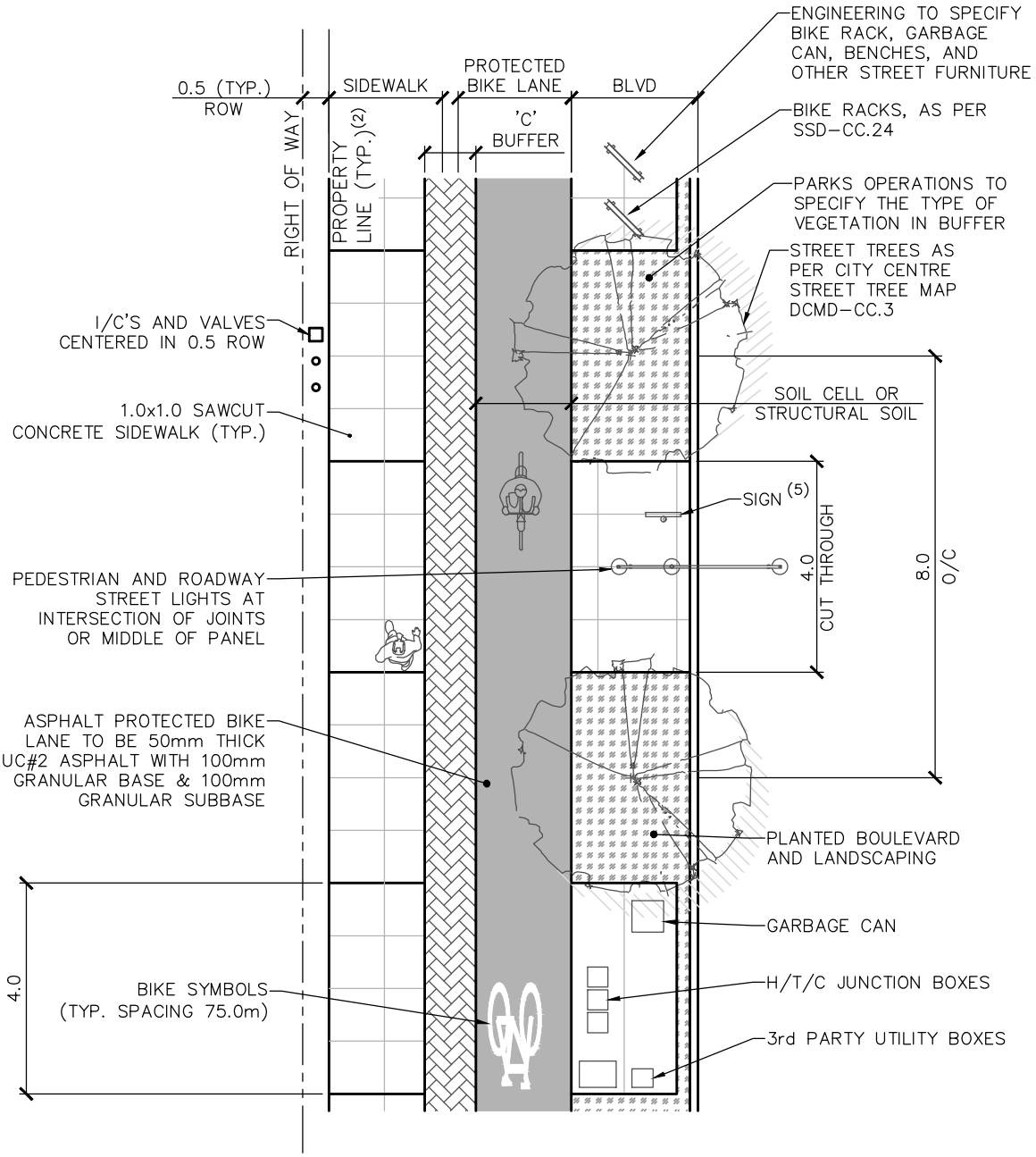
CITY CENTRE STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER: SSD–CC.3

1



NOTES:

1. IF BUILDING NOT ADJACENT TO SIDEWALK, ADD ON ADDITIONAL 0.5m TO ROW.
2. STRUCTURAL SOIL TO MEET SECTION 02727 SURREY PARK STANDARDS.
3. 600mm DEPTH FOR GROWING MEDIUM (TYPICALLY FOR MEDIAN) AND/OR 450mm DEPTH FOR INSTALLATION OF SOD (TYPICALLY FOR BOULEVARD).
4. DESIRED OFFSET FROM FACE OF CURB TO EDGE OF SIGN PANEL SHALL BE 0.3m (MAXIMUM OFFSET IS TO BE 2.0m)

1

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved
Title	TYPICAL COLLECTOR ROAD SIDEWALK / BIKE LANE PLAN VIEW	

CITY OF SURREY
the future lives here.

CITY CENTRE
STANDARD
DRAWINGS

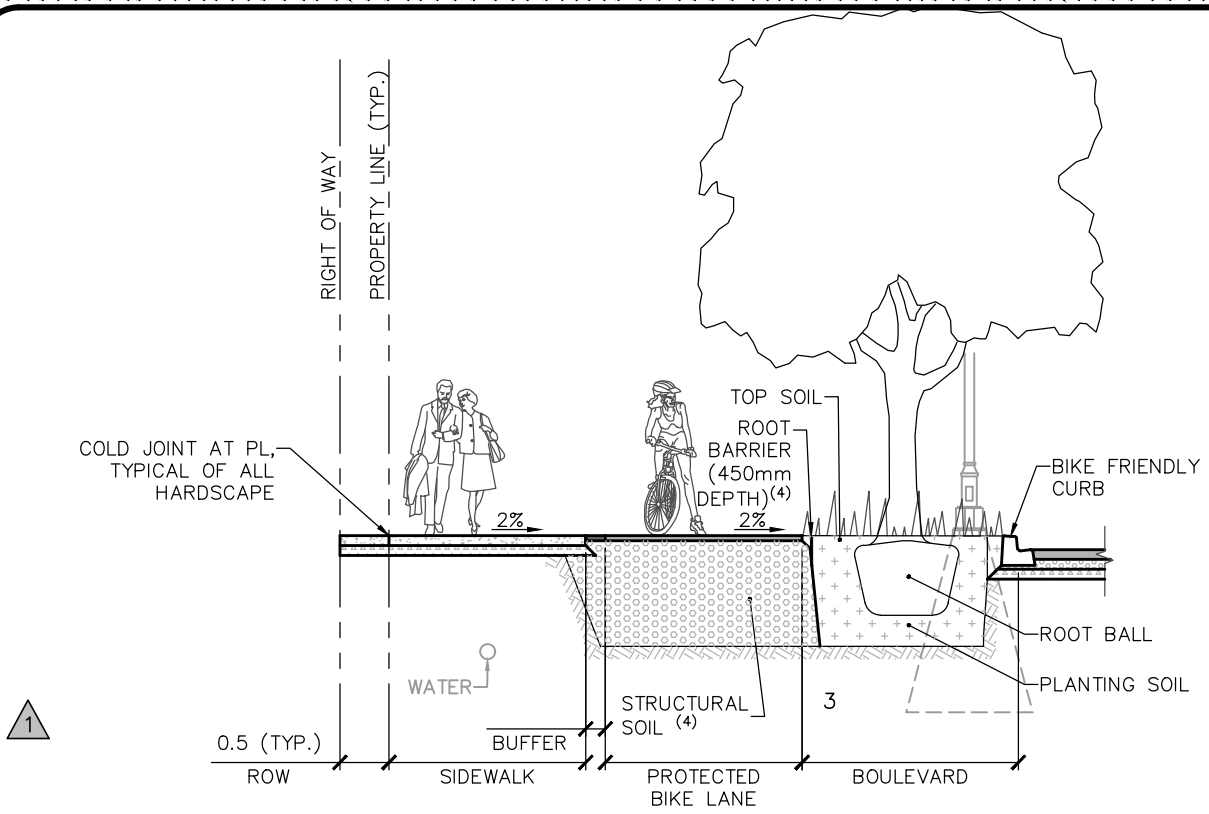
Approved By :

2024

G.M. Engineering

DRAWING NUMBER
SSD-CC.4

1



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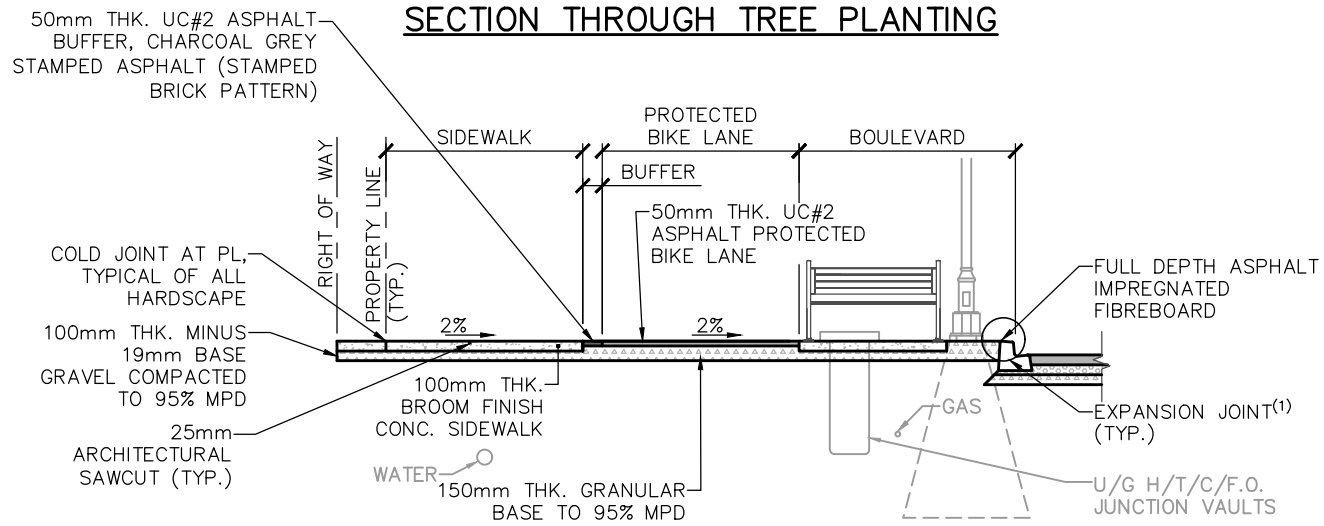
SECTION THROUGH TREE PLANTING



SECTION THROUGH CUT THROUGH

NOTES:

1. EXPANSION JOINTS SHALL USE FULL DEPTH ASPHALT IMPREGNATED FIBREBOARD @ MAXIMUM 9m LONGITUDINAL SPACING. EXPANSION JOINTS SHALL BE PROVIDED AGAINST ALL VERTICAL EDGES AND CHANGE IN MATERIALS.
2. CONTROL JOINTS SHALL HAVE A MAXIMUM 3m SPACING. CONTROL JOINTS SHALL BE SAWCUT ONLY.
3. CONCRETE EDGE ALONG PROPERTY LINE TO HAVE 150mm TROWEL FINISH. ALL SCORELINES TO STOP PRIOR TO TROWELED EDGE.
4. CONCRETE PROPOSED TO BE POURED UP TO OR BEYOND THE PROPERTY LIMIT TO HAVE A COLD JOINT PLACED ALONG THE EXTENT OF PROPERTY LIMIT TO ALLOW FOR FUTURE MAINTENANCE AND REPAIRS.

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **TYPICAL COLLECTOR ROAD SIDEWALK / BIKE LANE SECTION**

CITY OF SURREY the future lives here.

CITY CENTRE STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER: SSD-CC.5

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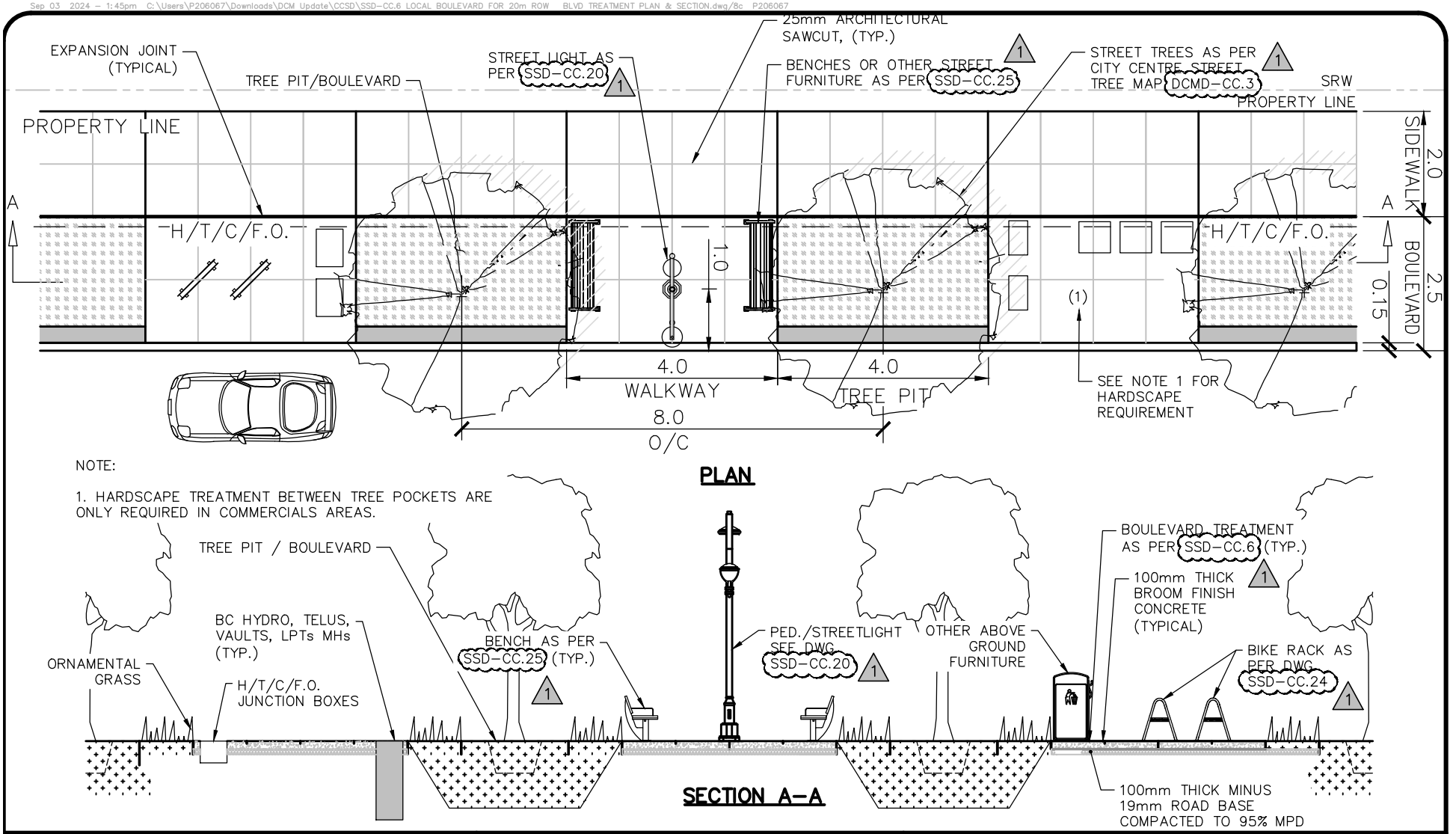

1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

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CITY CENTRE STANDARD DRAWINGS

All Dimensions Shown In Metres, Unless Otherwise Noted

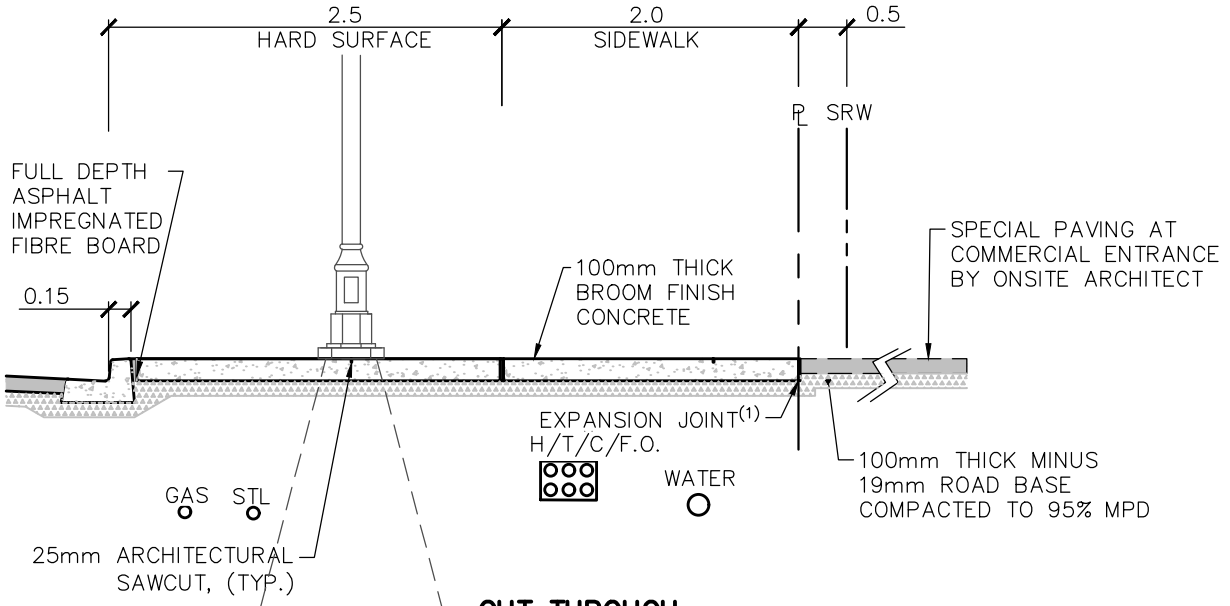
Title **LOCAL BOULEVARD FOR 20m ROW ROW, HARDSCAPE – PLAN/SECTION A-A**

Approved By :

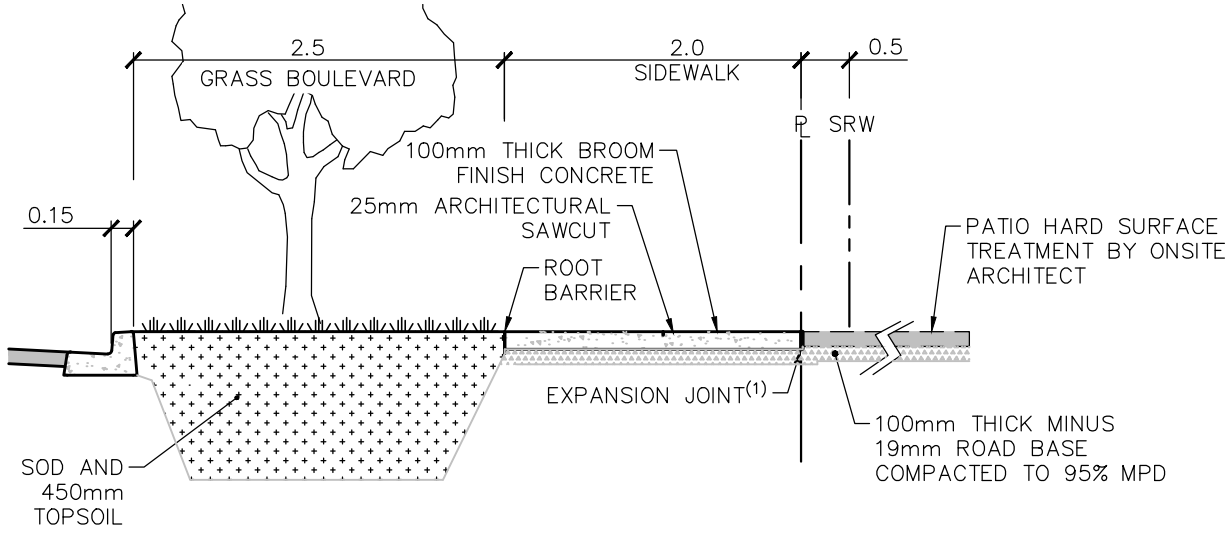
2024 G.M. Engineering

DRAWING NUMBER **SSD-CC.6**

1



CUT THROUGH



TREE PLANTING

NOTES:
(1) EXPANSION JOINTS SHALL USE FULL DEPTH ASPHALT IMPREGNATED FIBREBOARD @ MAXIMUM 9m LONGITUDINAL SPACING. EXPANSION JOINTS SHALL BE PROVIDED AGAINST ALL VERTICAL EDGES AND CHANGE IN MATERIALS. 50mm SMOOTH TROWEL ON BOTH SIDES OF EXPANSION JOINT.
(2) CONTROL JOINTS SHALL HAVE A MAXIMUM 3m SPACING. CONTROL JOINTS SHALL BE SAWCUT ONLY.
(3) CONTROL JOINT AND EXPANSION JOINT LAYOUTS TO BE CHALK MARKED AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO COMPLETION.
(4) INSTALL SOIL CELL OR STRUCTURAL SOIL AS PER MANUFACTURER'S RECOMMENDATION.ALTERNATIVELY STRUCTURAL SOIL CAN BE USED.

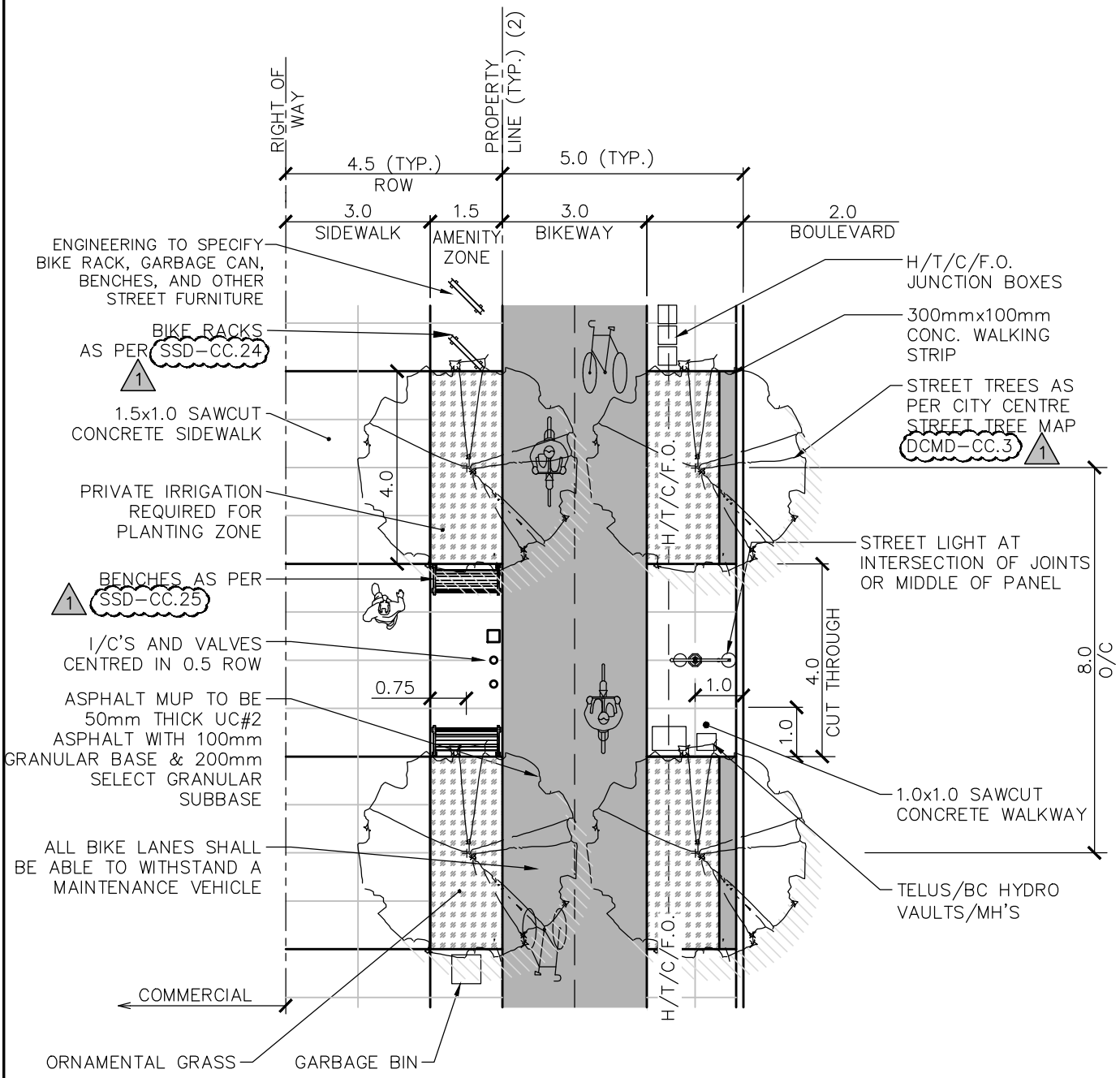
		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **LOCAL BOULEVARD FOR 20m ROW**
HARDSCAPE SECTION B–B

CITY OF SURREY the future lives here.
CITY CENTRE STANDARD DRAWINGS

Approved By :
2024 G.M. Engineering

DRAWING NUMBER
SSD–CC.7



NOTES: (1) IF BUILDING NOT ADJACENT TO SIDEWALK, ADD ON ADDITIONAL 0.5m TO ROW

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **BC PARKWAY WITH HARDSCAPE BOULEVARD**

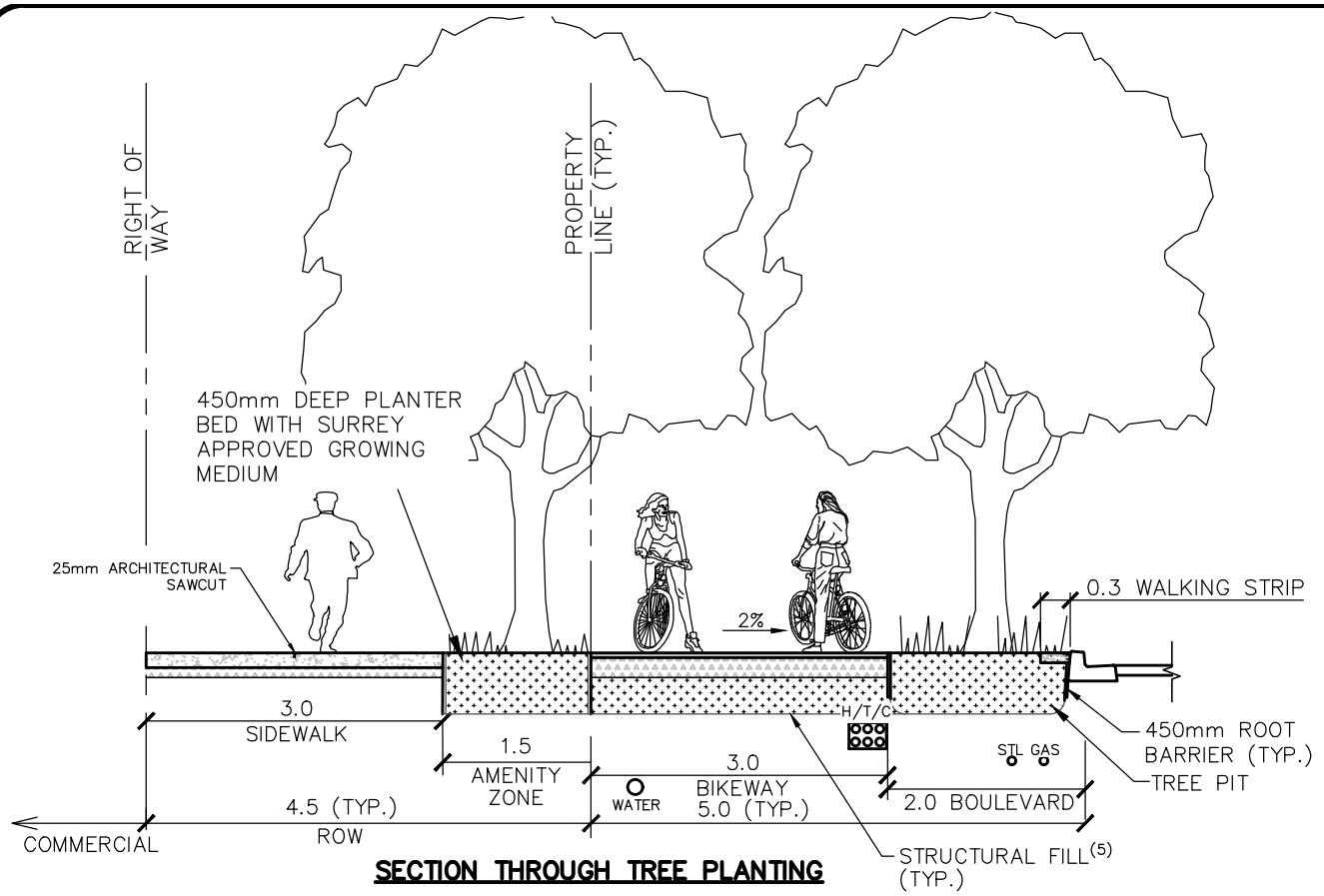
CITY OF SURREY the future lives here.

CITY CENTRE STANDARD DRAWINGS

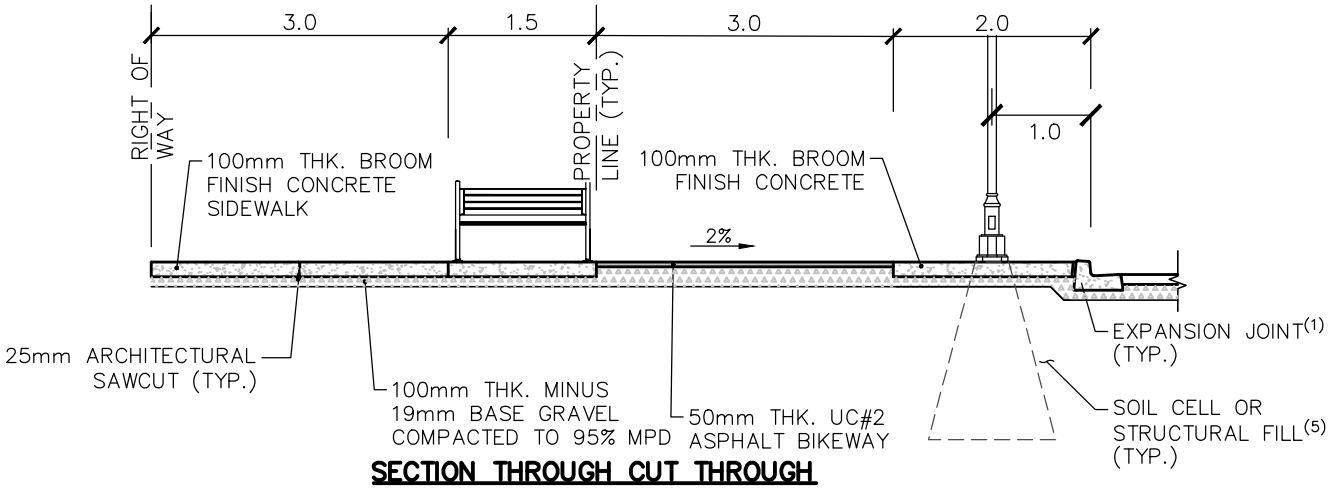
Approved By :

2024 G.M. Engineering

DRAWING NUMBER **SSD-CC.8**



SECTION THROUGH TREE PLANTING



SECTION THROUGH CUT THROUGH

NOTES:
(1) EXPANSION JOINTS SHALL USE FULL DEPTH ASPHALT IMPREGNATED FIBREBOARD @ MAXIMUM 9m LONGITUDINAL SPACING. EXPANSION JOINTS SHALL BE PROVIDED AGAINST ALL VERTICAL EDGES AND CHANGE IN MATERIALS. 50mm SMOOTH TROWEL ON BOTH SIDES OF EXPANSION JOINT.
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(3) CONTROL JOINT AND EXPANSION JOINT LAYOUTS TO BE CHALK MARKED AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO COMPLETION.
(4) CONCRETE EDGE ALONG PROPERTY LINE TO HAVE 150mm TROWEL FINISH. ALL SCORELINES TO STOP PRIOR TO TROWELED EDGE.
(5) STRUCTURAL SOIL TO MEET SECTION 02727 OF SURREY PARK STANDARDS.

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title **BC PARKWAY WITH HARDSCAPE BLVD – CROSS SECTION (COMMERCIAL)**

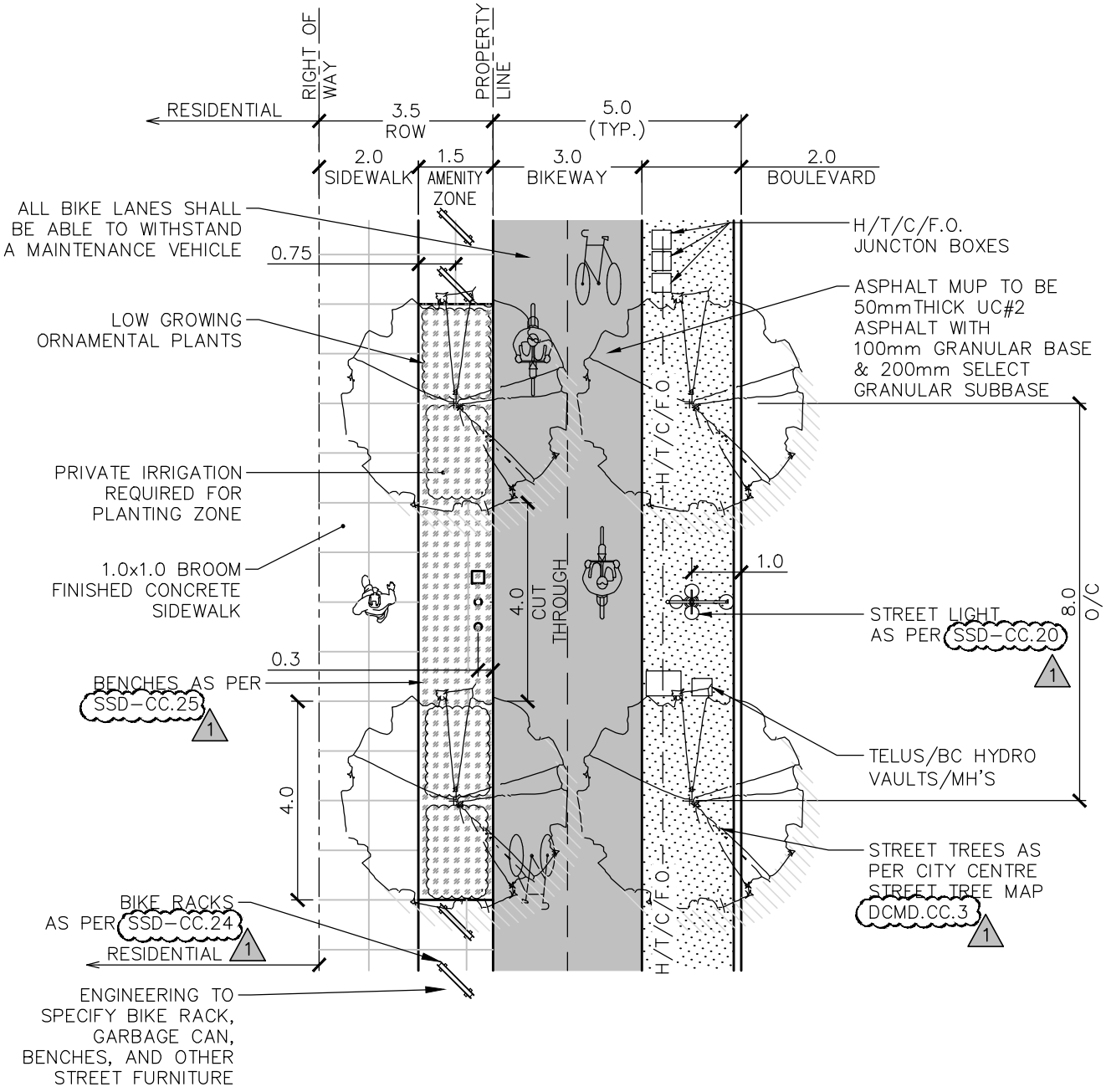
CITY OF SURREY the future lives here.

CITY CENTRE STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER **SSD–C.9**



			All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: BC PARKWAY WITH SOFTSCAPE BOULEVARD (RESIDENTIAL)
	Revision Date	Approved	

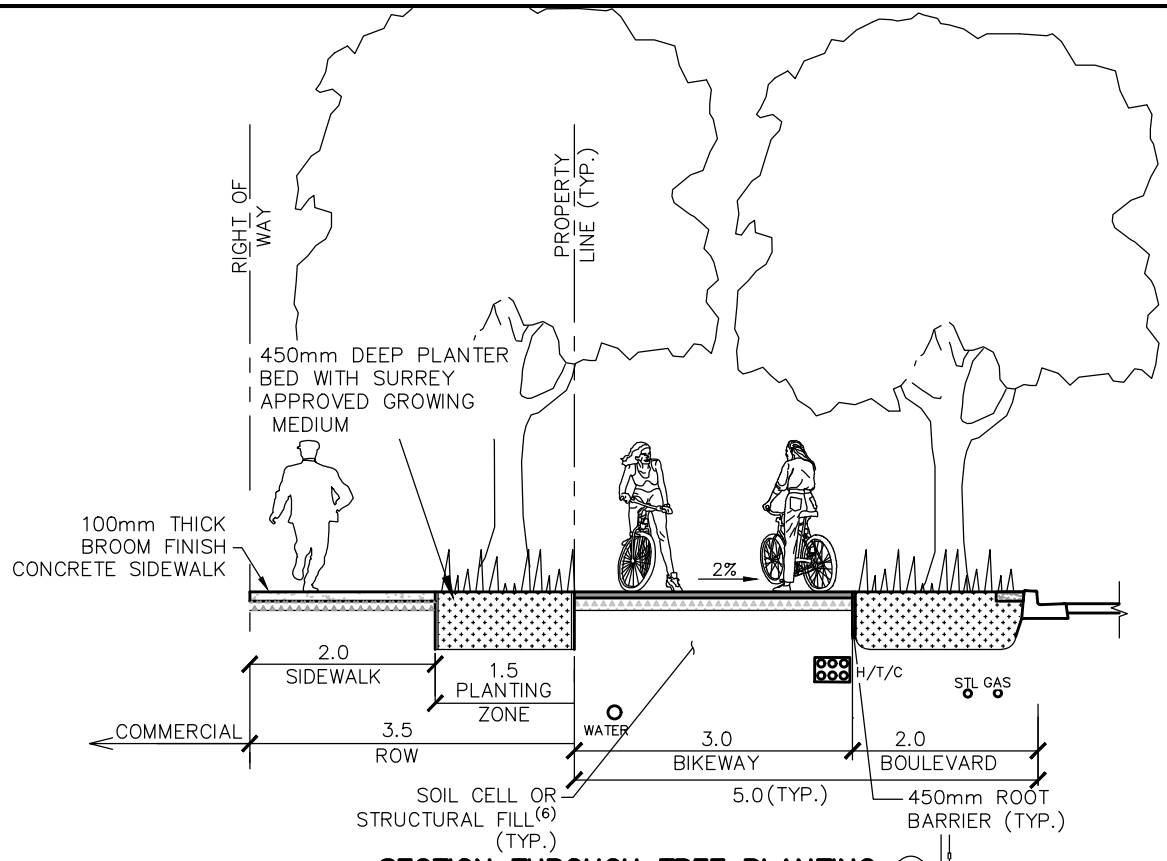
CITY OF SURREY
the future lives here.

CITY CENTRE STANDARD DRAWINGS

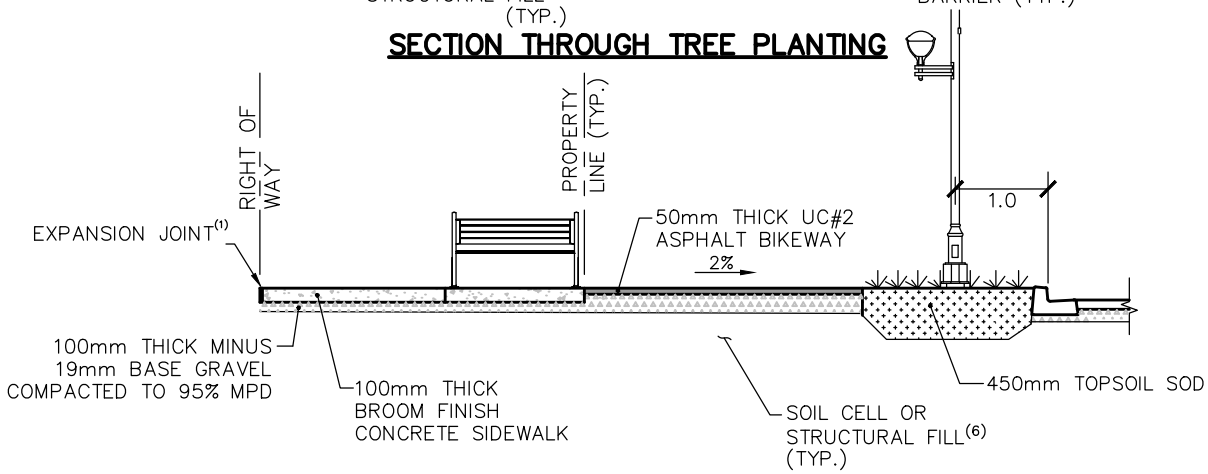
Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD-CC.10



SECTION THROUGH TREE PLANTING



SECTION THROUGH CUT THROUGH

NOTES:
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(3) CONTROL JOINT AND EXPANSION JOINT LAYOUTS TO BE CHALK MARKED AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO COMPLETION.
(4) CONCRETE FINISH TO MATCH EXISTING CONCRETE SIDEWALK FINISH
(5) CONCRETE EDGE ALONG PROPERTY LINE TO HAVE 150mm TROWEL FINISH. ALL SCORELINES TO STOP PRIOR TO TROWELED EDGE.
(6) STRUCTURAL SOIL TO MEET SECTION 02727 OF SURREY PARK STANDARDS.

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title **BC PARKWAY WITH SOFTSCAPE BLVD – CROSS SECTION (RESIDENTIAL)**

CITY OF SURREY the future lives here.

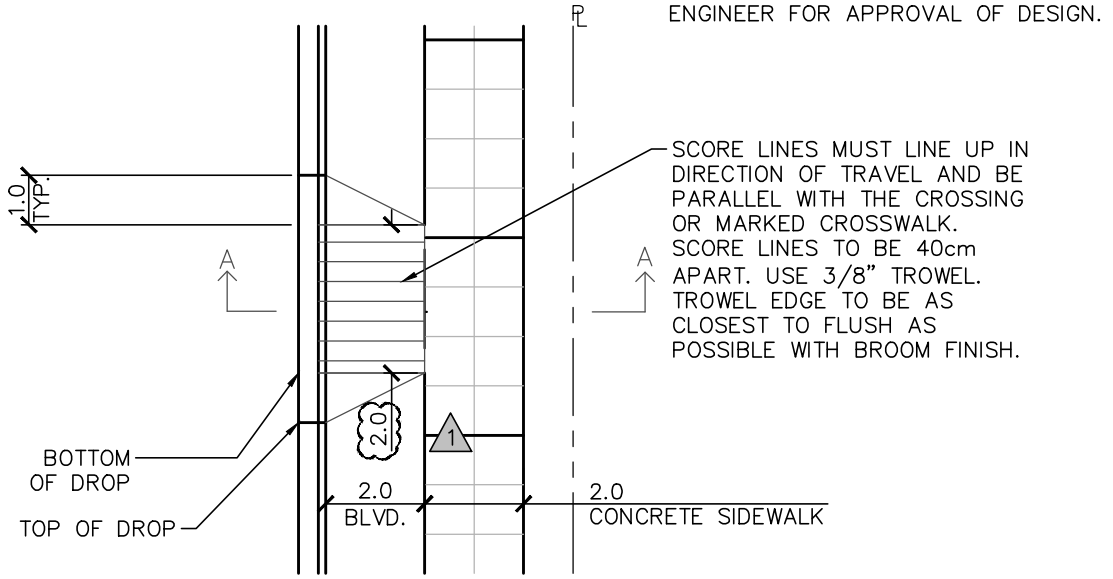
CITY CENTRE STANDARD DRAWINGS

Approved By :

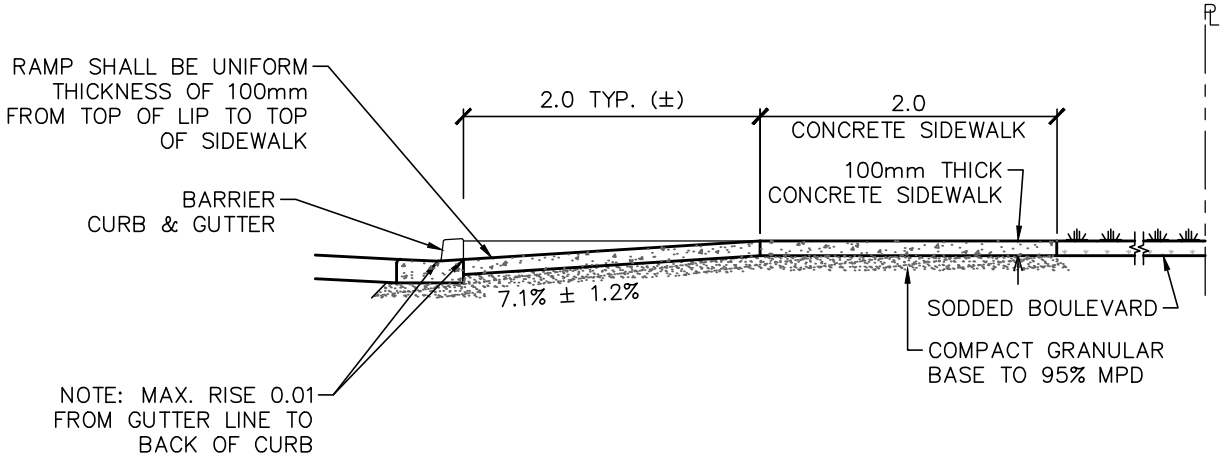
2024 G.M. Engineering

DRAWING NUMBER **SSD-CC.11**

NOTE: 1. STANDARD RAMP LENGTH: 2.0m AT CENTRE OF RAMP. RECOMMENDED RAMP SLOPE: 7.1% ± 1.2%. MAX. SLOPE 8.3% (1:12) WHERE TOPOGRAPHY PERMITS. ADJUST LENGTH OF RAMP AS REQUIRED WHEN SITE CONDITIONS DO NOT PERMIT TYPICAL LAYOUT. CONTACT CITY ENGINEER FOR APPROVAL OF DESIGN.



PLAN



SECTION A–A CURB RAMP

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **SINGLE RAMP LETDOWN WITH PARALLEL SCORING**

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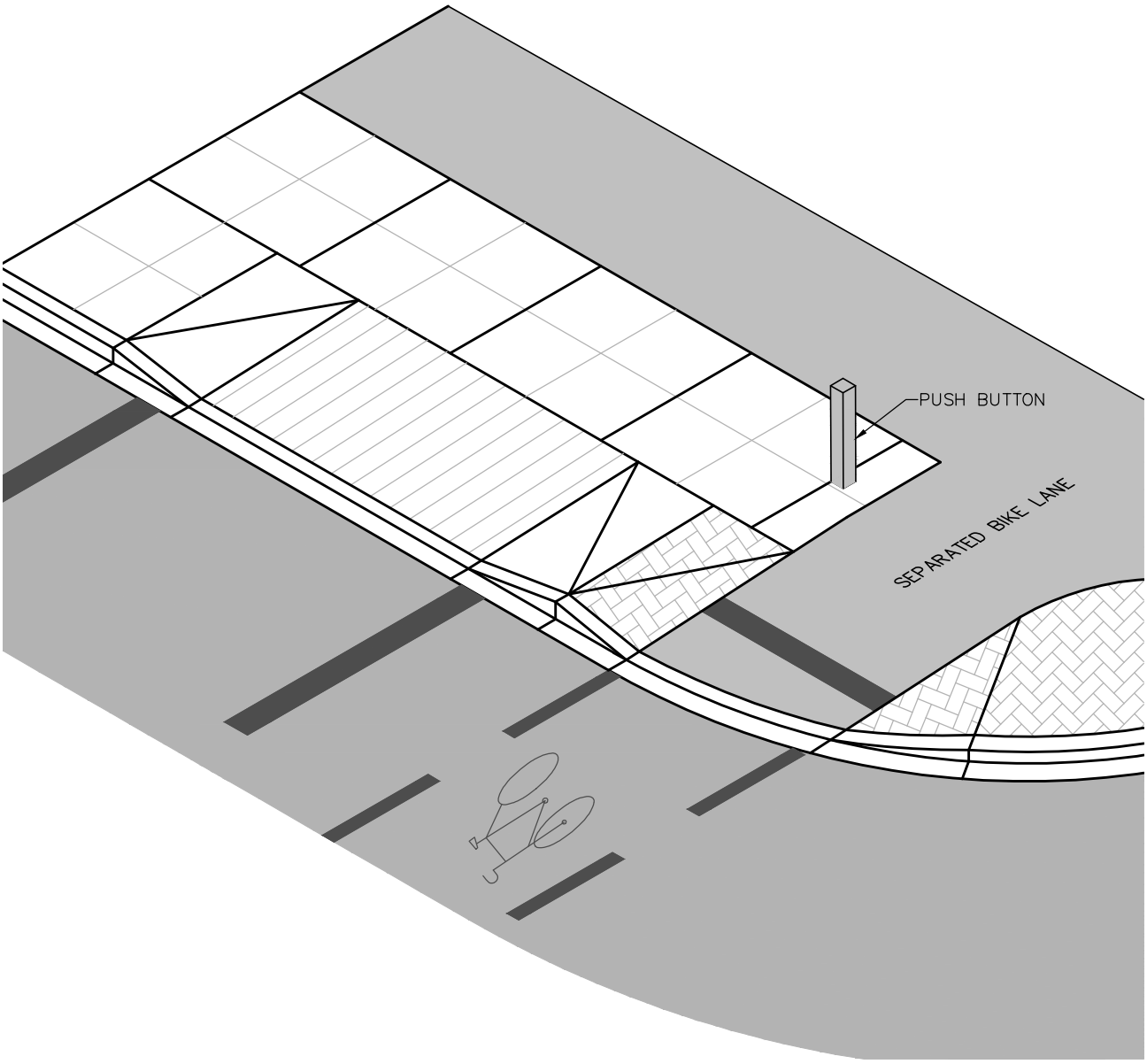
CITY CENTRE STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER **SSD–CC.12**

1



1

NOTES:

1. THIS ISOMETRIC VIEW IS ASSOCIATED WITH CCSD–6D AND CCSD–7D. REFER TO THOSE DRAWINGS FOR ADDITIONAL DETAILS.

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title **TYPICAL TREATMENT TWO LETDOWNS FOR PROTECTED INTERSECTION**

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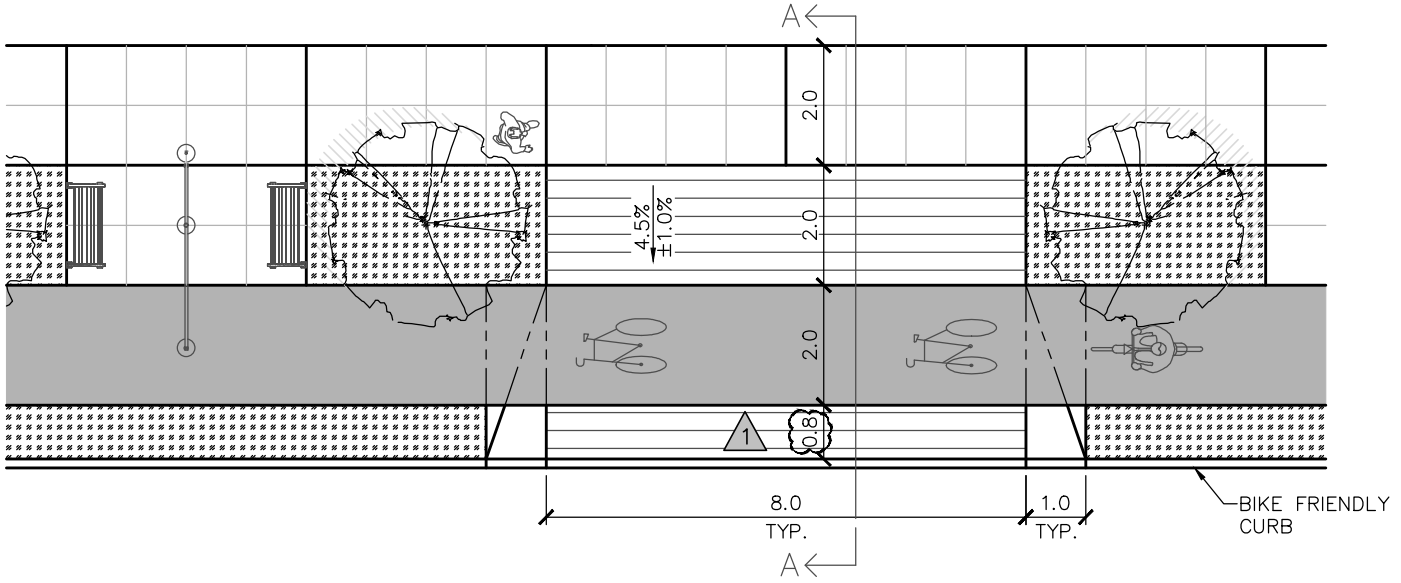
CITY CENTRE STANDARD DRAWINGS

Approved By :

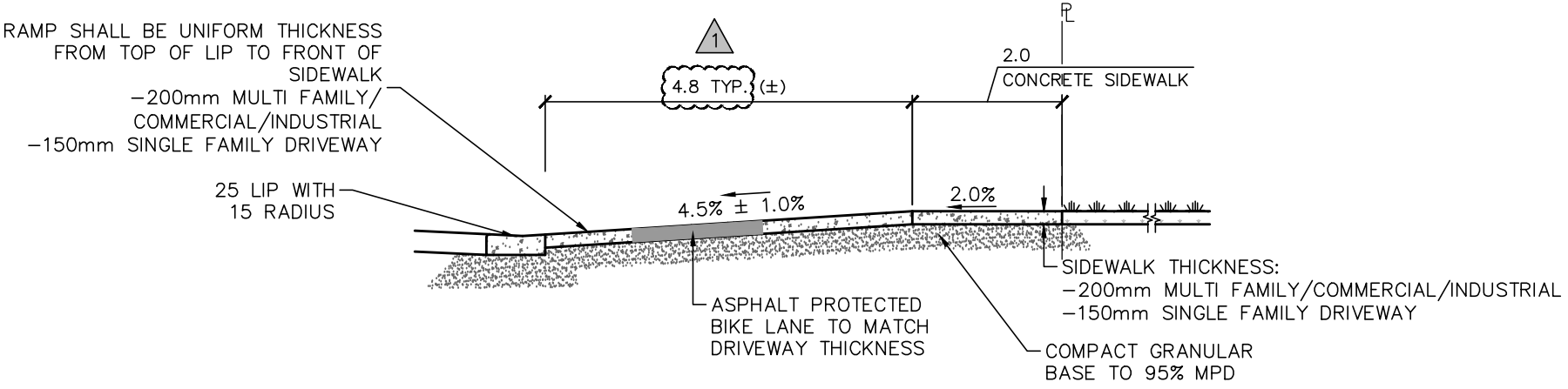
2024 G.M. Engineering

DRAWING NUMBER SSD–CC.13

1



TYPE 1



1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

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CITY CENTRE STANDARD DRAWINGS

All Dimensions Shown In Metres, Unless Otherwise Noted

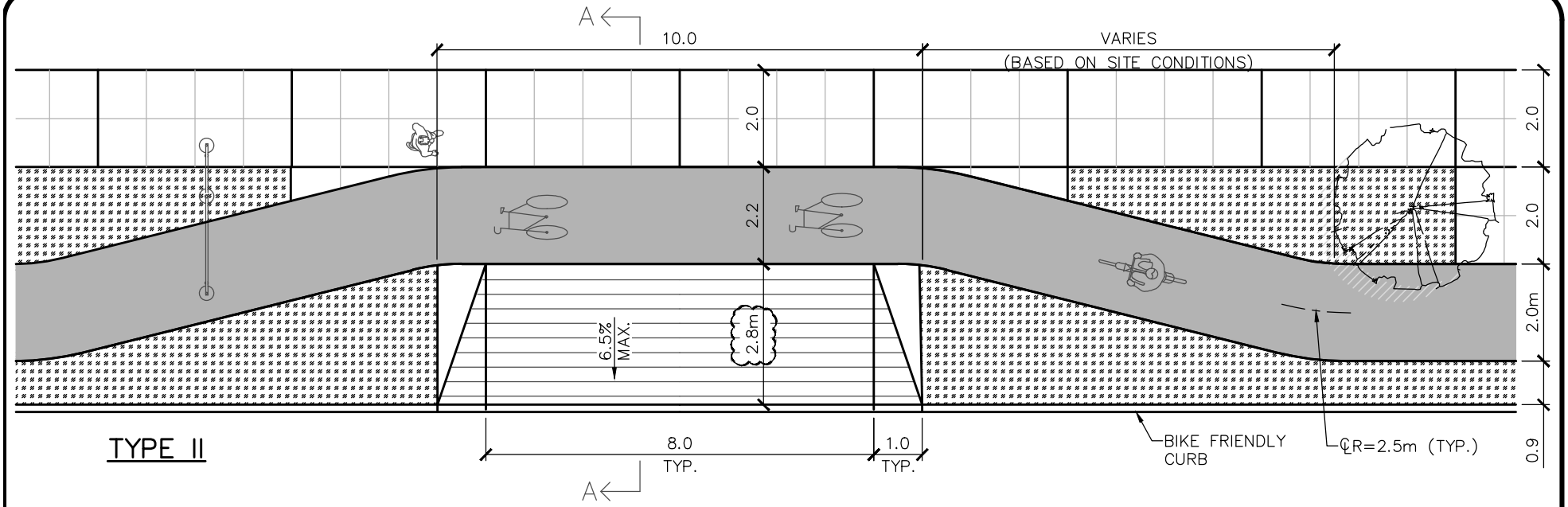
Title: **DRIVEWAY TYPE 1 PLAN & SECTION VIEW (30m) ROW**

Approved By :

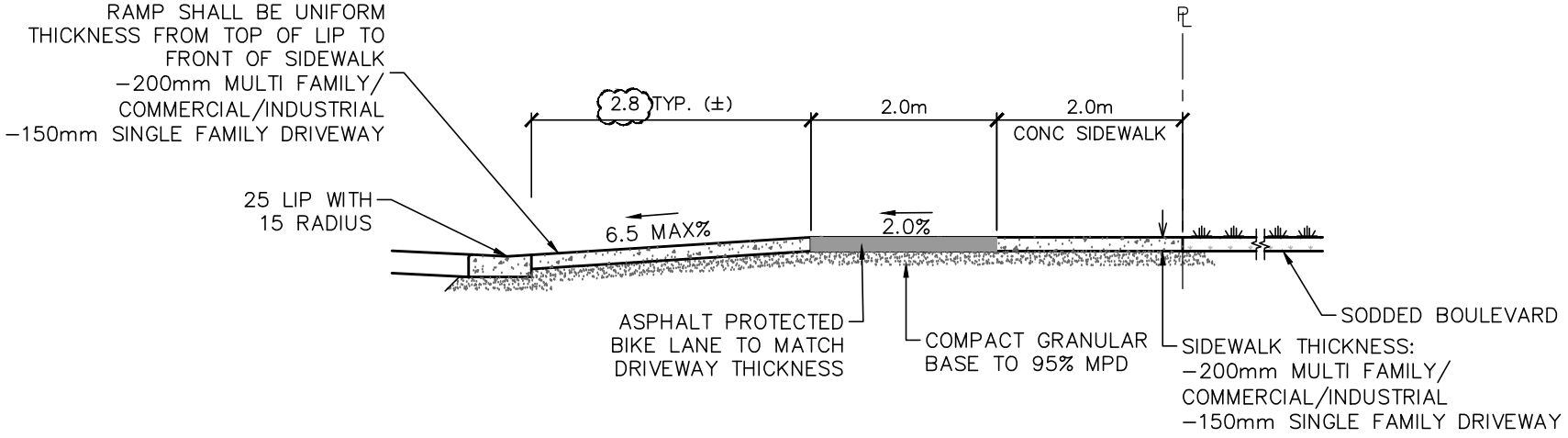
2024 G.M. Engineering

DRAWING NUMBER: SSD–CC.14

1



TYPE II



1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

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CITY CENTRE
STANDARD
DRAWINGS

All Dimensions Shown In Metres,
Unless Otherwise Noted

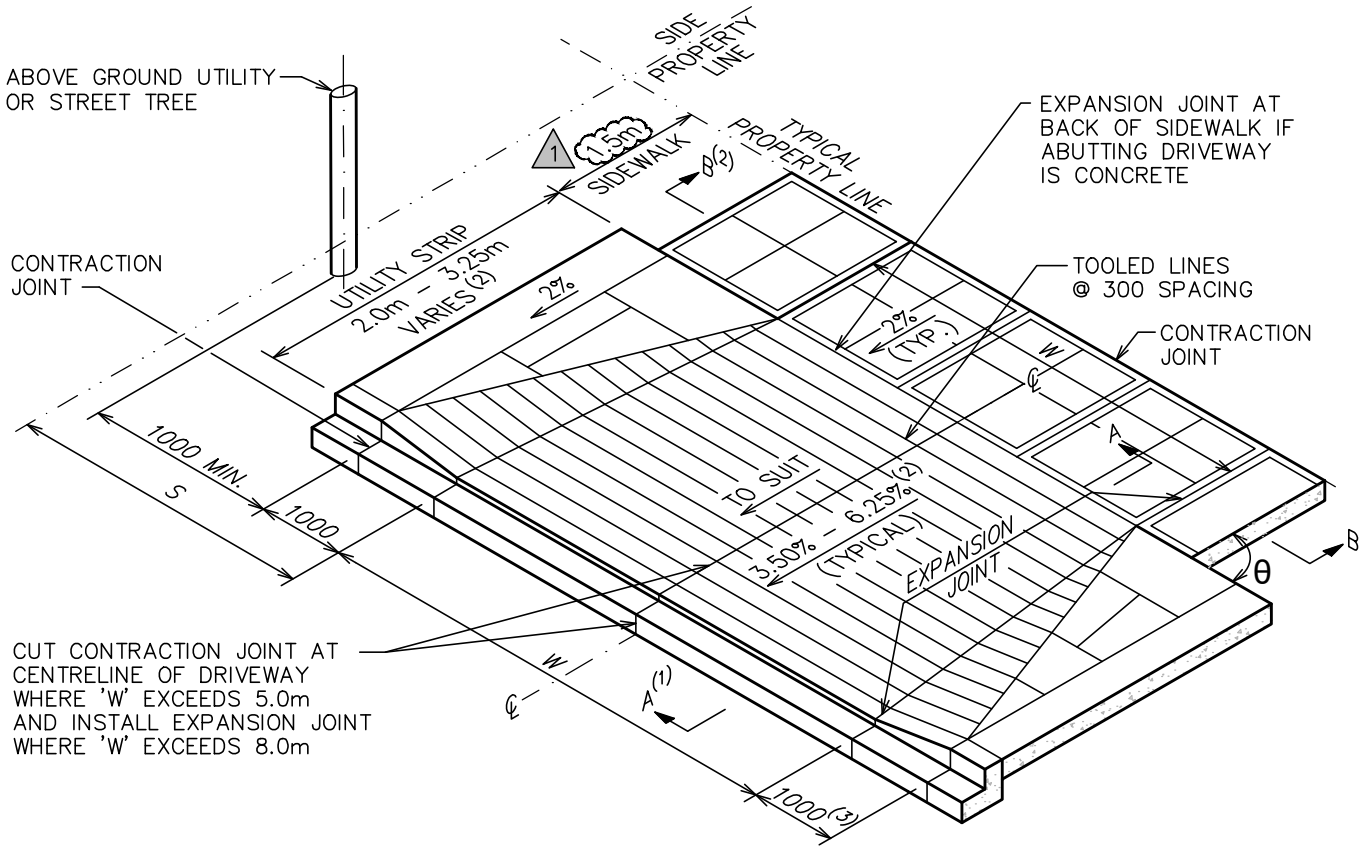
Title **DRIVEWAY TYPE II PLAN & SECTION VIEW (30m) ROW**

Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD–CC.15

1



ZONE	OPERATION	W		S	θ – MIN. ANGLE BTWN. THE FRONTAGE PROP. LINE AND THE EDGE OF DRIVEWAY (DEG.)
		MIN. (m)	STD. (m)	MIN. DISTANCE FROM SIDE PROPERTY LINE (m)	
SINGLE FAMILY RESIDENTIAL	N/A	4.5	6.0	1.2	90
MULTI FAMILY RESIDENTIAL	TWO WAY	N/A	7.3	2.0	90
	ONE WAY	N/A	4.5	2.0	45
LANE	RESIDENTIAL	N/A	7.3	2.0	90
	COMMERCIAL	N/A	9.3	2.0	45
COMMERCIAL	TWO WAY	7.3	9.0	2.0	90
	ONE WAY	N/A	4.5	2.0	45
INDUSTRIAL	TWO WAY	9.0	11.0	2.0	90
	ONE WAY	N/A	5.0	2.0	30

NOTES: (1) FOR UTILITY STRIP LESS THAN 2.0m, LETDOWN SLOPE SHALL BE 2%.
(2) FLARE IS NOT PERMITTED FOR SINGLE FAMILY RESIDENTIAL UNLESS DIRECTED BY ENGINEER.
(3) EXPANSION JOINTS SHALL USE FULL DEPTH ASPHALT IMPREGNATED FIBREBOARD @ MAXIMUM 9m LONGITUDINAL SPACING. EXPANSION JOINTS SHALL BE PROVIDED AGAINST ALL VERTICAL EDGES AND CHANGE IN MATERIALS.

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **LOCAL ROAD DRIVEWAYS**

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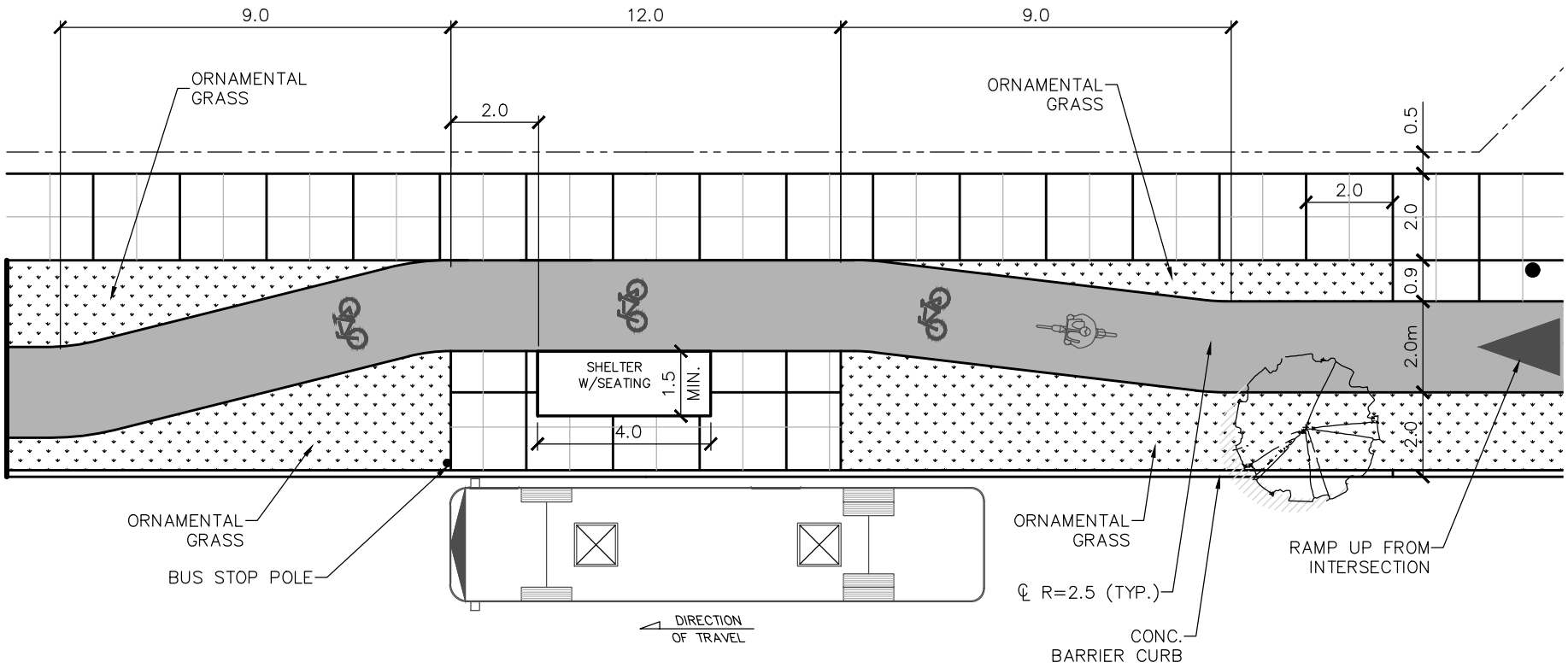
CITY CENTRE STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER **SSD–CC.16**

1



1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

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CITY CENTRE STANDARD DRAWINGS

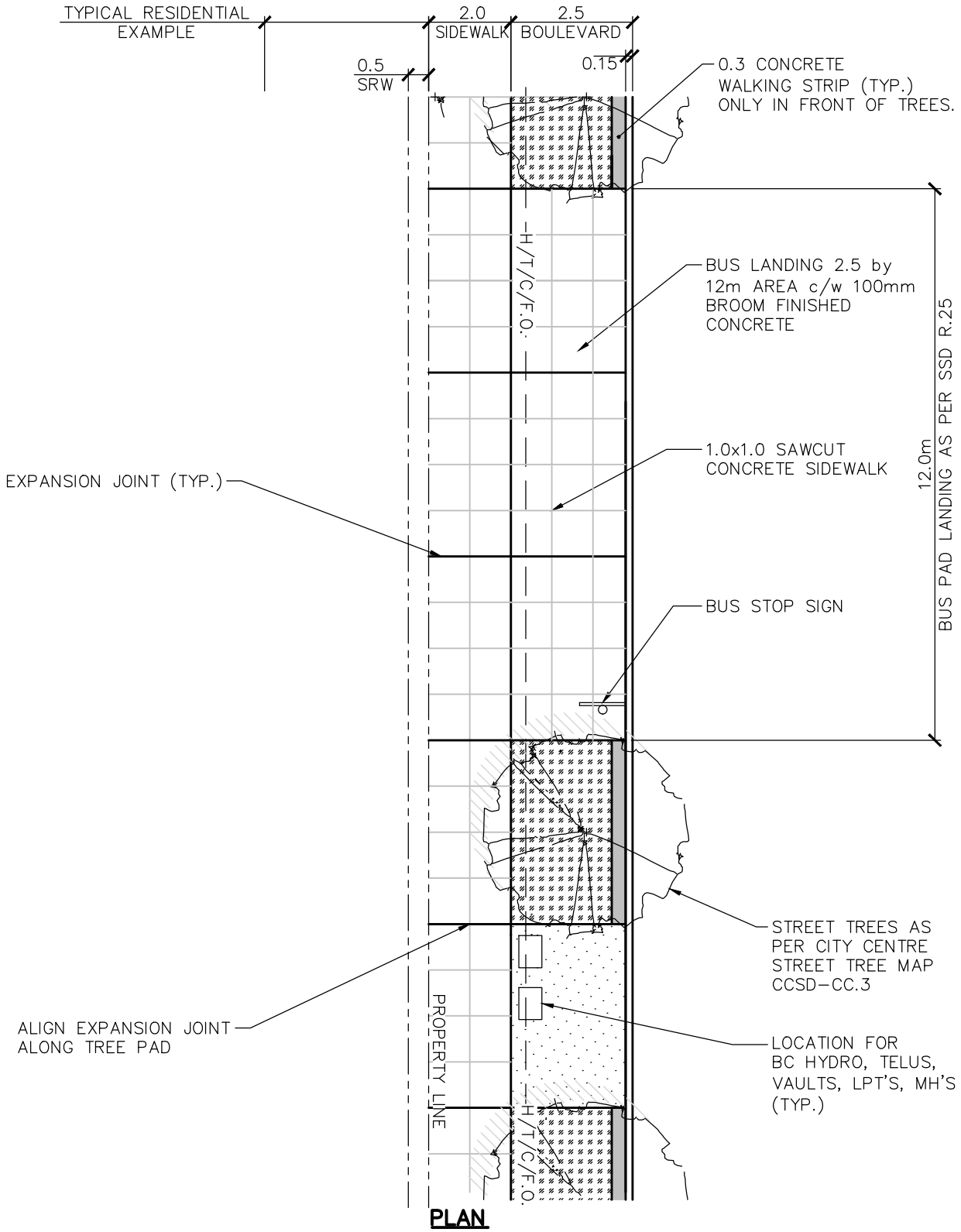
All Dimensions Shown In Metres, Unless Otherwise Noted

Title **TYPICAL BUS STOP PLAN VIEW (30m) ROW**

Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD-CC.17
1



PLAN

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title **LOCAL BOULEVARD FOR 20m ROW BUS STOP FOR (4.5m) FRONTAGE**

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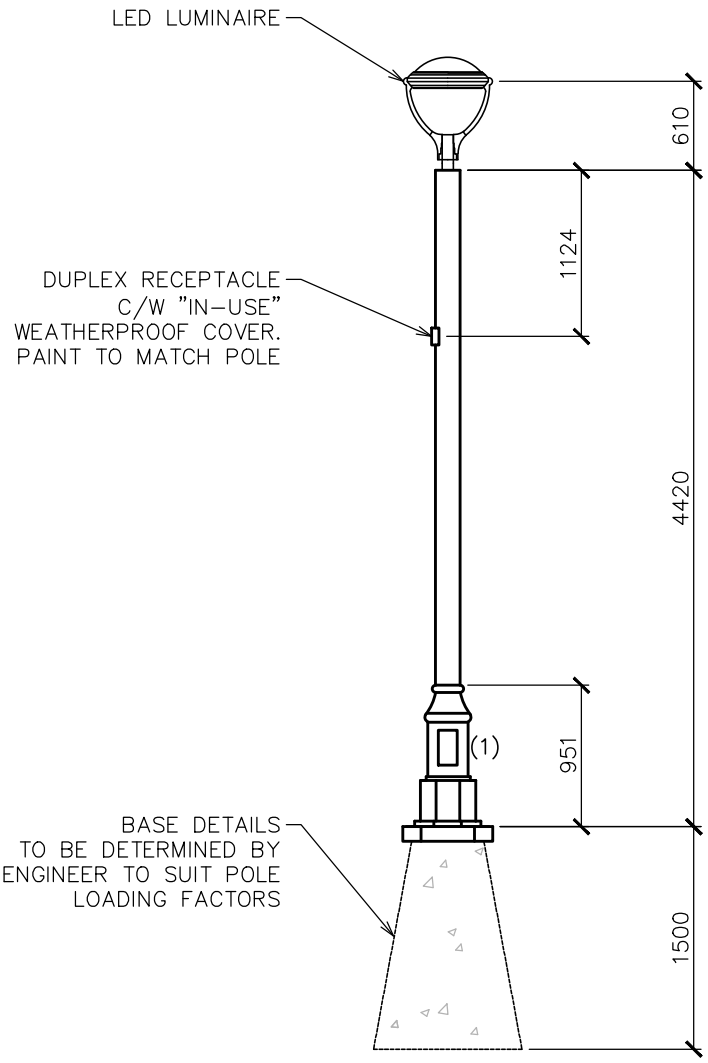
CITY CENTRE STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER **SSD-CC.18**



TYPICAL PROPOSED TYPE 'A' DECORATIVE LUMINAIRE POST

NOTES: (1) BOX FOR FUSE AND PHOTOCELL TO BE INSTALLED WHERE IDENTIFIED BY STREETLIGHT ENGINEER.
(2) POLE TO BE POWDER COATED RAL 7016 (GREY).

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
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Title: **STREET LIGHTS – TYPE 'A'**

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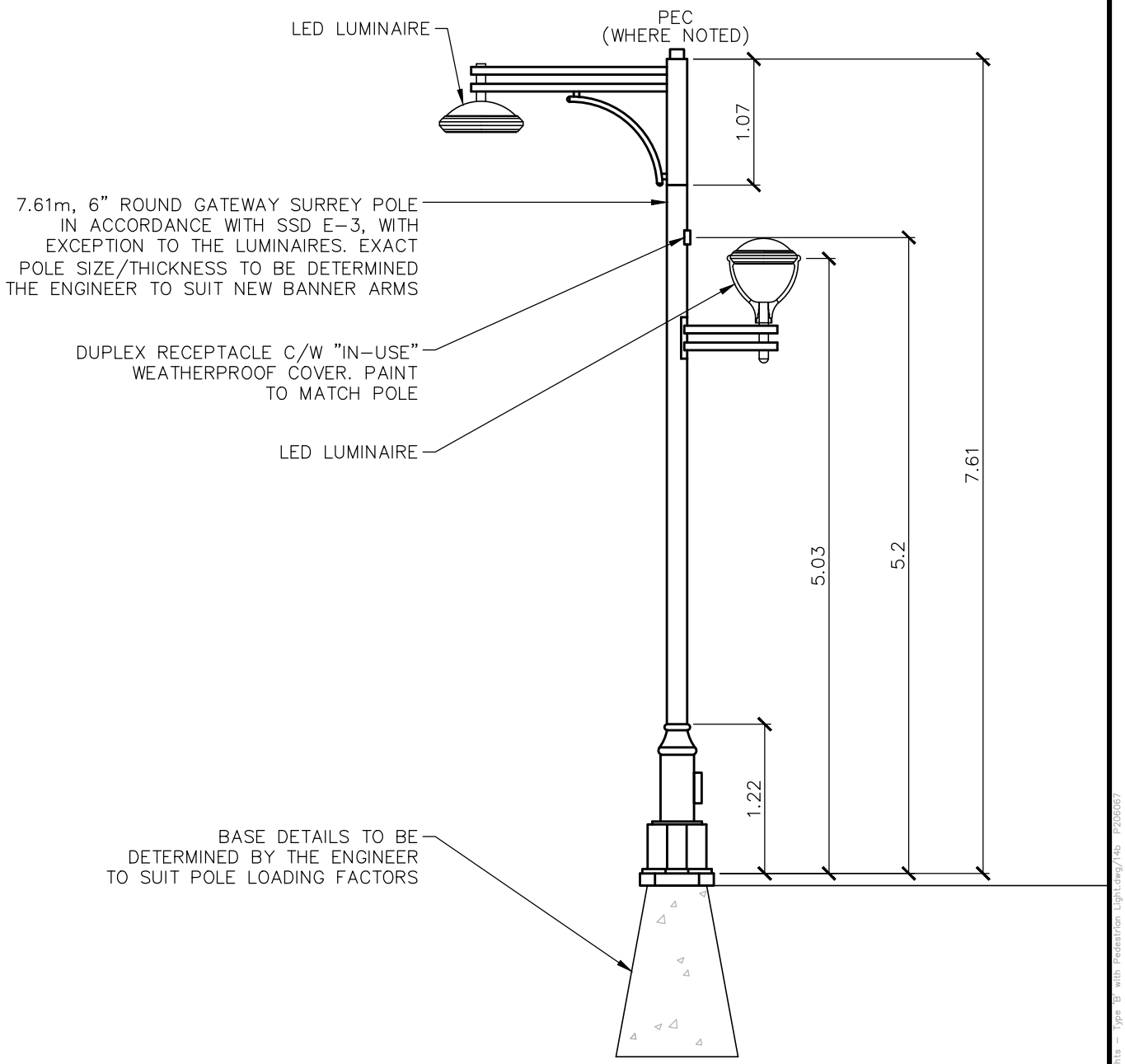
CITY CENTRE STANDARD DRAWINGS

Approved By : G.M. Engineering 2024

DRAWING NUMBER: SSD-CC.19

1



TYPICAL PROPOSED TYPE 'B' DECORATIVE LUMINAIRE POLE

NOTES:
(1) TYPICAL 32m SPACING ON OPPOSITE SIDES, NOT STAGGERED SUBJECT TO ENGINEER APPROVAL
(2) SUBJECT TO EXCEEDING ILLUMINATION REQUIREMENTS.
(3) POLE TO BE POWDER COATED RAL 7016 (GREY).

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **STREET LIGHTS – TYPE 'B' WITH PEDESTRIAN LIGHT**

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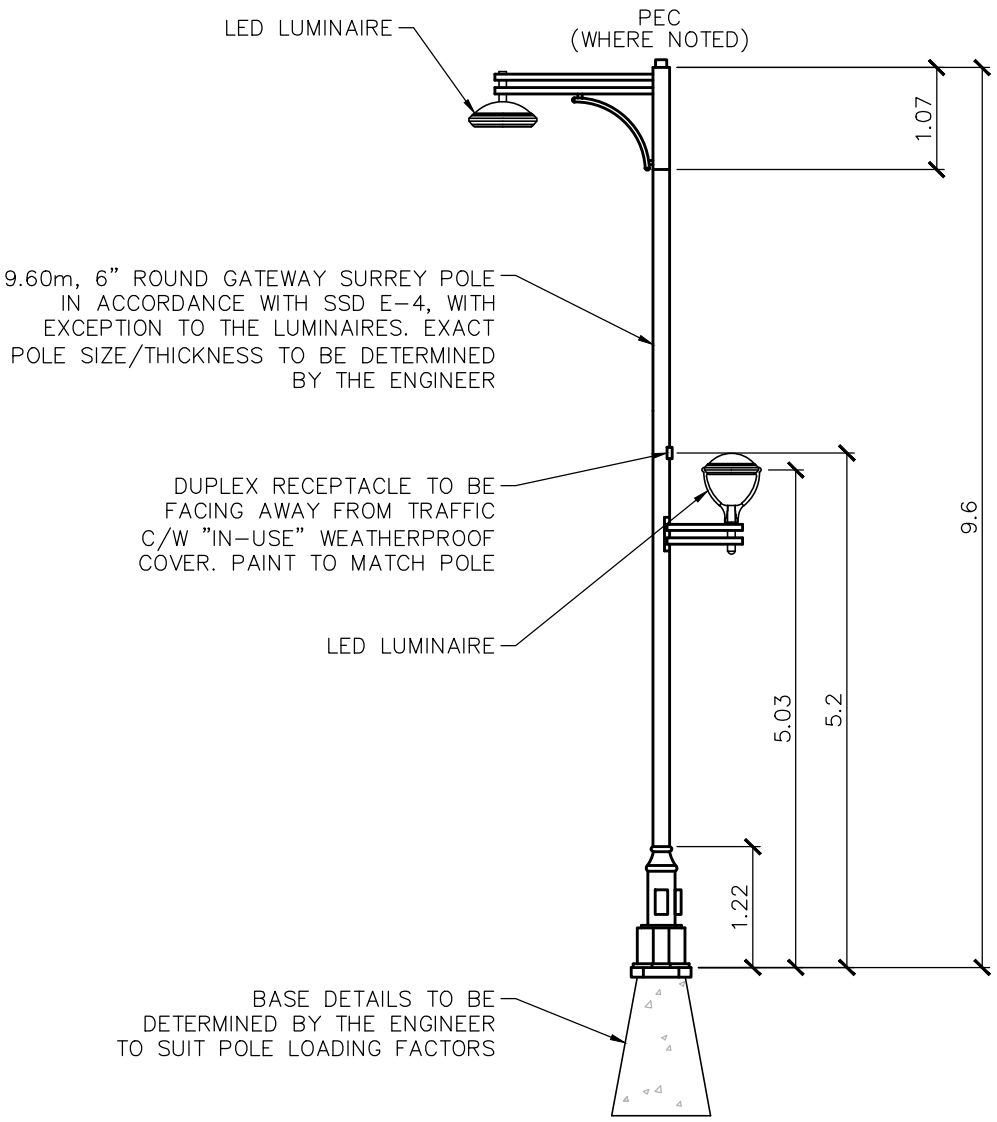
CITY CENTRE STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER SSD-CC.20

2



TYPICAL PROPOSED TYPE 'C' DECORATIVE LUMINAIRE POLE

NOTES:
(1) TYPICAL 40m SPACING ON OPPOSITE SIDES, NOT STAGGERED SUBJECT TO ENGINEER APPROVAL
(2) SUBJECT TO EXCEEDING ILLUMINATION REQUIREMENTS
(3) 11m POLE MAY BE REQUIRED.
(4) POLE TO BE POWDER COATED RAL 7016 (GREY).
(5) TO ACCOMMODATE BANNER ARMS, CONFIRM WIND LOADING WITH STRUCTURAL ENGINEERING

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **STREET LIGHTS – TYPE C PEDESTRIAN LIGHT**

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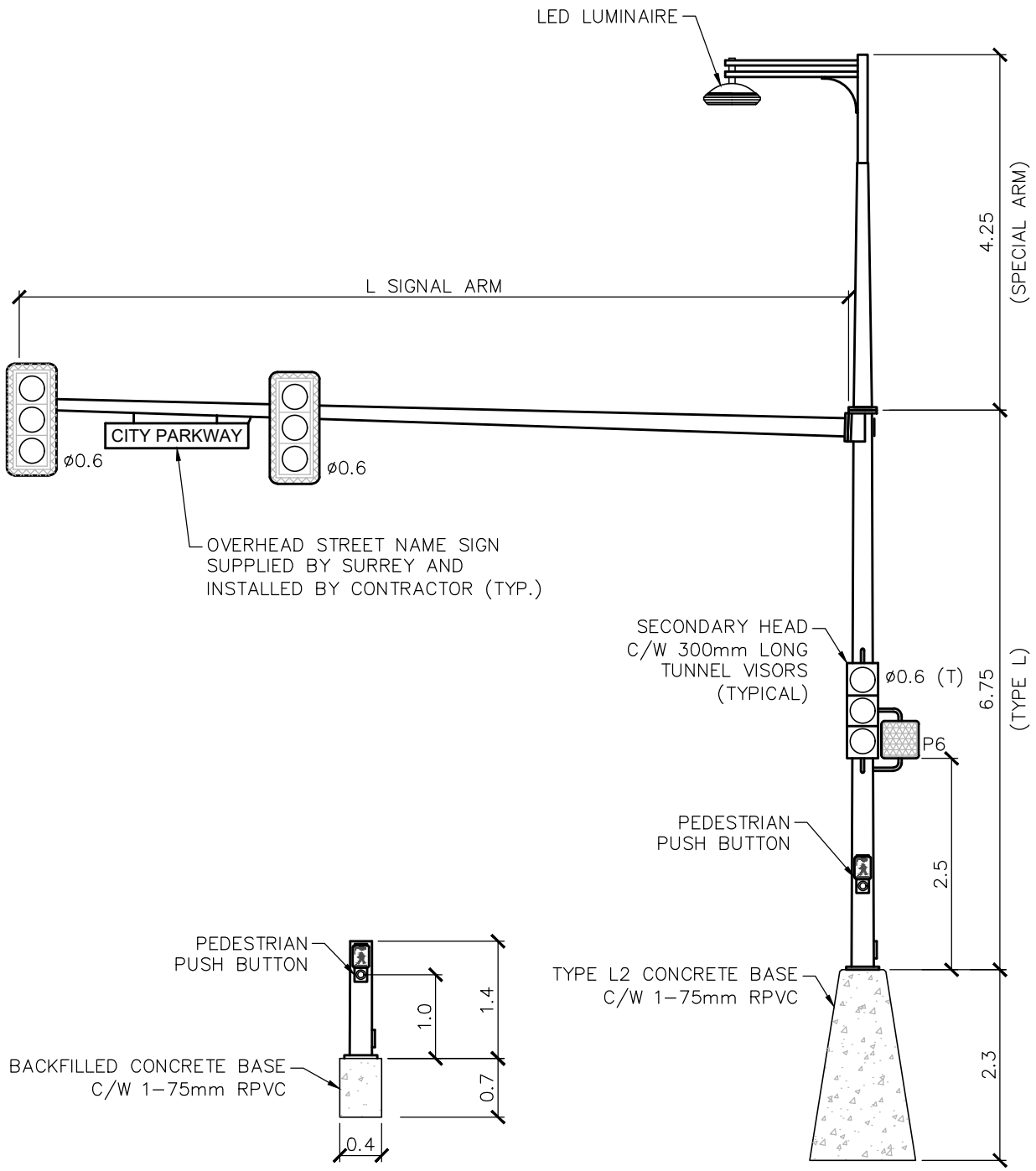
CITY CENTRE STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER: SSD-CC.21

1



TYPICAL PROPOSED PEDESTRIAN PUSH BUTTON

TYPICAL PROPOSED TYPE 'L' TRAFFIC SIGNAL POLE

NOTES: (1) POLES TO BE POWDER COATED RAL 7016 (GREY).

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
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Title: **TRAFFIC SIGNAL POLE**

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CITY CENTRE STANDARD DRAWINGS

Approved By :

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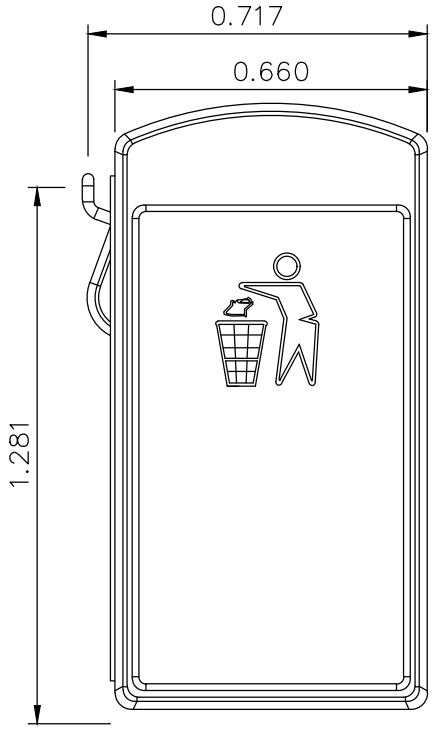
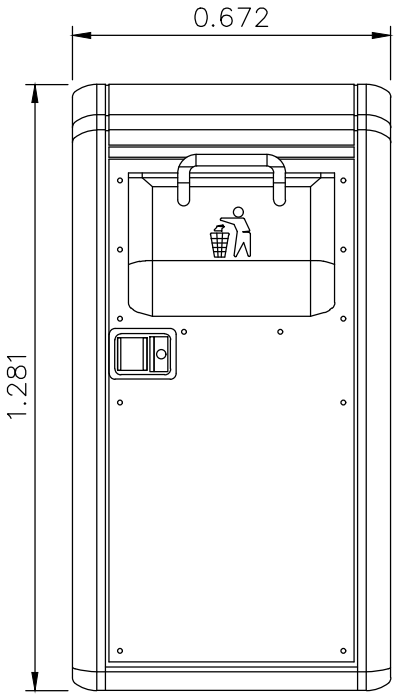
DRAWING NUMBER **SSD-CC.22**

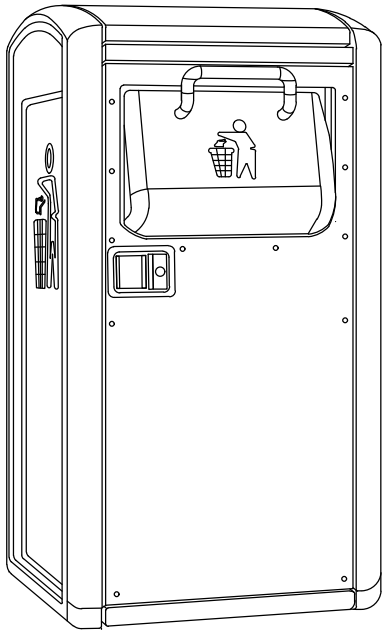
1



LEFT SIDE VIEW
NTS



FRONT SIDE VIEW
NTS



ISOMETRIC VIEW
NTS

1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

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CITY CENTRE
STANDARD
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All Dimensions Shown In Metres,
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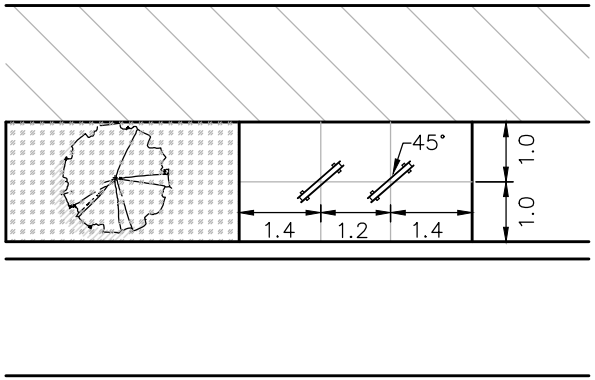
Title
TYPICAL TRASH CAN (BIG BELLY)

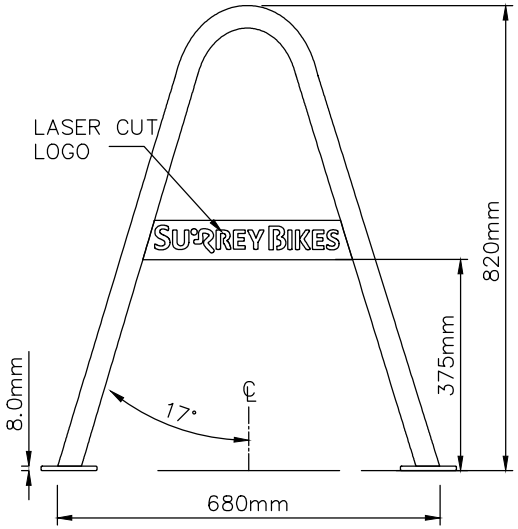
Approved By :

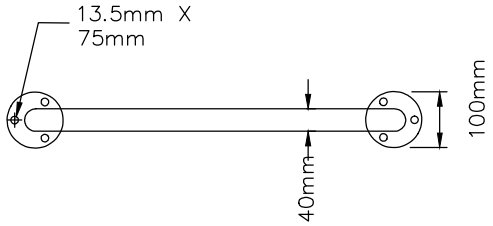
2024 G.M. Engineering

DRAWING NUMBER
SSD-CC.23

1







SPECIFICATIONS

BICYCLE CAPACITY	2
RECOMMENDED SPACING	1.2m OC
MINIMUM SPACING	0.9m OC
LONGITUDINAL SPACING	3.0m OC
ASSEMBLY MATERIAL	MILD STEEL (STAINLESS 304)
TUBE SIZE	40.0mm
WALL THICKNESS	3.0mm
LOGO BAR	4.0.mm PLATE
WEIGHT	8.4KG
FINISH	POWDER COATED OVER ZINC PRIMER #4 POLISH (STAINLESS STEEL ONLY)
ANCHOR TYPE	CONCRETE WEDGE ANCHOR 13mm X 75mm GALVANIZED (STAINLESS) OPTIONAL BREAKAWAY NUTS

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CITY CENTRE
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All Dimensions Shown In Metres,
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Title

TYPICAL BIKE RACK

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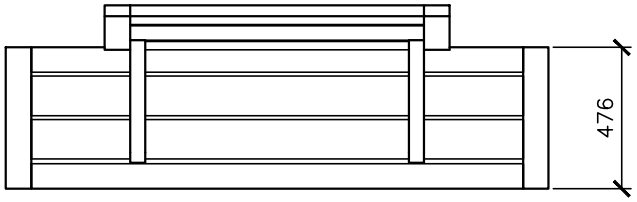
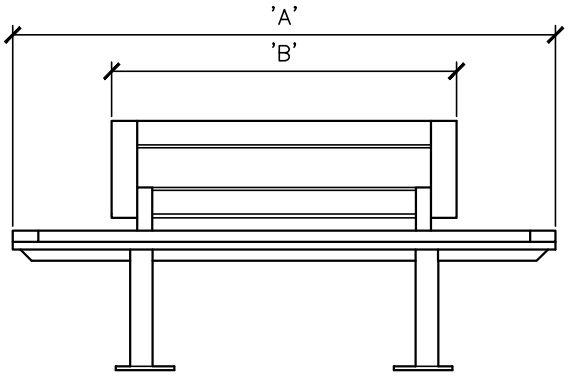
G.M. Engineering

DRAWING NUMBER

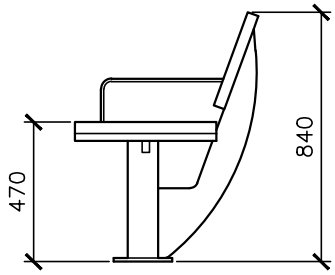
SSD-CC.24



TOP

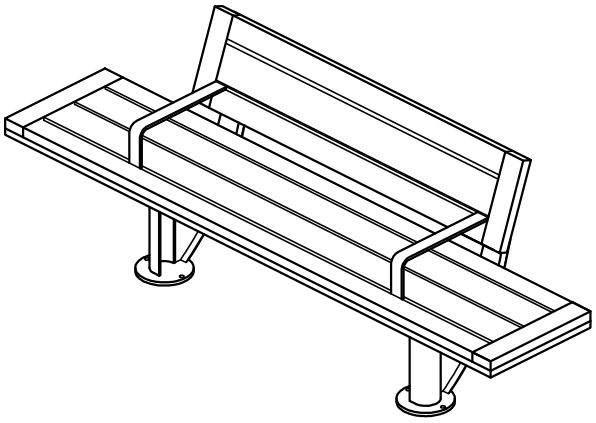


FRONT



ELEVATION

BENCH SIZE	1.8m	2.4m	2.7m
'A'	1.829m	2.388m	2.743m
'B'	1.162m	1.734m	1.905m



CITY STAFF TO SPECIFY
MATERIALS, COLOURS &
APPROVED MANUFACTURERS

			All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: **BENCH DETAIL**
	Revision Date	Approved	

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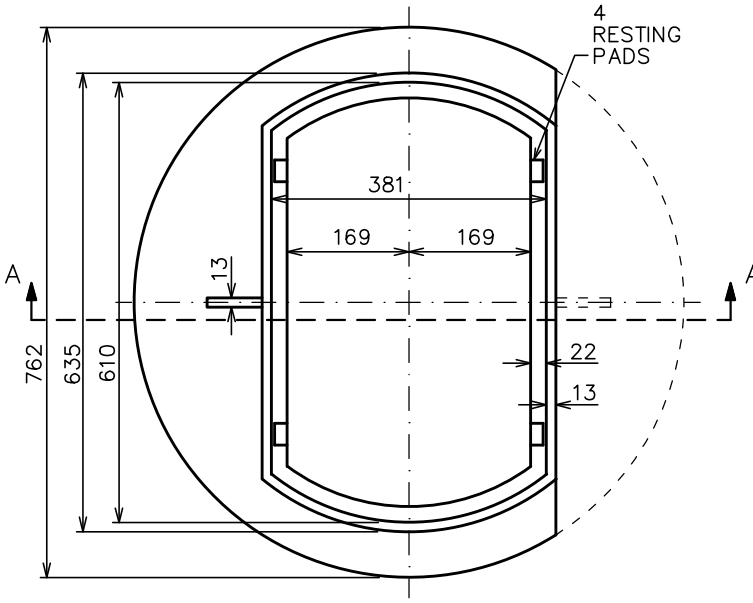
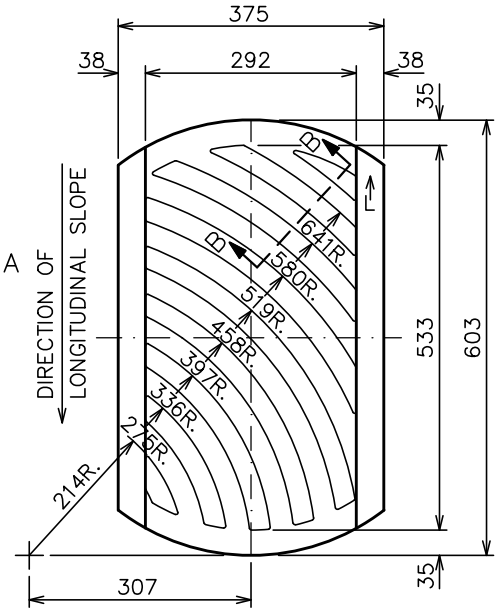
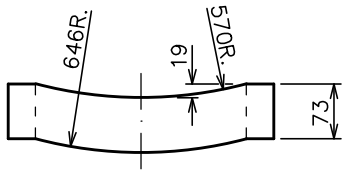
Approved By :

2024 G.M. Engineering

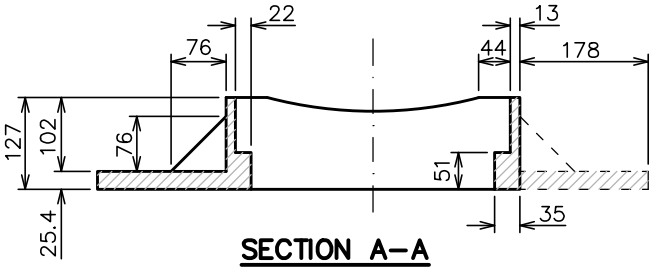
DRAWING NUMBER
SSD-CC.25
1



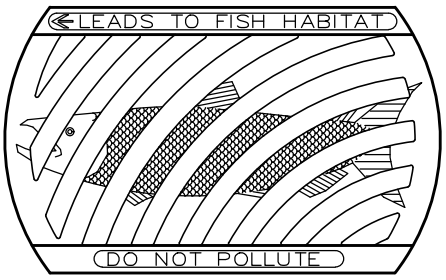




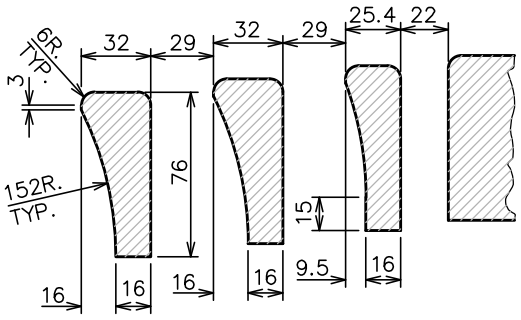
GRATE ELEVATION



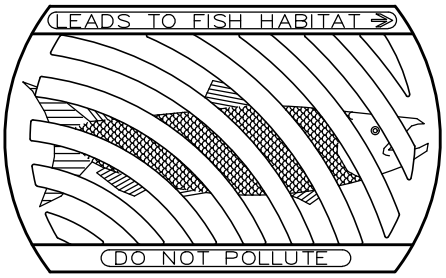
SECTION A–A



LEFT HAND GRATE



SECTION B–B



RIGHT HAND GRATE

NOTE:

1. SYMBOL OF FISH TO BE INDENTED ON TOP OF GRATE BY 3mm.

		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: TOP INLET CATCH BASIN GRATE AND FRAME (1)

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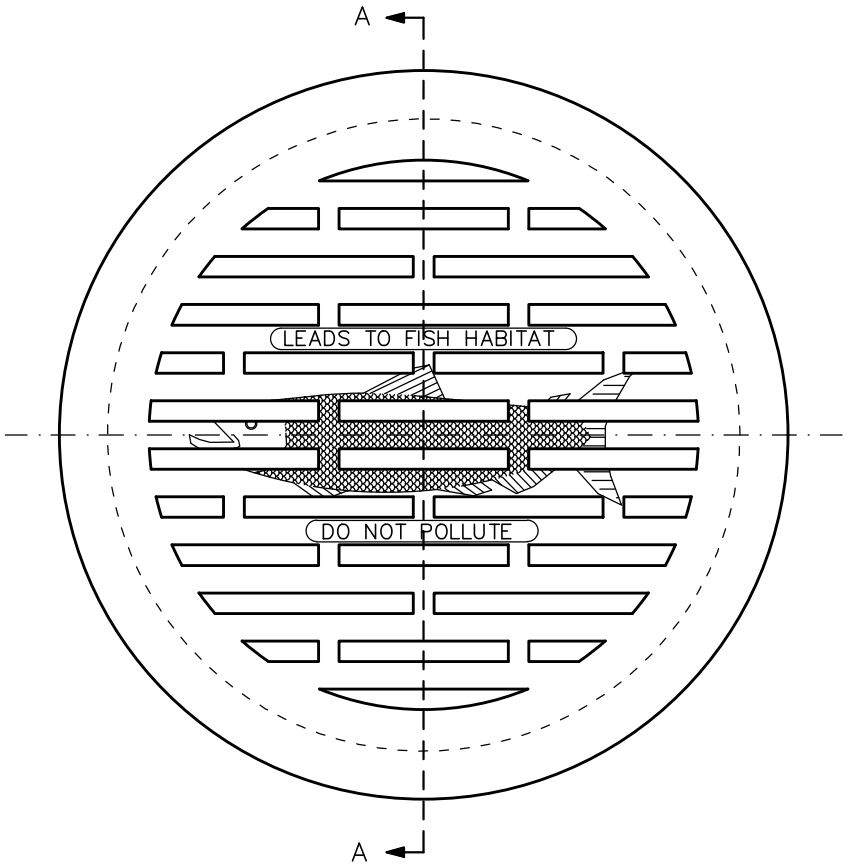
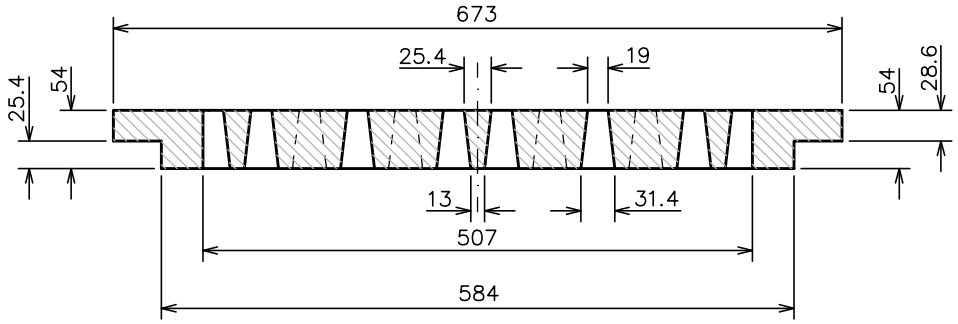
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER: SSD–D.1 (1)





SECTION A–A

NOTES:

1. SYMBOL OF FISH TO BE INDENTED ON TOP OF GRATE BY 3mm.
2. FOR INTENDED USE WITHIN CITY R/W's.

			All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: **BOULEVARD BASIN GRATE**
	Revision Date	Approved	

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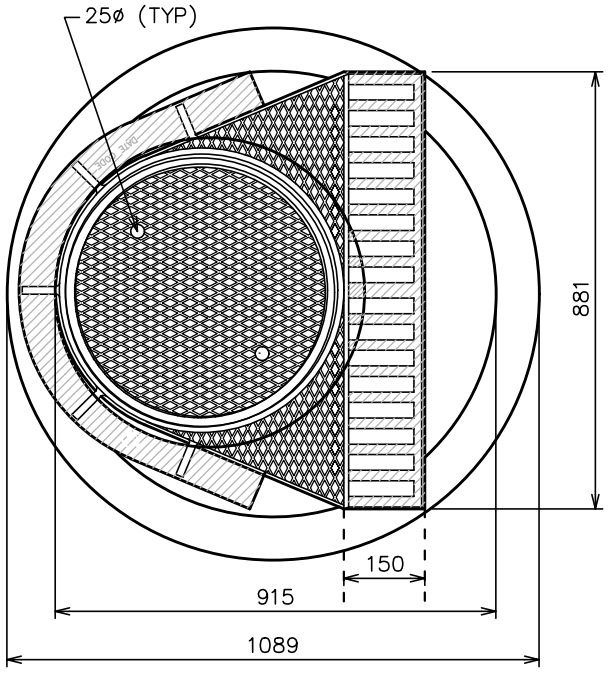
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

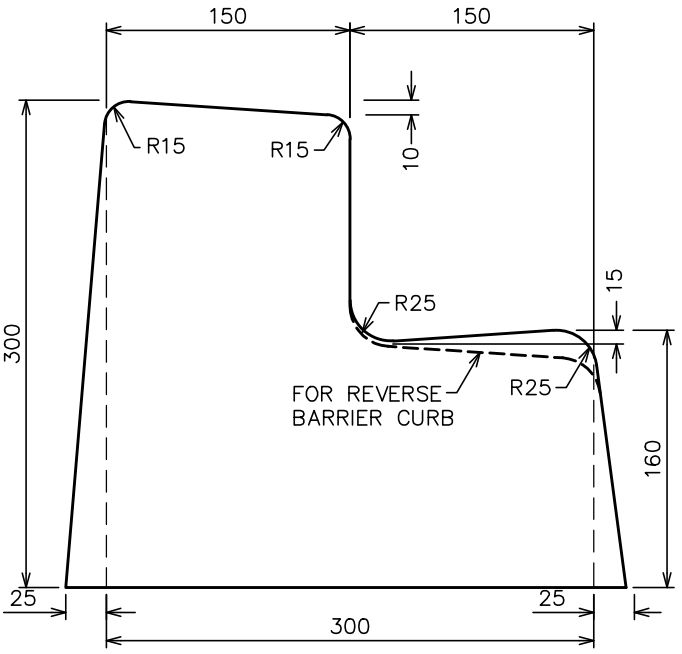
2024 G.M. Engineering

DRAWING NUMBER
SSD–D.2

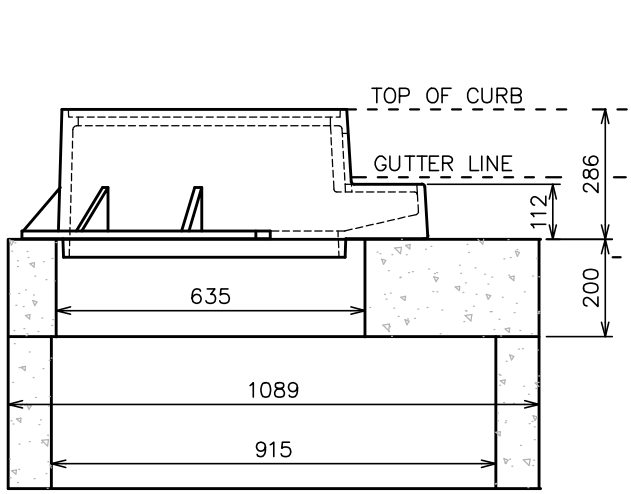
1



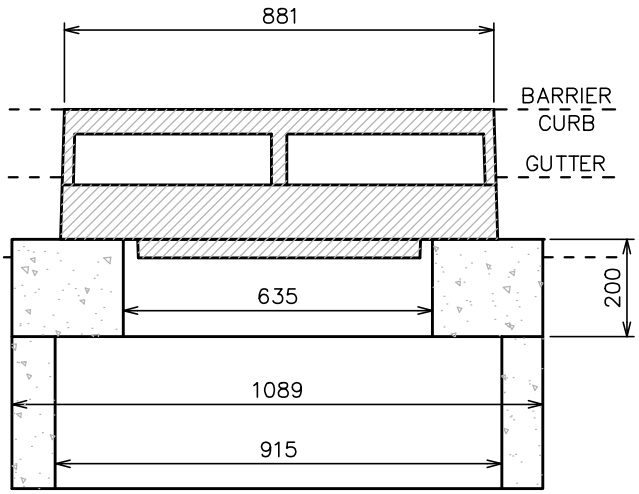
PLAN



NARROW BARRIER CURB



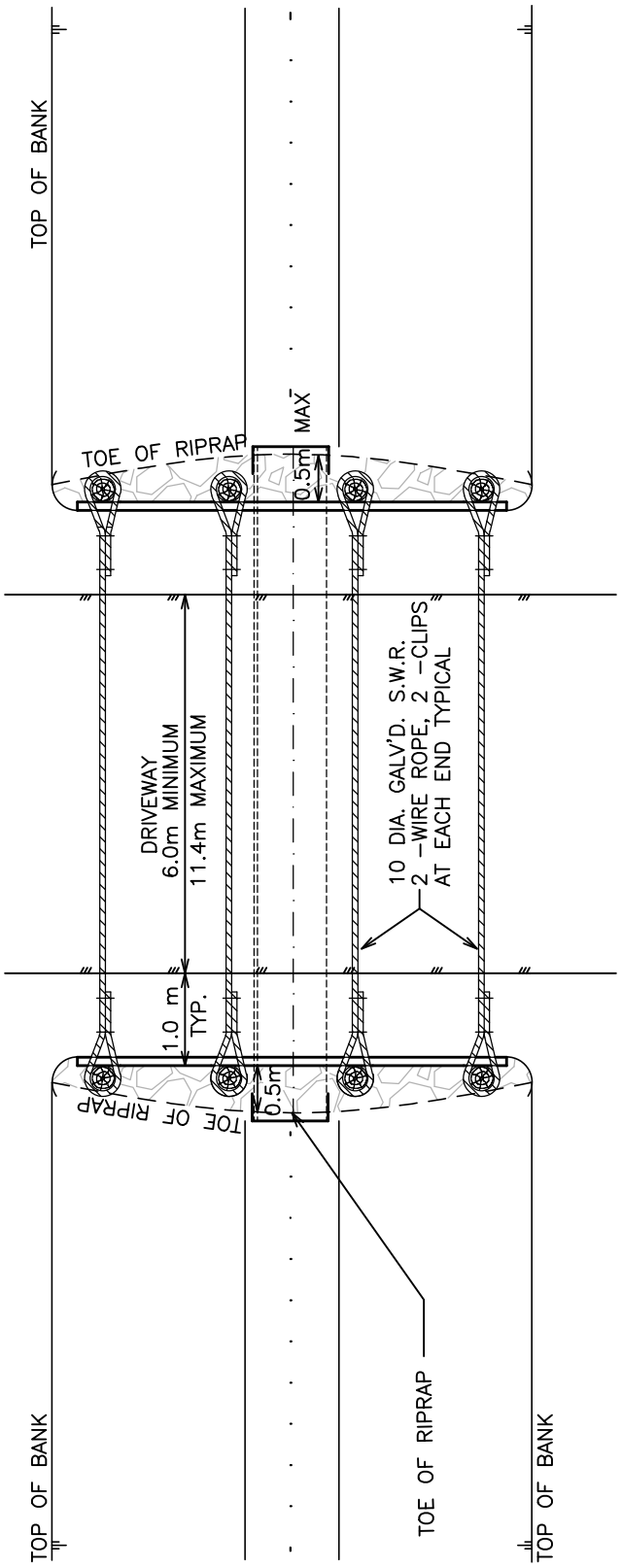
SECTION

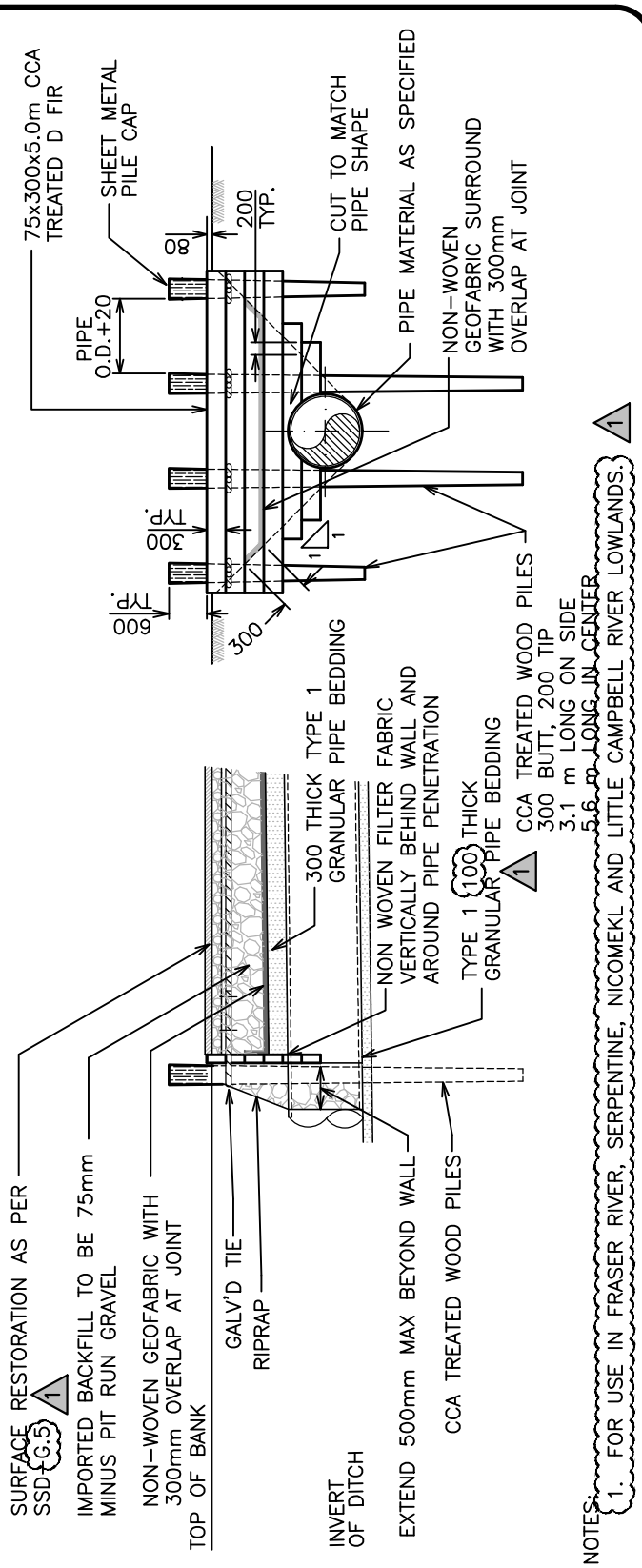


CURB VIEW

			All Dimensions Shown In Meters, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: NARROW CATCH BASIN AND CURB (1)
	Revision Date	Approved	
CITY OF SURREY the future lives here.	SUPPLEMENTARY STANDARD DRAWINGS		Approved By : 2024 G.M. Engineering — DRAWING NUMBER SSD-D.3

(1)





		All Dimensions Shown In Millimeters, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **TIMBER HEADWALL DETAILS FOR USE ONLY IN LOWLANDS**

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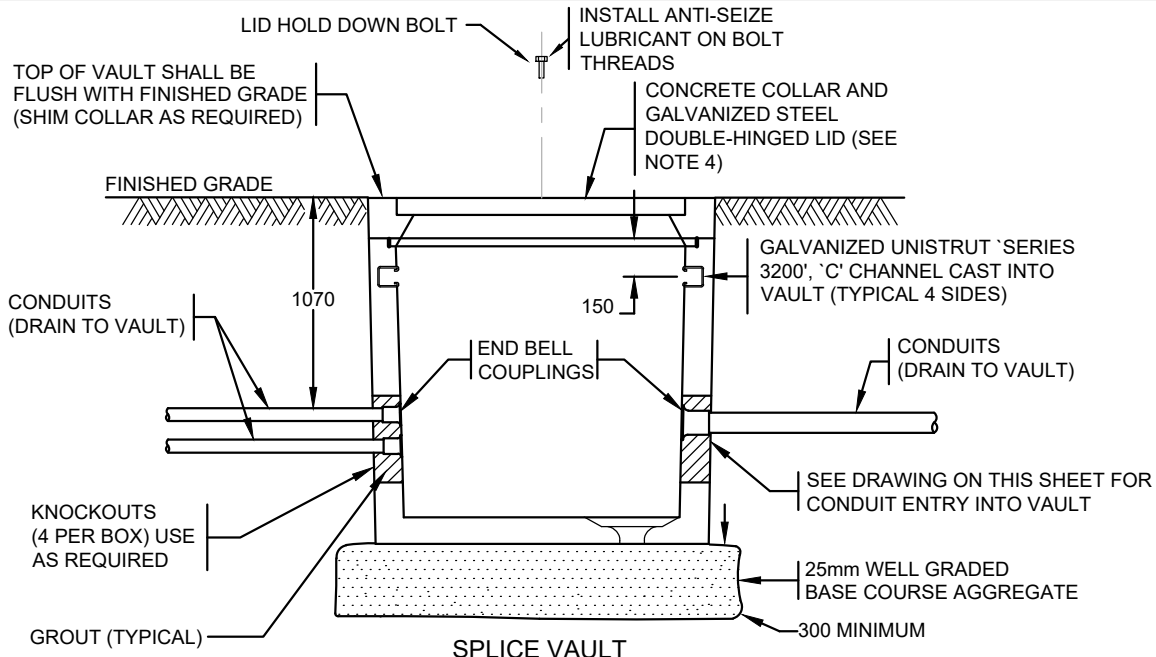
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

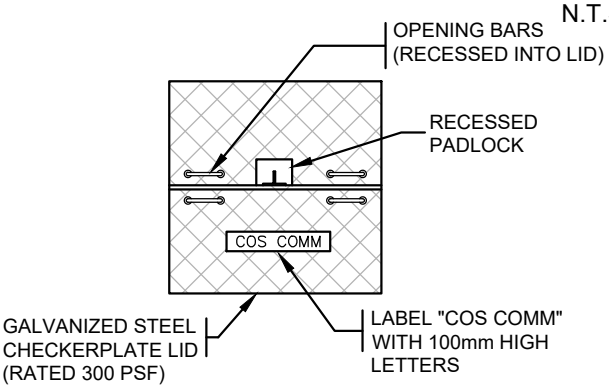
2024 G.M. Engineering

DRAWING NUMBER
SSD-D.4

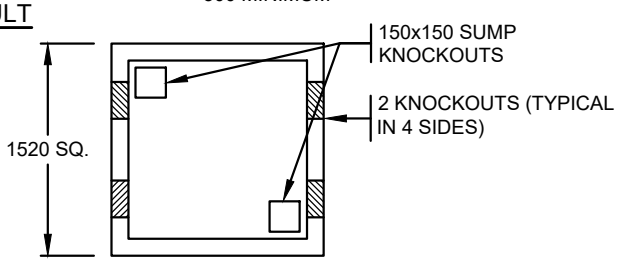
1



SPLICE VAULT
N.T.S.



GALVANIZED LID DETAIL
FOR BOULEVARD INSTALLATION ONLY
N.T.S.

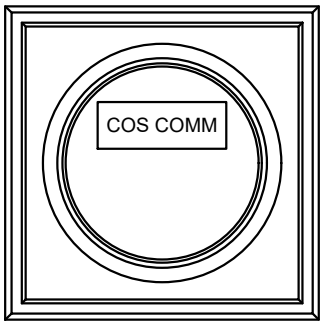


PLAN VIEW

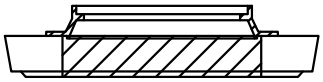
KNOCKOUT & SUMP LOCATION
FOR INSTALLATION IN BOULEVARDS ONLY
N.T.S.

NOTES

1. FOR BOULEVARD INSTALLATIONS, VAULT SHALL BE PRE-CAST CONCRETE (1.2m OR 1.5m).
2. VAULT LIDS SHALL BE SUPPLIED GALVANIZED.
3. MANHOLE LID AND ROOF SLAB REQUIRED FOR INSTALLATIONS IN ROADWAYS AND SIDEWALKS ONLY.
4. VAULTS SHALL BE C/W CONDUIT TERMINATOR STYLE CABLE RACK.
5. REFER TO CONTRACT DRAWINGS, SECTION 34 41 13 FOR DETAILED SPECIFICATIONS.
6. JUNCTION BOX SHALL BE DESIGNED FOR 5000kg STATIC LOADING.
7. VAULTS SHALL BE PRE-CAST CONCRETE WITH MINIMUM COMPRESSIVE STRENGTH OF 35MPa AT 28 DAYS.
8. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.



PLAN VIEW



SIDE VIEW

900Ø MANHOLE LID DETAIL
FOR INSTALLATION IN ROADWAYS AND SIDEWALKS ONLY
N.T.S.

		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **COMMUNICATION CONDUIT VAULTS**

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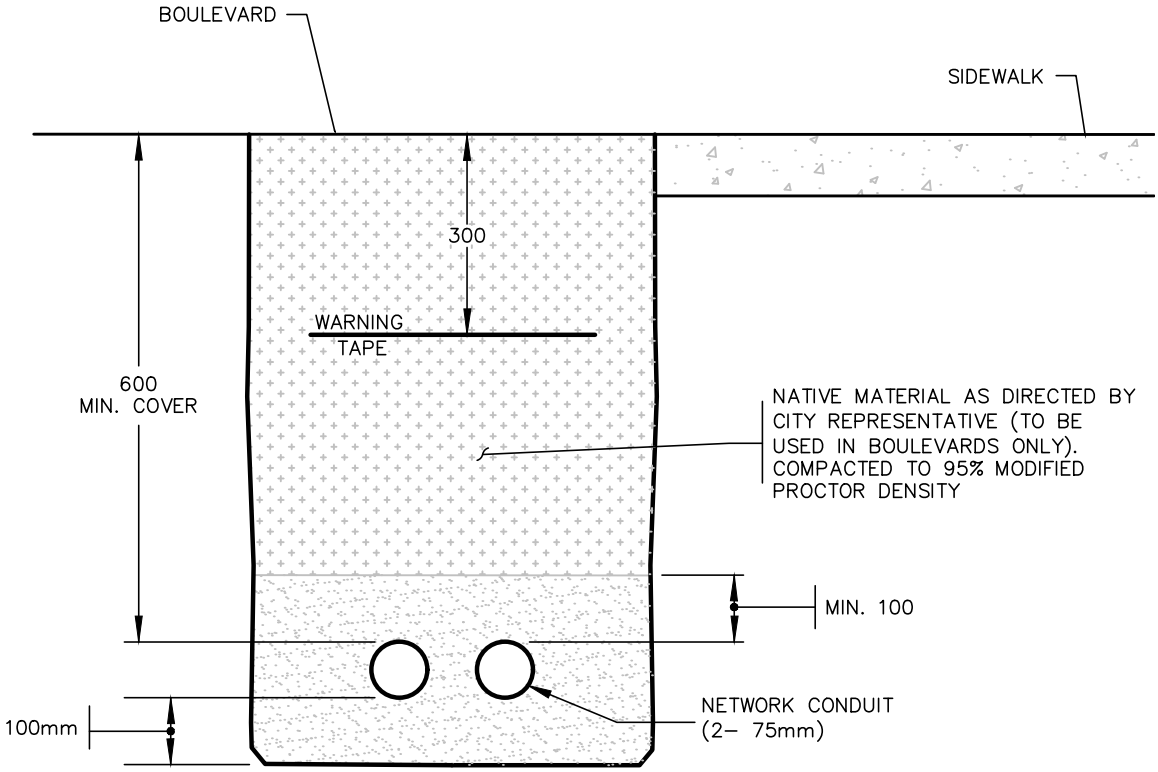
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD-E10.11



			All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: **COMMUNICATION CONDUIT UTILITY TRENCH**
	Revision Date	Approved	

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SUPPLEMENTARY STANDARD DRAWINGS

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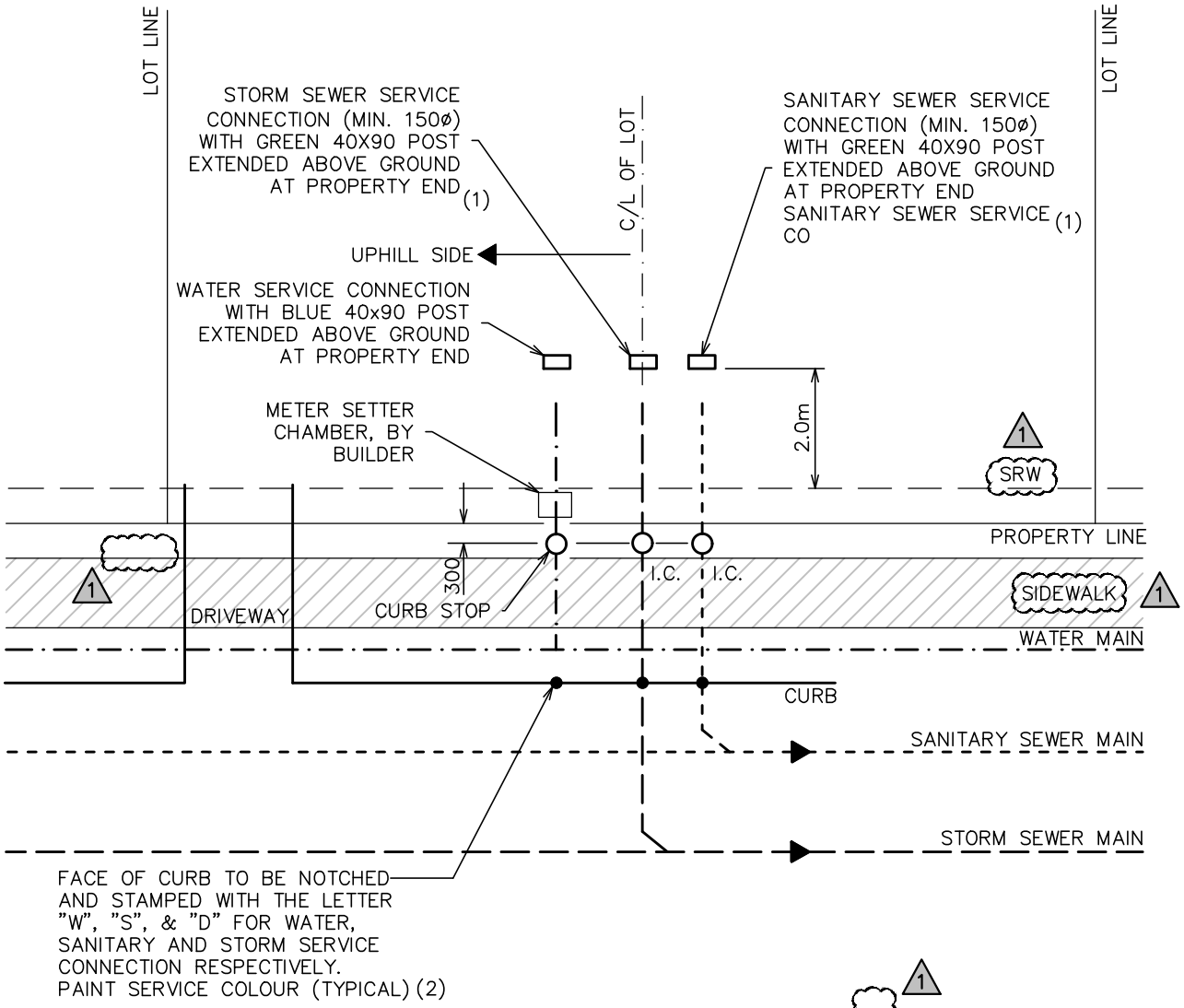
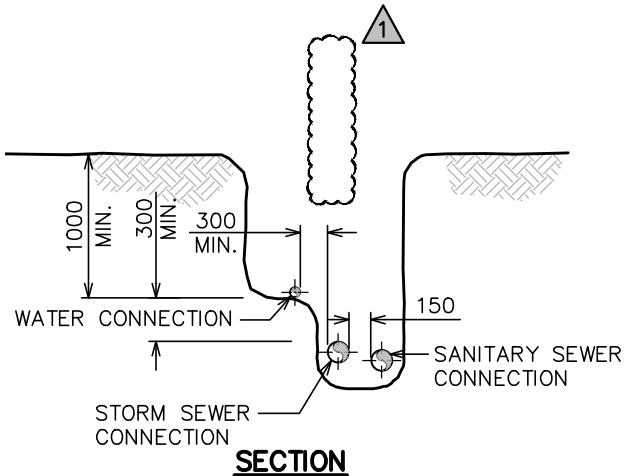
DRAWING NUMBER
SSD–E10.12



NOTES:

(1) STORM AND SANITARY SEWER SERVICE CONNECTION MAY ALTERNATIVELY BE 300 FROM THE SIDE PROPERTY LINE ON THE LOWER END OF THE GENERAL GRADE OF THE AREA.



SECTION

		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **LOT SERVICE CONNECTIONS**

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SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

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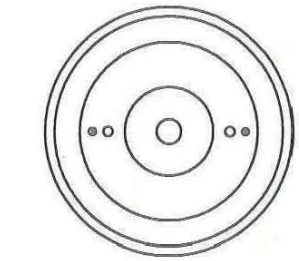
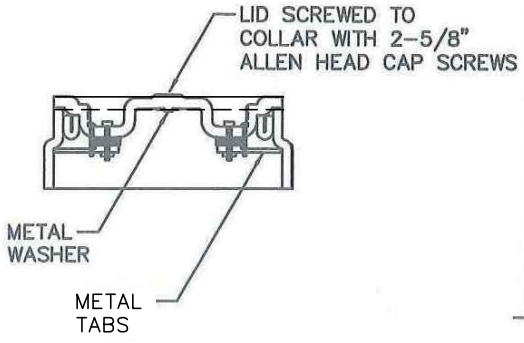
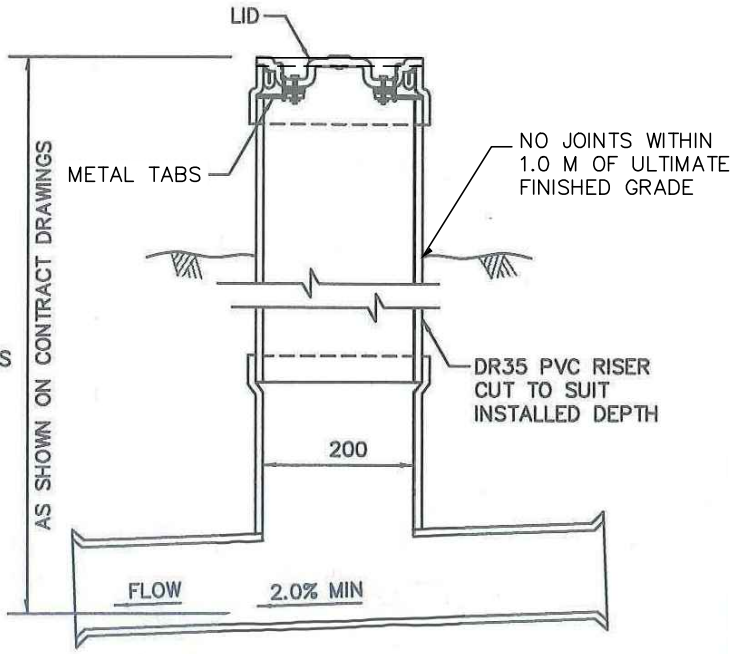
DRAWING NUMBER

SSD–G.1

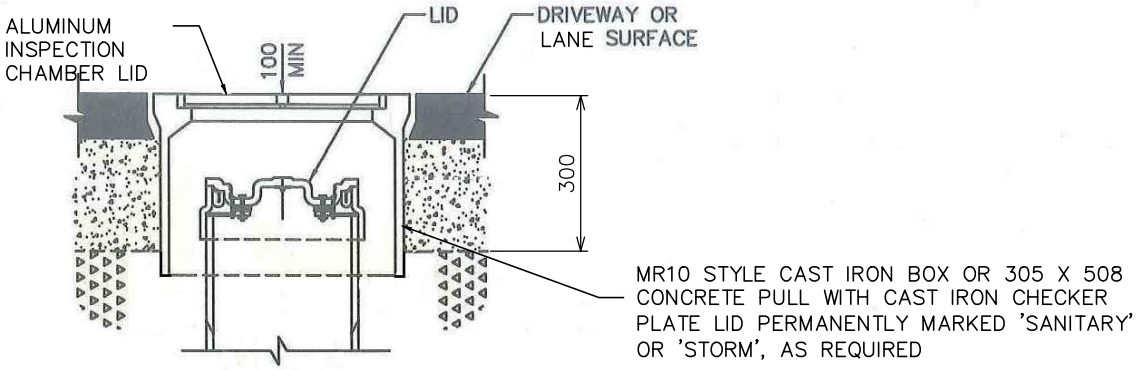




LID DETAIL



INSTALLATION IN BOULEVARD



INSTALLATION IN DRIVEWAY, LANEWAY OR SIDEWALK (4)

1. REFER TO DRAWING S7 AND S8 FOR INSTALLATION REQUIREMENTS.
2. INSPECTION CHAMBER TO BE APPROVED MANUFACTURED FITTING.
3. REFER TO CONTRACT DRAWINGS FOR SITE SPECIFIC DIMENSIONS. REFER TO SECTION 33 30 01 AND 33 40 01 FOR DETAILED SPECIFICATIONS.
4. MR10 STYLE CAST IRON BOX REQUIRED WHEN INSPECTION CHAMBER IS IN A ROAD OR WITHIN 2.0m OF A DRIVEWAY OR LANE. MARKED "SANITARY OR STORM" AS APPLICABLE.MR10 STYLE ONLY FOR COMMERCIAL AND INDUSTRIAL AREAS.
5. PAINT INSPECTION CHAMBER LID "RED" FOR SANITARY AND "GREEN" FOR DRAINAGE. 1

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **INSPECTION CHAMBER FOR SANITARY AND STORM SEWER CONNECTIONS**

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SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

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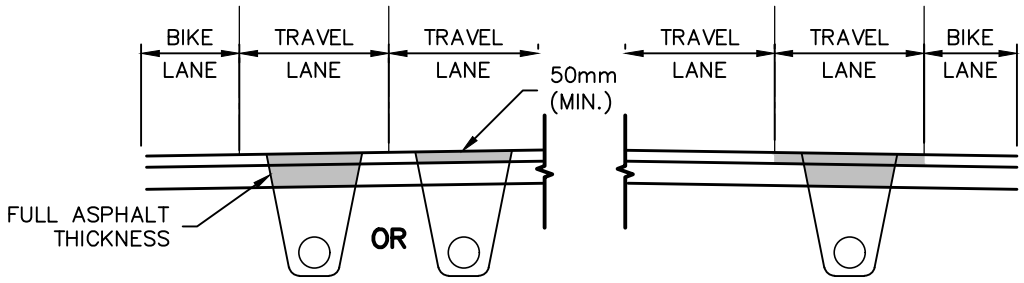
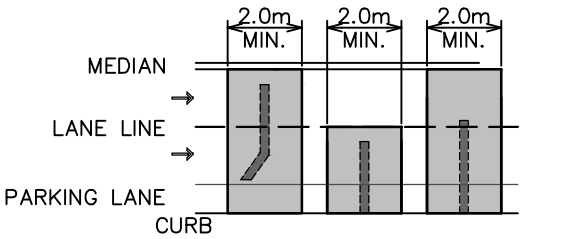
DRAWING NUMBER

SSD-G.1.1

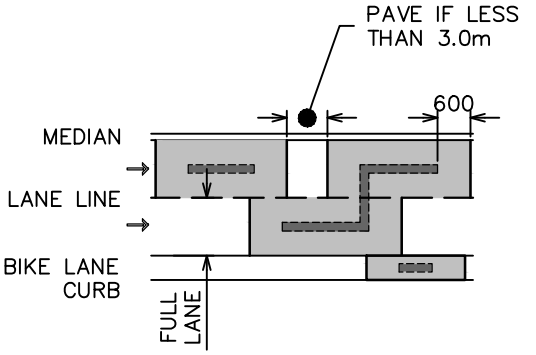


TEMPORARY RESTORATION **PERMANENT RESTORATION**



SINGLE AND DOUBLE LANE EXCAVATION

PERPENDICULAR CUTS
(PERMANENT RESTORATION)



SINGLE AND DOUBLE LANE EXCAVATION

PARALLEL CUTS
(PERMANENT RESTORATION)

NOTES:

1. TEMPORARY PATCH CAN REMAIN; PROVIDED TESTS AND INSPECTIONS CONFIRM THE WORK IS COMPLETED IN ACCORDANCE WITH CITY OF SURREY SUPPLEMENTARY SPECIFICATIONS 31.23.01, 32.12.16 AND 32.12.17.
2. PERMANENT REPAIR MUST BE COMPLETED WITHIN 60 DAYS, WEATHER PERMITTING.
3. IF EXISTING THICKNESS IS LESS THAN 70mm, THEN FULL DEPTH MILL WILL BE REQUIRED FOR FULL LANE WIDTH.
4. IF THE ROAD HAS NO PAVEMENT MARKINGS, THEN EXTENT OF PAVING WILL BE TO EDGE OF PAVEMENT.
5. OVERLAY MUST COVER FULL LANE WIDTH, FROM LANE LINE TO LANE LINE. IF PAVEMENT CUT STRADDLES TWO LANES, THEN PAVE BOTH LANES.
6. IF THE CUT AREA (EXISTING AND NEW) ON A QUARTER OF THE INTERSECTION IS 50% PERMANENT RESTORATION OR MORE BY AREA, THEN THE ENTIRE AFFECTED QUARTER MUST BE PAVED, OTHERWISE PAVE FULL LANE ENTIRE WIDTH.
7. REFER TO SSD–G.5 FOR STANDARD ROAD STRUCTURE SECTION.
8. BUTT JOINTS TO HAVE 600mm OVERLAP IN LATERAL DIRECTION.

1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

All Dimensions Shown In Millimetres, Unless Otherwise Noted

Title
REGULAR TRENCH CUTS

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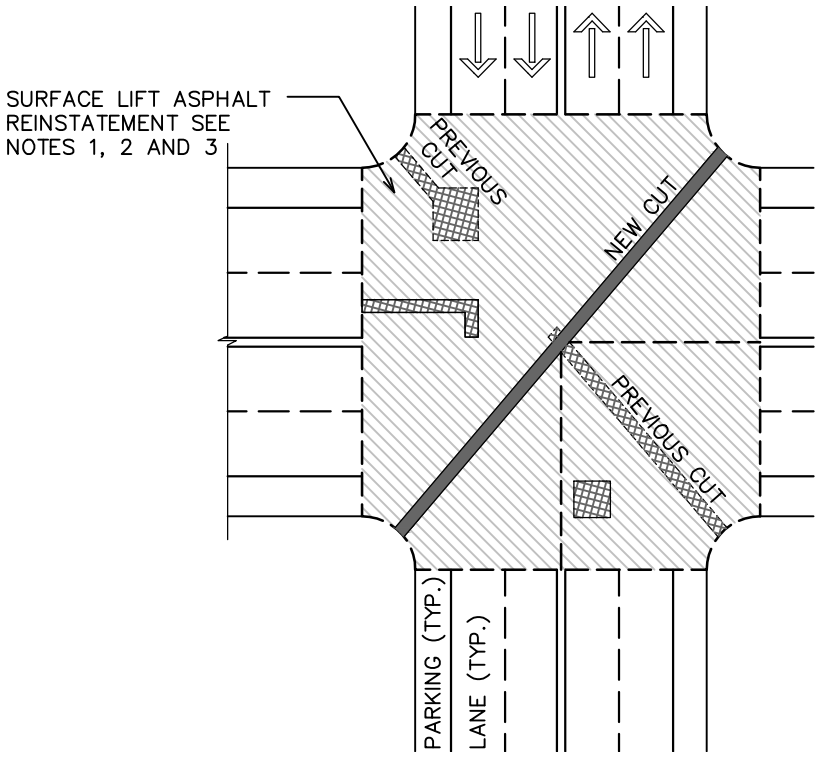
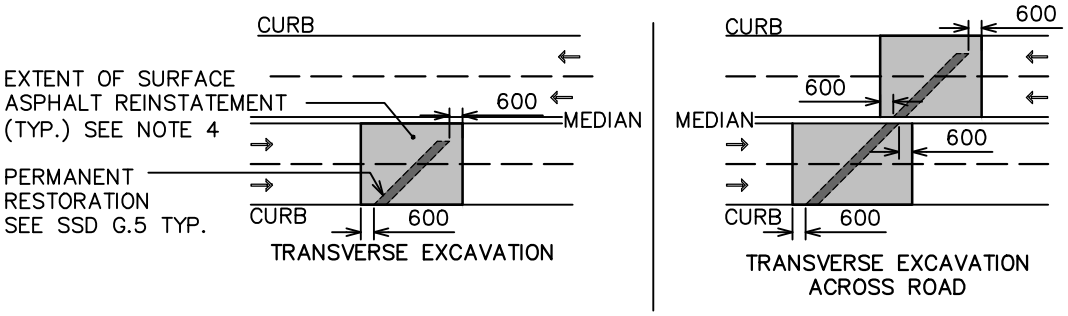
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD–G.2





NOTES:

1. IF THE CUT AREA (NEW) ON A QUARTER OF THE INTERSECTION IS 25% PERMANENT RESTORATION OR MORE BY AREA, THEN THE ENTIRE AFFECTED QUARTER MUST BE PAVED.
2. IF CUT IMPACT AREA (EXISTING AND NEW) IS MORE THAN 50% OF ANY ARTERIAL ROAD INTERSECTION QUARTER, THEN MILL/OVERLAY OF PAVING THE ENTIRE INTERSECTION QUARTER IS REQUIRED.
3. SURFACE ASPHALT RESTORATION INVOLVES MILL/OVERLAY TO DEPTH OF UPPER COURSE ASPHALT AS NOTED ON SSD–G.5.

		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024 — SCOTT NEUMAN	Title: **IRREGULAR & DIAGONAL CUTS**
	Revision Date — Approved	

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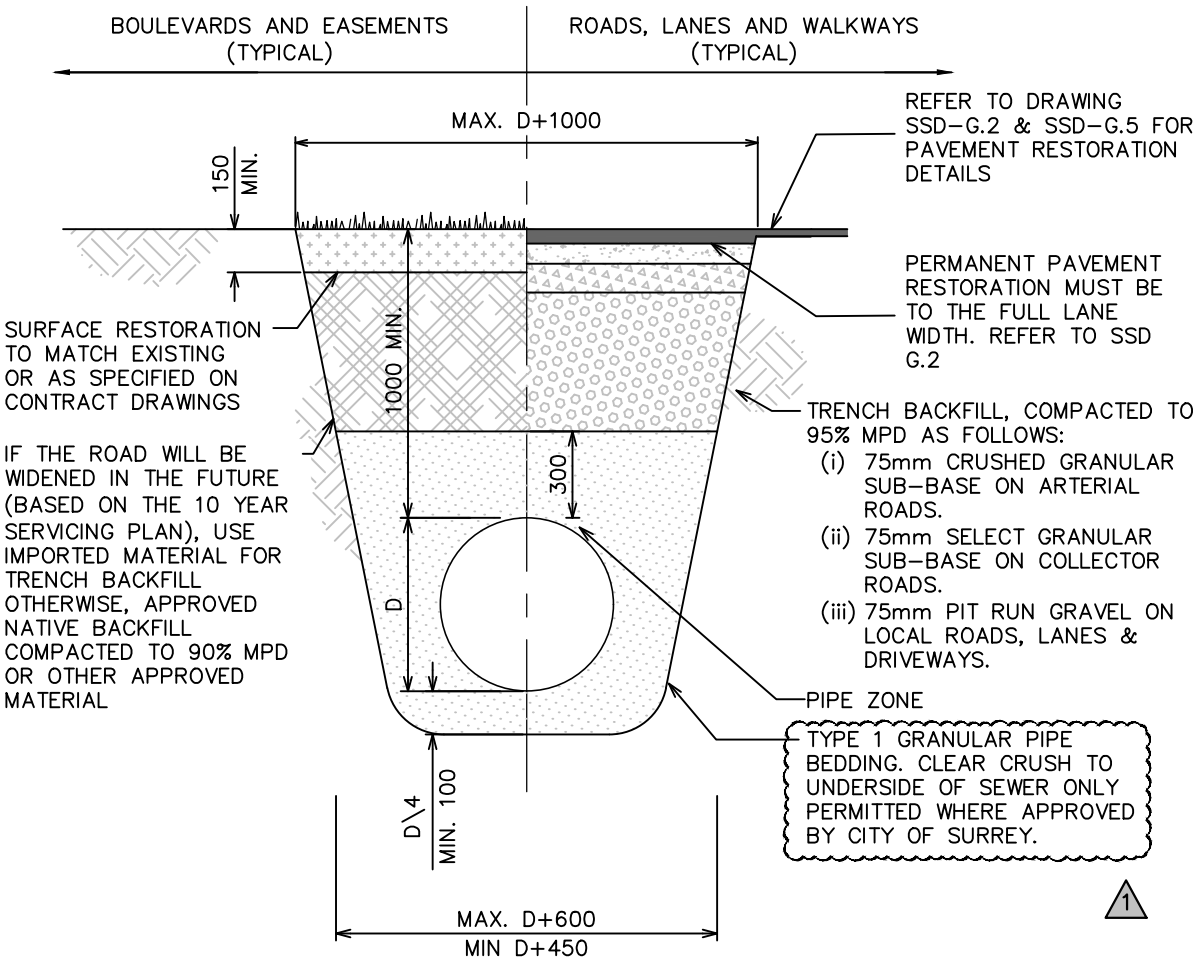
SUPPLEMENTARY STANDARD DRAWINGS

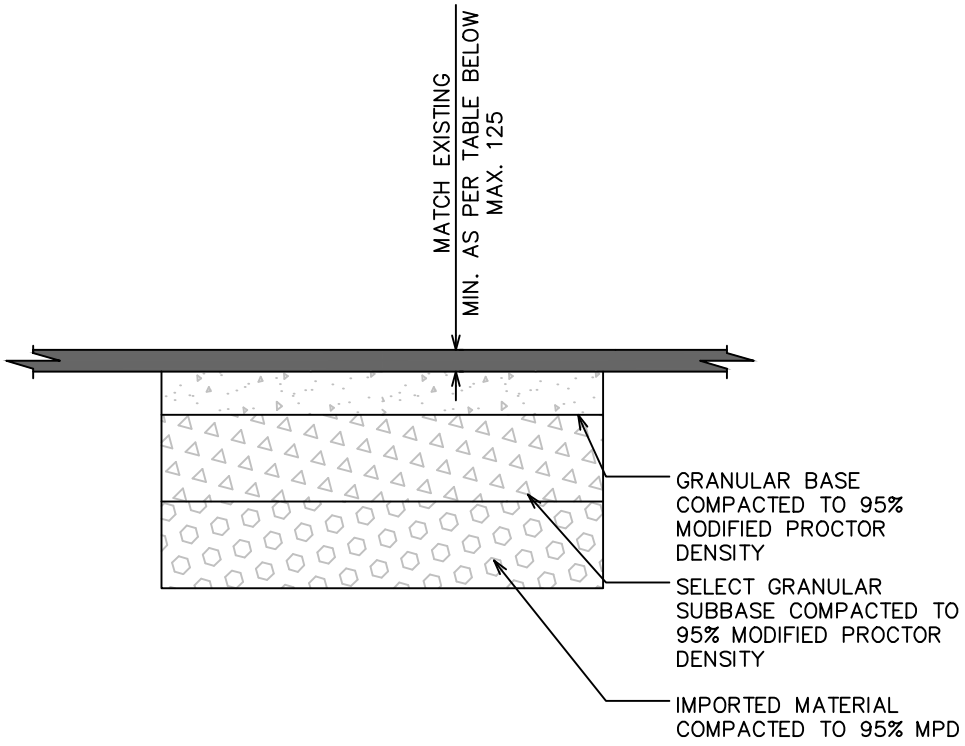
Approved By : 2024 G.M. Engineering

DRAWING NUMBER SSD–G.3



NOTES:
1. TRENCHING TO COMPLY WITH ALL REQUIREMENTS OF WORKSAFE B.C.
2. REFER TO CONTRACT DRAWINGS, SECTION 31 23 01 FOR DETAILED SPECIFICATIONS.

		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024 — SCOTT NEUMAN	Title: **UTILITY TRENCH**
	Revision Date — Approved	
CITY OF SURREY the future lives here.	SUPPLEMENTARY STANDARD DRAWINGS	Approved By : 2024 G.M. Engineering
		DRAWING NUMBER SSD–G.4



	UPPER COURSE ASPHALT	LOWER COURSE ASPHALT	BASE COURSE (min.)	SUB-BASE COURSE (min.)
ARTERIALS	50mm SUPER PAVE (12.5mm)	75mm SUPER PAVE (19mm)	150mm 19mm CRUSHED GRANULAR BASE	250mm 75mm CRUSHED GRANULAR SUBBASE
COLLECTORS	40mm UPPER COURSE 1	60mm LOWER COURSE 1	100mm 19mm CRUSHED GRANULAR BASE	200mm 75mm GRANULAR SUBBASE
LOCAL ROADS	35mm UPPER COURSE 2	50mm LOWER COURSE 2	100mm 19mm CRUSHED GRANULAR BASE	200mm 75mm GRANULAR SUBBASE
LANES & NON-RESIDENTIAL DRIVEWAYS	35mm UPPER COURSE 2	40mm LOWER COURSE 2 1	100mm 19mm CRUSHED GRANULAR BASE	100mm 75mm GRANULAR SUBBASE 1
RESIDENTIAL DRIVEWAYS	65mm UPPER COURSE 2 (1 LIFTS)		100mm 19mm CRUSHED GRANULAR BASE	100mm 75mm GRANULAR SUBBASE

NOTE: 1. REFER TO CONTRACT DOCUMENT SECTIONS 31 23 01, 32 12 16 AND 32 12 17 FOR SPECIFICATIONS.

		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **SURFACE ASPHALT REINSTATEMENT AND STANDARD ROAD STRUCTURE SECTIONS** 1

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SUPPLEMENTARY STANDARD DRAWINGS

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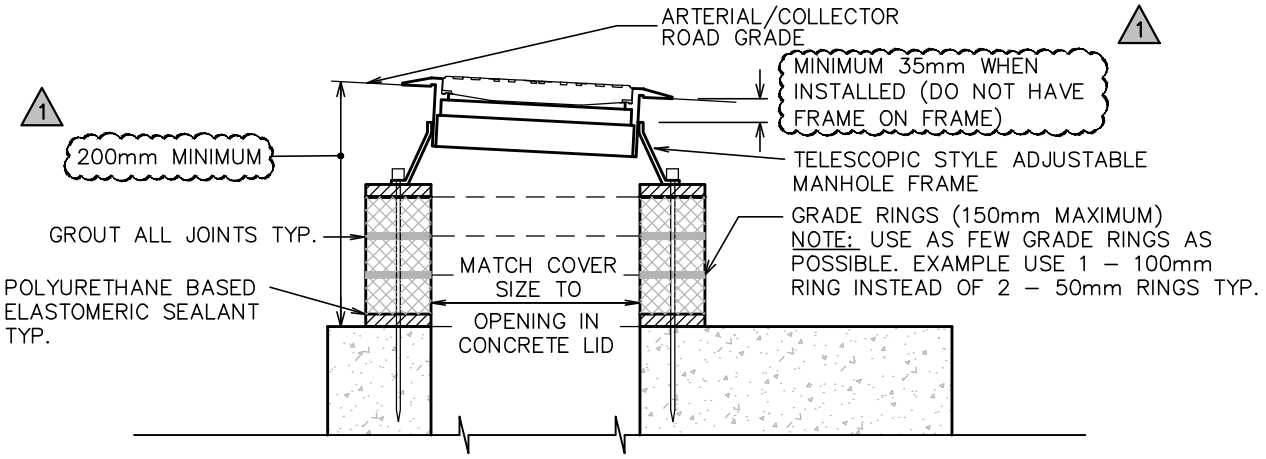
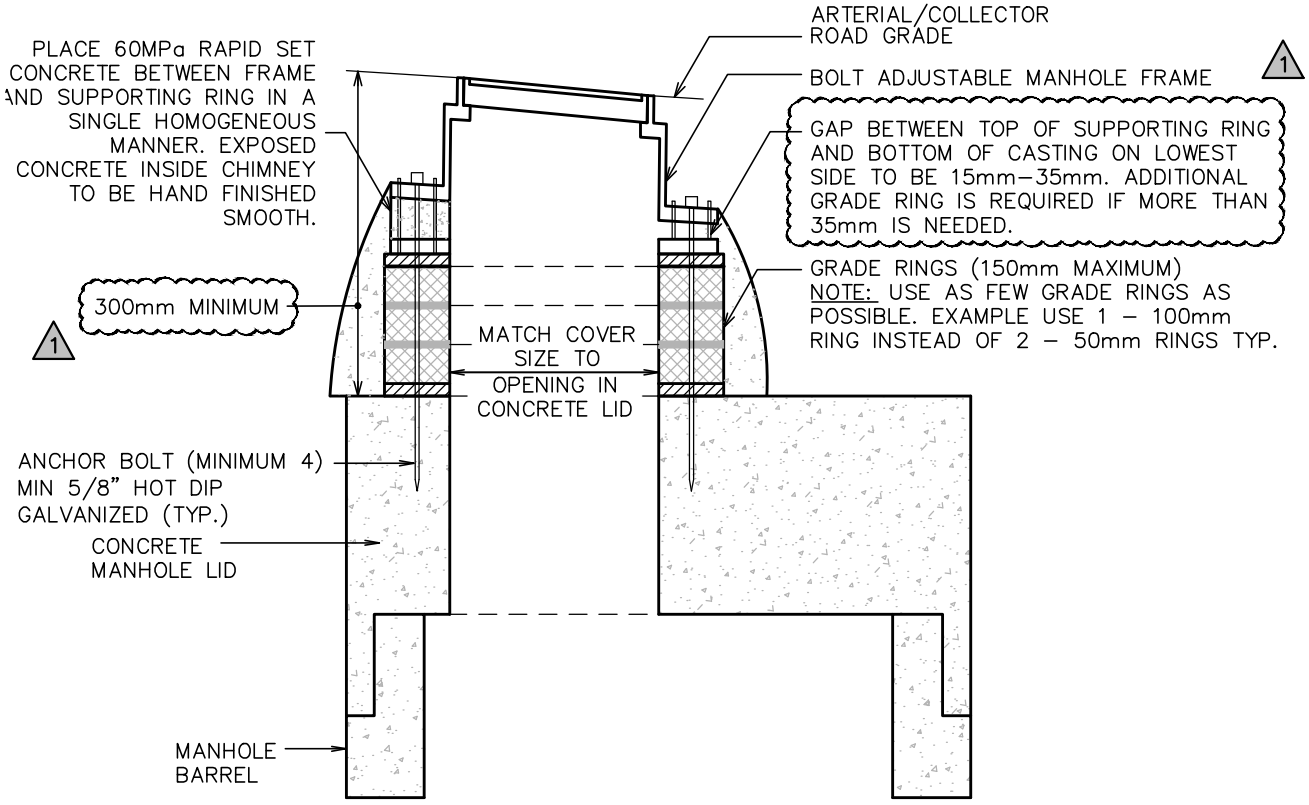
2024 G.M. Engineering

DRAWING NUMBER SSD-G.5



TYPE I HEIGHT ADJUSTABLE MANHOLE FRAME AND COVER



TYPE II HEIGHT ADJUSTABLE MANHOLE FRAME AND COVER

NOTES: 1. FOR ROAD GRADES GREATER THAN 8%, SLOPE GRADE RINGS SHALL BE USED.

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	Revision Date	Approved

Title: **TYPE I & II HEIGHT ADJUSTABLE MANHOLE FRAME AND COVER**

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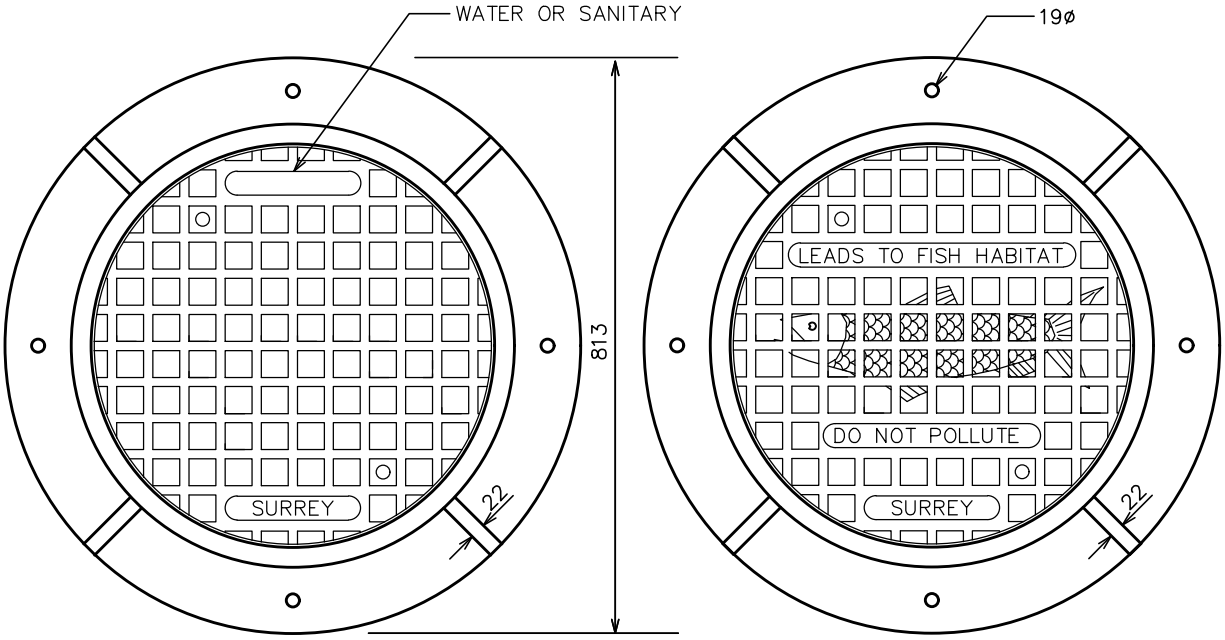
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

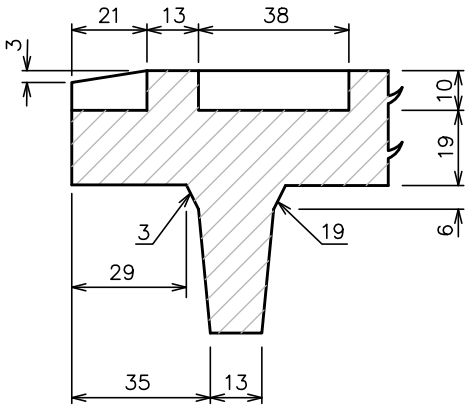
DRAWING NUMBER

SSD–G.6



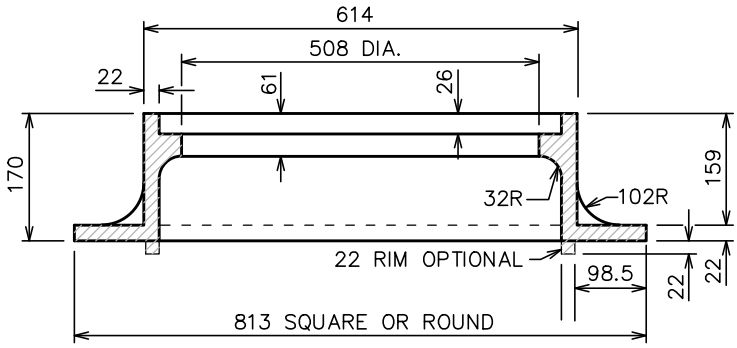
ROUND FRAME & COVER

ROUND FRAME & COVER

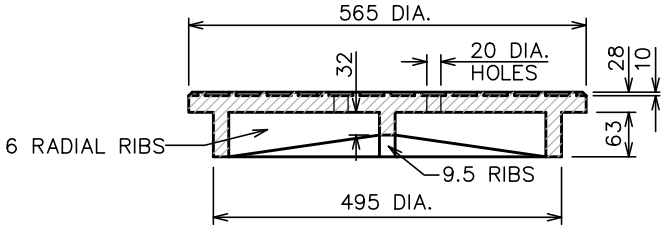


DETAIL OF RIM

MATERIAL : CAST IRON



SECTION THRU FRAME



SECTION THRU COVER

1

NOTES:
1. ON ARTERIAL ROADS, USE TYPE 1 ADJUSTABLE MH FRAME.
2. ON COLLECTOR ROADS, USE EITHER TYPE 1 OR TYPE 2 ADJUSTABLE MH FRAME AS PER SSD-G.6
3. ON LOCAL ROADS USE STANDARD MH FRAME AND COVER WITH CONCRETE GRADES RINGS/RISER RINGS.
4. SYMBOL OF FISH TO BE RAISED ON TOP OF COVER BY 8mm, APPLICABLE FOR STORM SEWER MANHOLES ONLY.

		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved
	Title	MANHOLE FRAMES AND COVER
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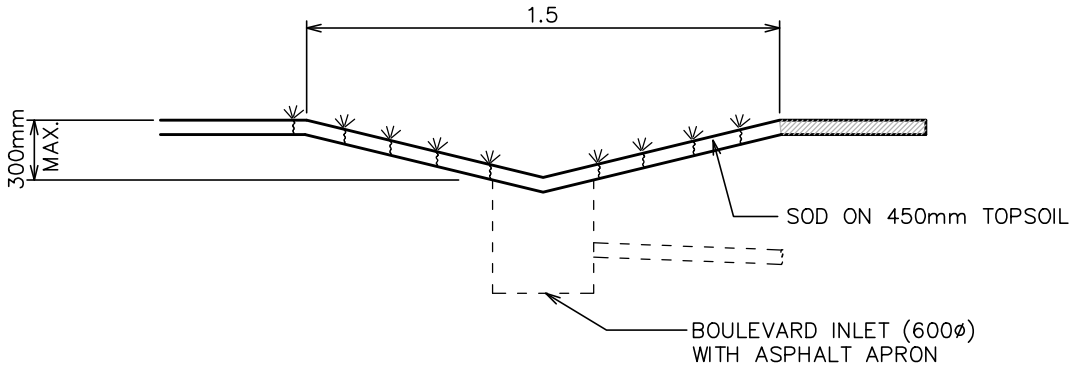
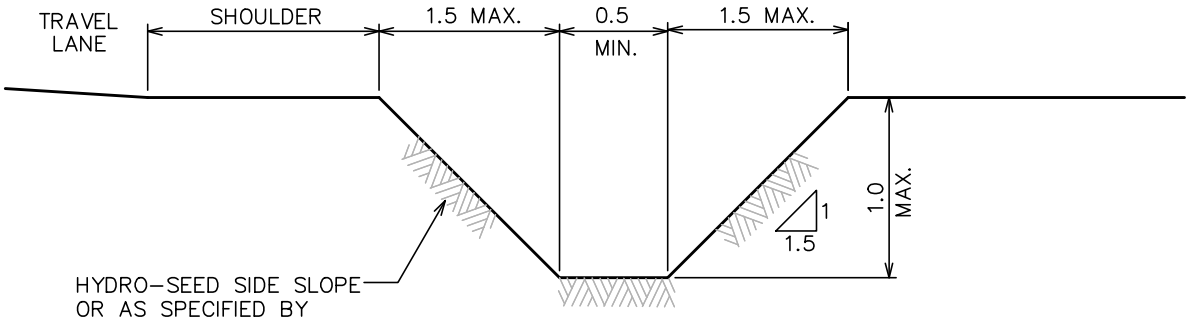
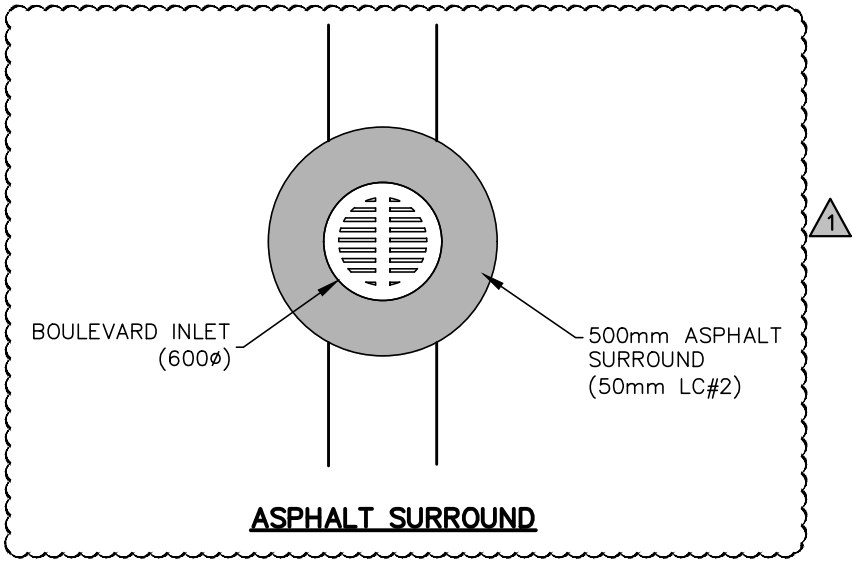
		DRAWING NUMBER SSD-G.7



SODDED SWALE



DITCH



ASPHALT SURROUND

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title
ROAD DRAINAGE FOR ROADS WITHOUT CURBS

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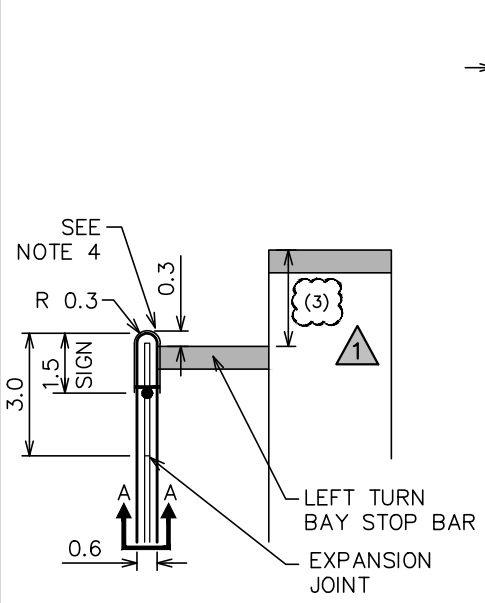
SUPPLEMENTARY
STANDARD
DRAWINGS

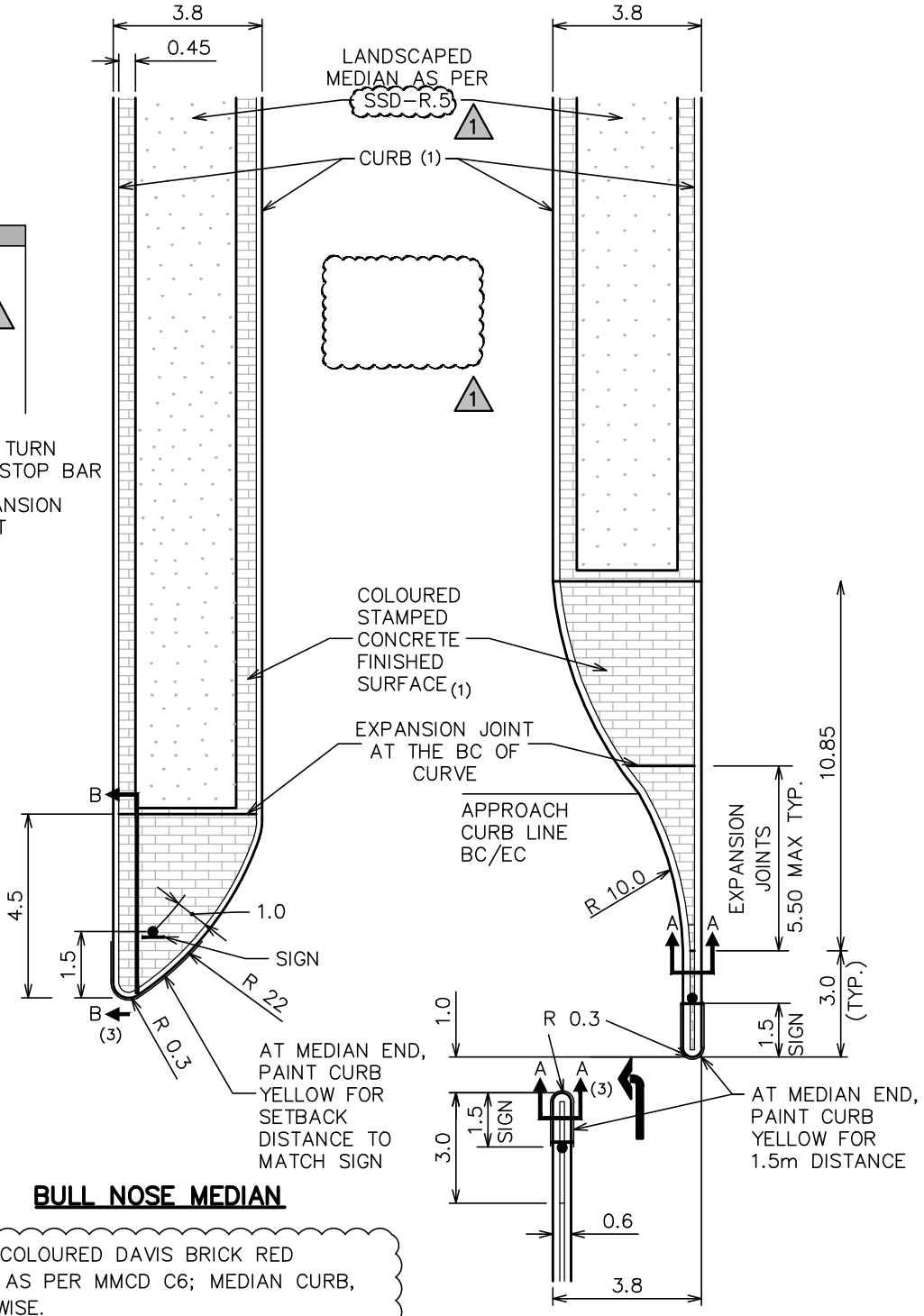
Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD-R.1
1



BULL NOSE MEDIAN (LEFT TURN BAY)



BULL NOSE MEDIAN

RESTRICTED LEFT-IN MEDIAN

NOTES: 1

1. CONCRETE TO BE 100mm COLOURED DAVIS BRICK RED CURB AND GUTTER TO BE AS PER MMCD C6; MEDIAN CURB, UNLESS APPROVED OTHERWISE.
2. FOR SECTIONS A–A AND B–B SEE R.3
3. LEFT TURN BAY STOP BAR OFFSETS AND MEDIAN NOSE MAY VARY DUE TO INTERSECTION TURNING MOVEMENTS AND SHALL BE VERIFIED BY THE ENGINEER.

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **RAISED MEDIAN, END TREATMENT**

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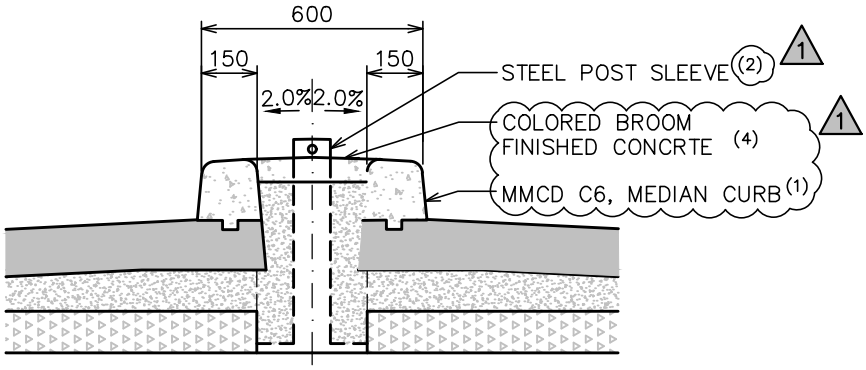
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

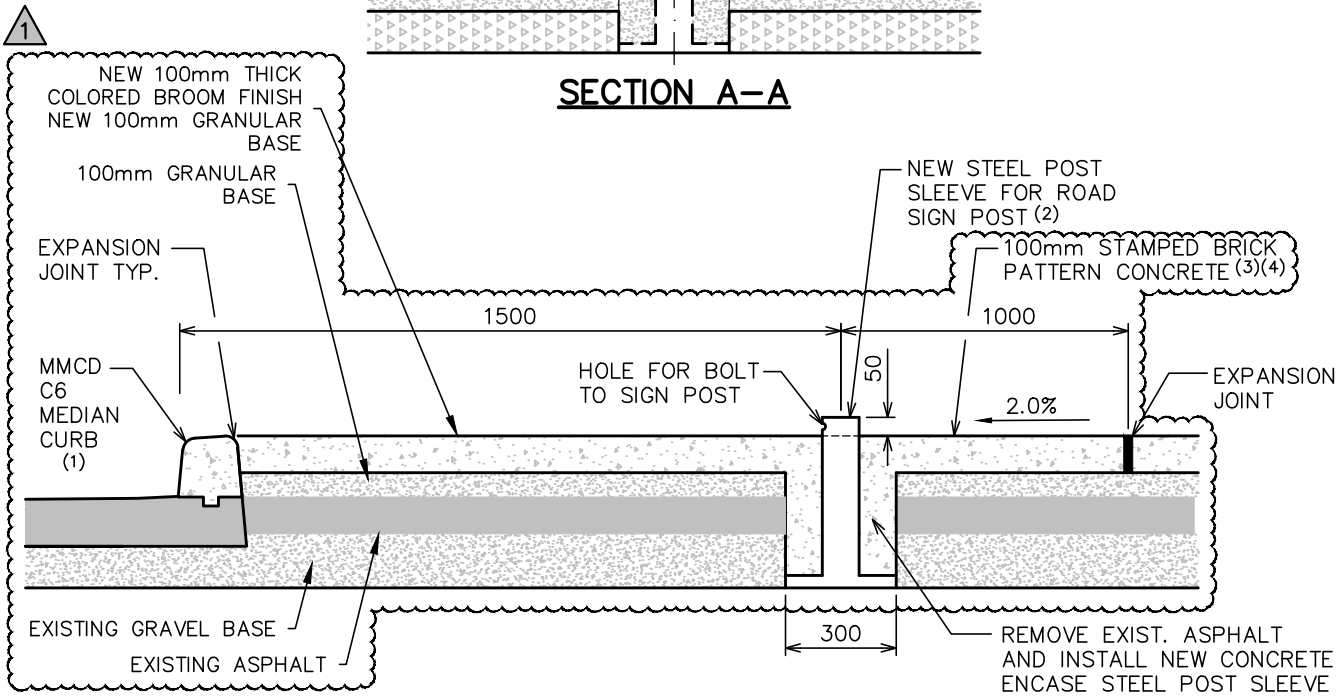
2024 G.M. Engineering

DRAWING NUMBER
SSD-R.2

1



SECTION A–A



SECTION B–B

NOTES: 1

1. CURB AND GUTTER TO BE AS PER MMCD C6 MEDIAN CURB, UNLESS APPROVED OTHERWISE
2. IF ASPHALT IS USED IN PLACE OF CONCRETE (THIS REQUIRES CITY APPROVAL) THEN THE TREATMENT FOR THE POST WOULD BE CONCRETE BLOCK WITH STEEL SLEEVE
3. STAMPED CONCRETE PATTERN TO BE STAGGERED BRICK PATTERN (DAVIS BRICK RED)
4. BROOM FINISH TO REPLACE STAMPED BRICK PATTERN WHERE WIDTH IS LESS THAN 0.3m

			All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: RAISED MEDIAN, BULL NOSE END BARRIER CURB DETAIL 1
	Revision Date	Approved	

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SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER SSD–R.3

1

NOTES:
1) CONCRETE MAINTENANCE STRIP, SOIL DEPTH, AND SOIL QUALITY APPLY TO ALL LANDSCAPE MEDIANS INCLUDING GRASS MEDIANS.
2) PLANT MATERIAL TO BE SELECTED FROM LIST OF ACCEPTABLE PLANT MATERIAL CITY OF SURREY PARKS DIVISION STANDARD CONSTRUCTION DOCUMENTS.
3) PROTECT PLANT MATERIAL FROM DAMAGE DURING TRANSPORTATION AND PLANTING.
4) LOCATE AND FLAG ALL BURIED UTILITIES IN PLANTING BEDS PRIOR TO DIGGING ENSURE THAT UTILITIES ARE PROTECTED DURING CONSTRUCTION.
5) DO NOT EXPOSE PLANTS TO DIRECT SUN OR FROST.
6) PRUNE ONLY IN ACCORDANCE WITH STANDARD CONSTRUCTION DOCUMENTS.

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **RAISED MEDIAN, TREE PLANTING**

CITY OF SURREY
the future lives here.

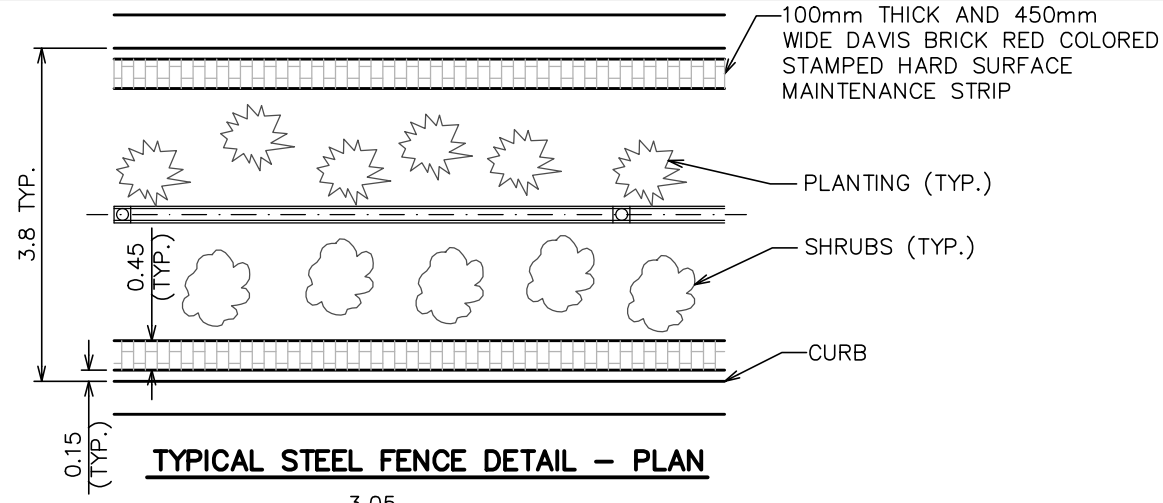
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

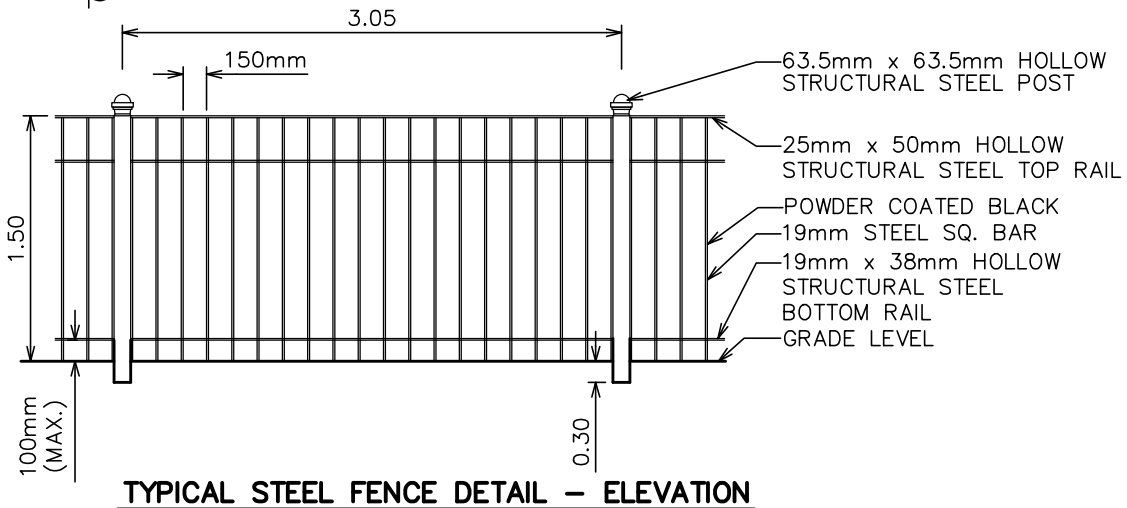
2024 G.M. Engineering

DRAWING NUMBER
SSD–R.4

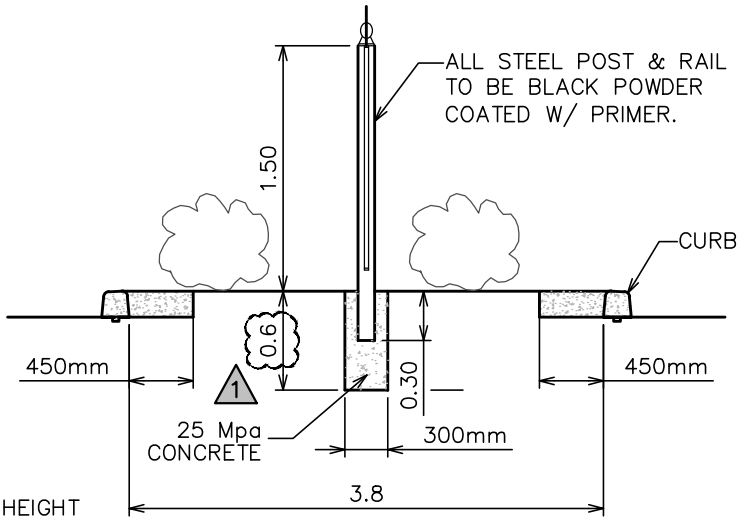
1



TYPICAL STEEL FENCE DETAIL – PLAN



TYPICAL STEEL FENCE DETAIL – ELEVATION



NOTE:

AT INTERSECTION APPROACHES, FENCE HEIGHT CAN BE ADJUSTED TO 1.2m

TYPICAL STEEL FENCE DETAIL – SIDE ELEVATION

			All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: RAISED MEDIAN, FENCE
	Revision Date	Approved	

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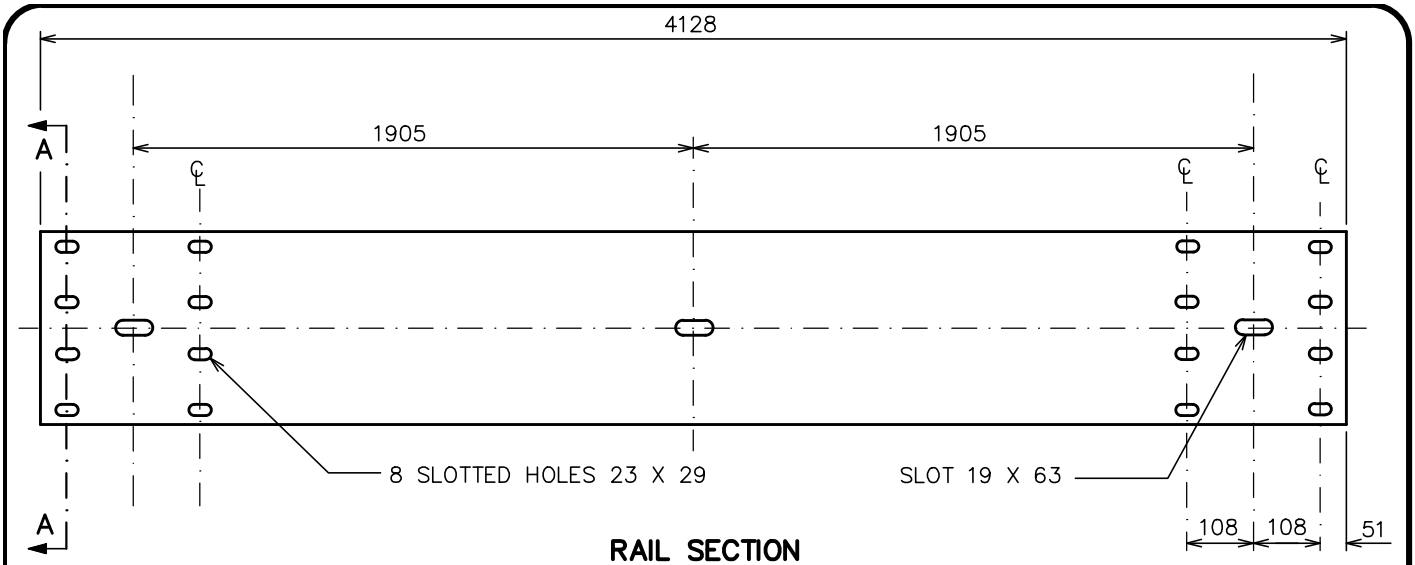
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

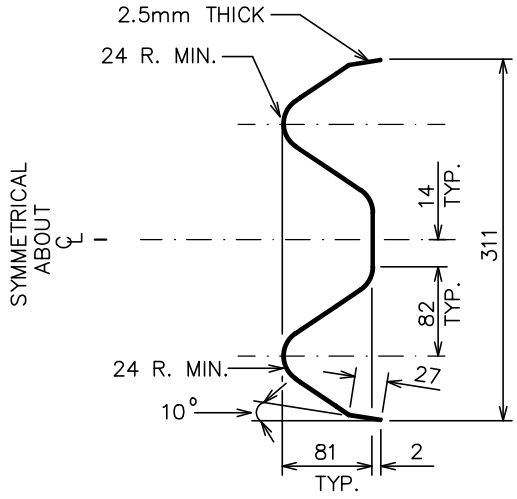
2024 G.M. Engineering

DRAWING NUMBER SSD–R.5

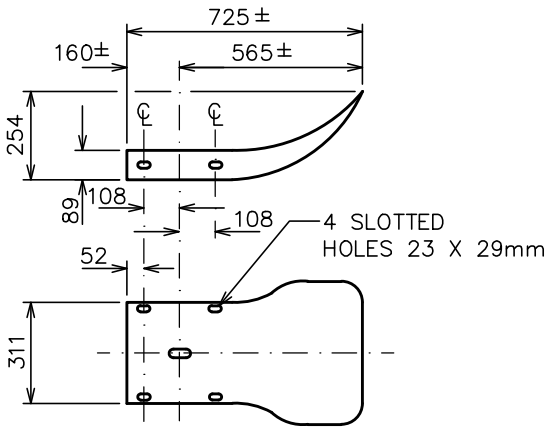
1



RAIL SECTION

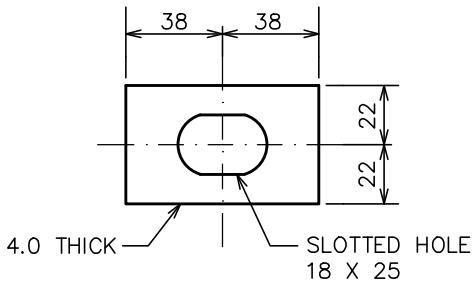


ENLARGED SECTION A–A

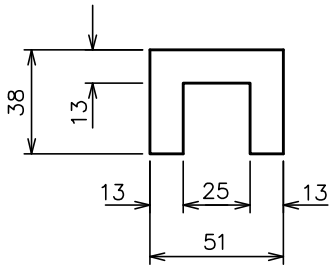


TERMINAL SECTION

(SECTION B–B SIMILAR)



RECTANGULAR WASHER



SHIM

NOTE: (1) ALL METAL TO BE GALVANIZED FINISH

		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **GUARD RAIL**

CITY OF SURREY the future lives here.

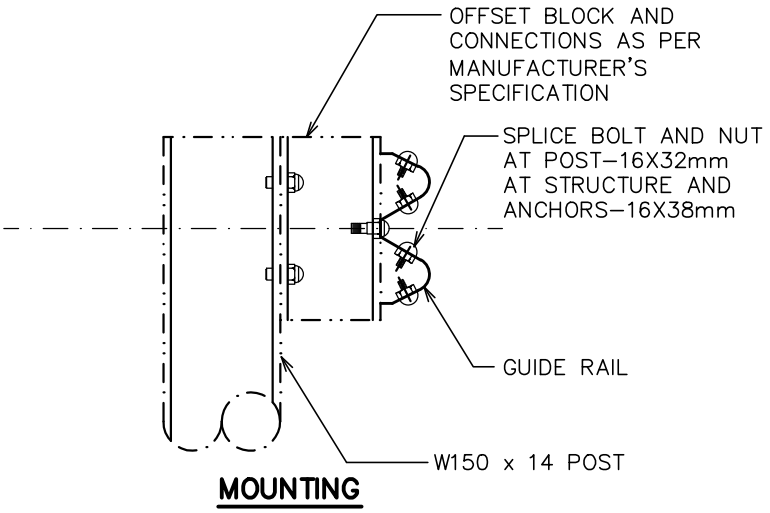
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

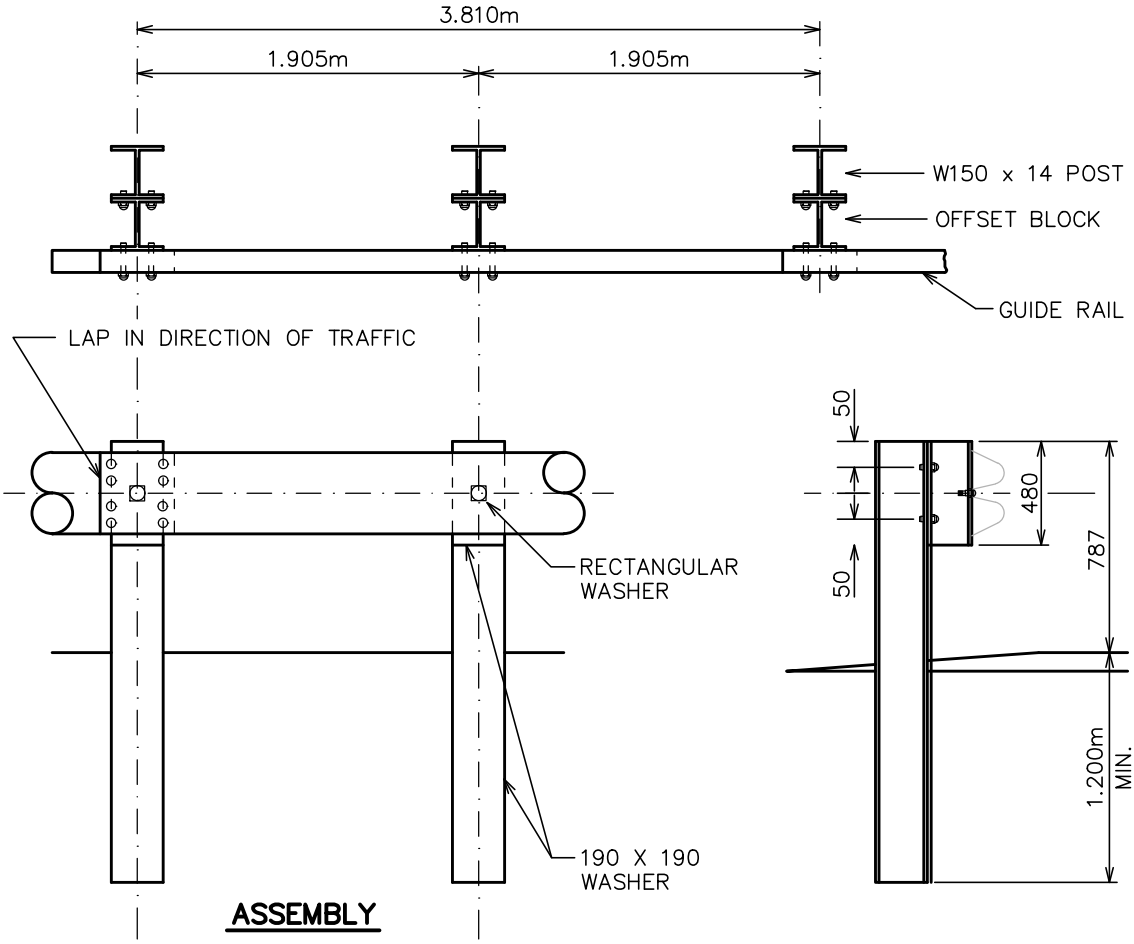
2024 G.M. Engineering

DRAWING NUMBER: SSD–R.6

1



MOUNTING



ASSEMBLY

NOTE:

1. ALL METAL TO BE GALVANIZED FINISH.

			All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: GUARD RAIL – ASSEMBLY & MOUNTING
	Revision Date	Approved	

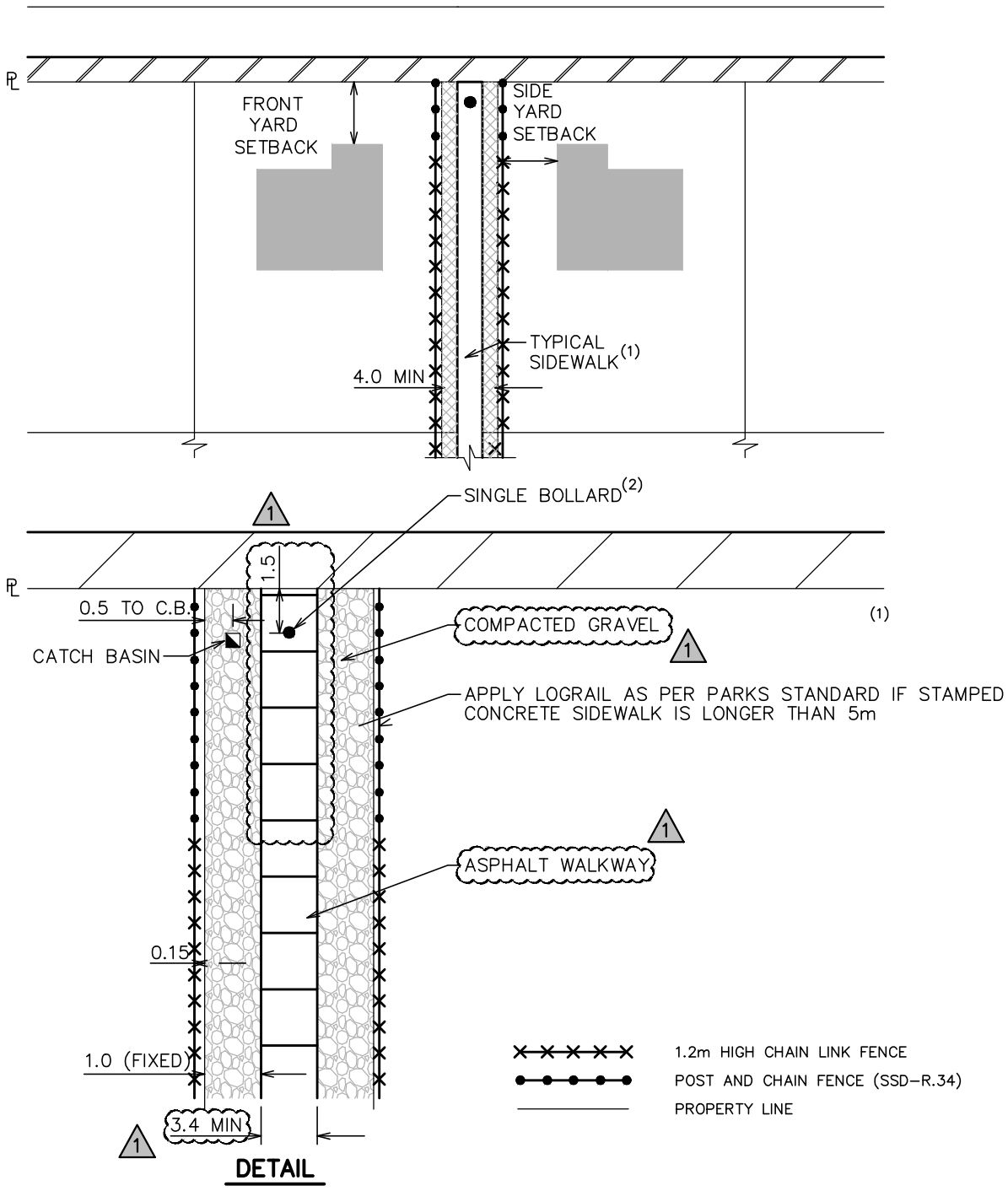
CITY OF SURREY the future lives here.

SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER SSD-R.7



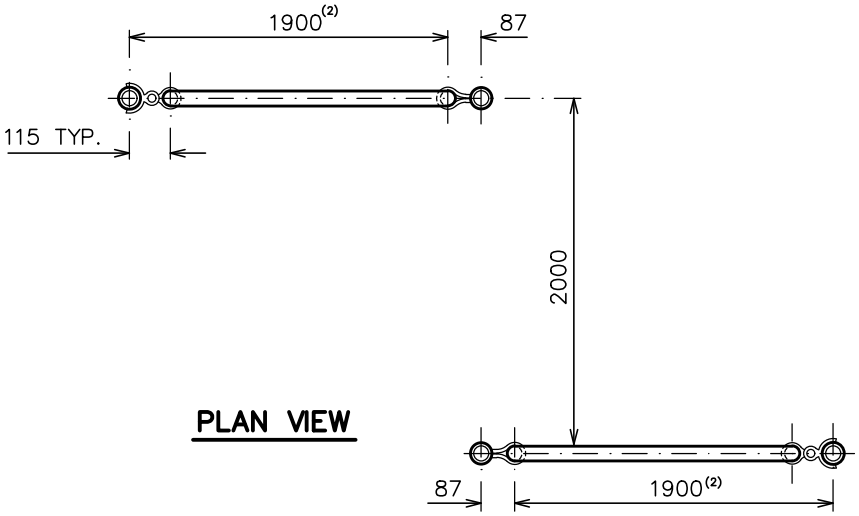
DETAIL

NOTES: (1) REFER TO DESIGN CRITERIA FOR LENGTH TO WIDTH RATIO.

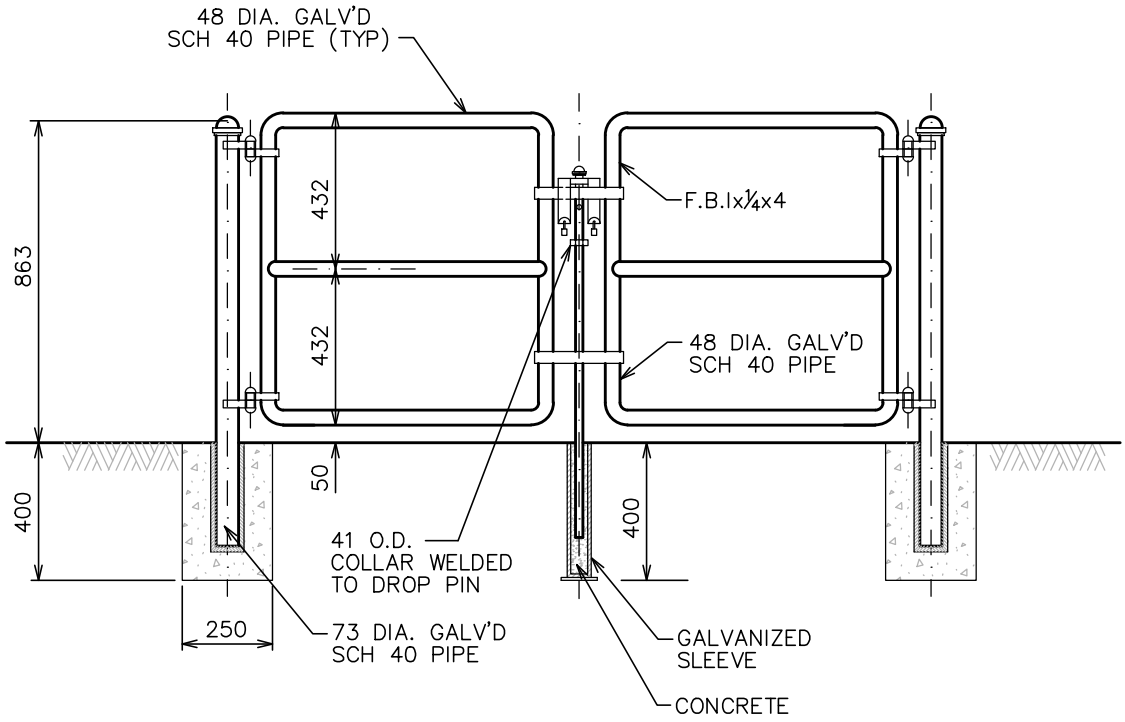
(2) TWO BOLLARDS @ 2.0m SPACING REQUIRED FOR WALKWAYS WIDER THAN 4.0m.

(3) BAFFLE GATES MAY BE USED AS SUBSTITUTE AT THE DIRECTION OF THE CITY OF SURREY

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024 — SCOTT NEUMAN	Title: **WALKWAYS, ENGINEERING OR EMERGENCY ACCESS**
	Revision Date — Approved	
CITY OF SURREY the future lives here.	SUPPLEMENTARY STANDARD DRAWINGS	Approved By : 2024 G.M. Engineering
		DRAWING NUMBER SSD-R.8 (1)



PLAN VIEW



ELEVATION VIEW

NOTE:

1. ALL JOINTS SEAL–WELDED AND PAINTED WITH ZINC RICH PAINT.
2. REDUCE TO 1400 FOR 3m WIDE PATHS.

		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **WALKWAYS, BAFFLE GATE**

CITY OF SURREY
the future lives here.

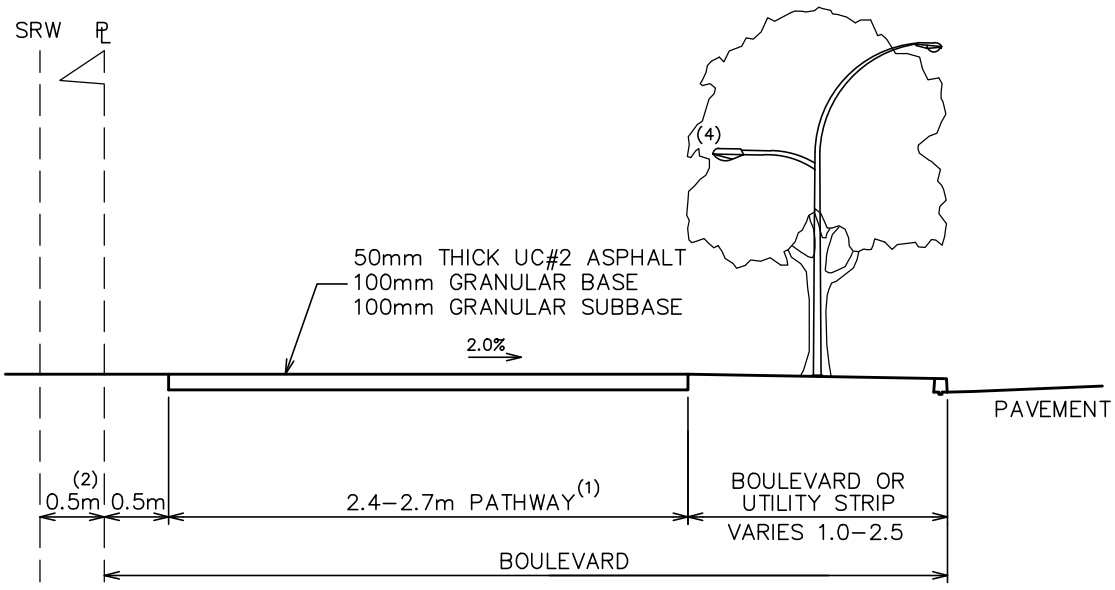
SUPPLEMENTARY STANDARD DRAWINGS

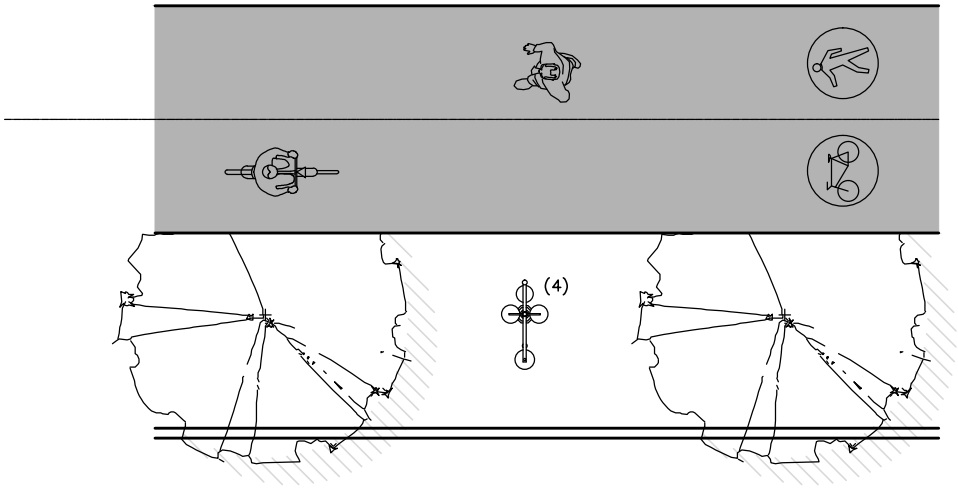
Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD-R.9

1





NOTES:

1. PATHWAY MAY CONSIST OF 2.4 (CONSTRAINED) TO 2.7m (STANDARD) ASPHALT PATHWAY OR 1.5m CONCRETE SIDEWALK PLUS 1.5m CYCLING PATHWAY AS SPECIFIED BY THE CITY OF SURREY.
2. STATUTORY RIGHT–OF–WAY (SRW) 0.5m MAY BE REQUIRED.
3. SINGLE LOCKING BOLLARD CENTRED IN MULTI USE PATH REQUIRED AT INTERSECTIONS AND CURB RETURN DRIVEWAYS.
4. REFER TO DESIGN CRITERIA MANUAL FOR LIGHTING REQUIREMENTS.

1

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **PATHWAYS, NEXT–TO–ROAD MULTI–USE DETAIL**

CITY OF SURREY
the future lives here.

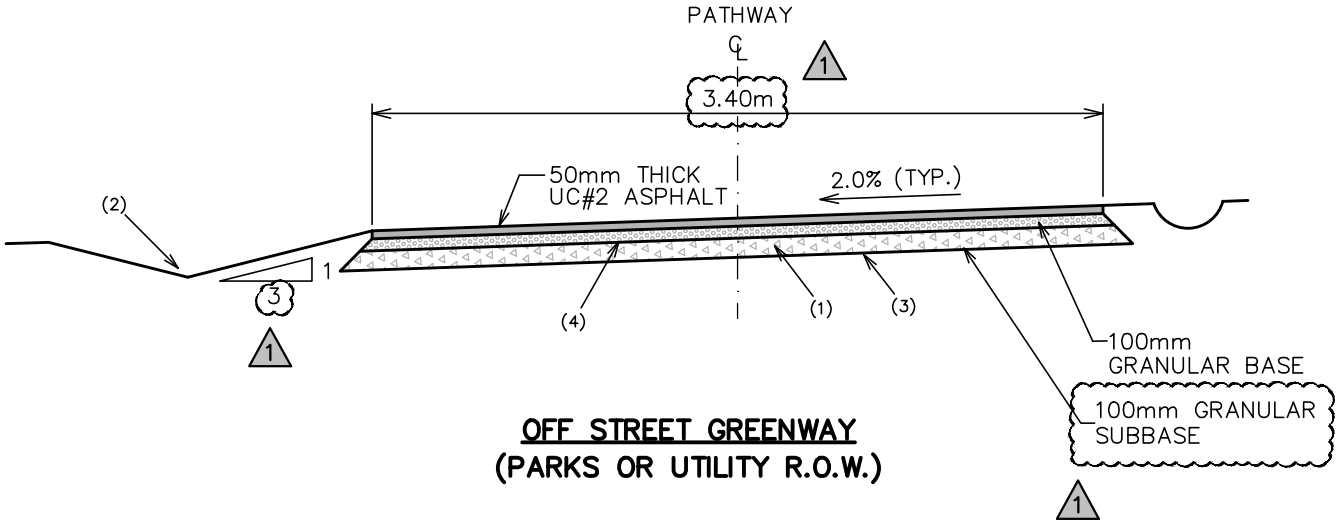
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD–R.10

1



OFF STREET GREENWAY
(PARKS OR UTILITY R.O.W.)

NOTES:

1. STRIPPING ZONE – STRIPPING DEPTH TO BE VARIABLE AND BASED ON ENGINEER'S RECOMMENDATIONS ON SITE. REPLACE WITH 200mm MAXIMUM SUBBASE AND BASE WITH 75mm PIT–RUN, COMPACTED TO 95% MODIFIED PROCTOR DENSITY.
2. SWALE (0.25m MIN. DEPTH TYP.) EXISTING TOPSOIL TO BE HYDROSEEDED.
3. GEOTEXTILE (NILEX No. 4545 OR EQUIVALENT)
4. MIL BLACK POLYETHYLENE SHEET.
5. NOTES 3 AND 4 ARE ONLY REQUIRED FOR GREENWAYS LOCATED IN POOR SOIL CONDITIONS.

1

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **OFF STREET GREENWAYS**

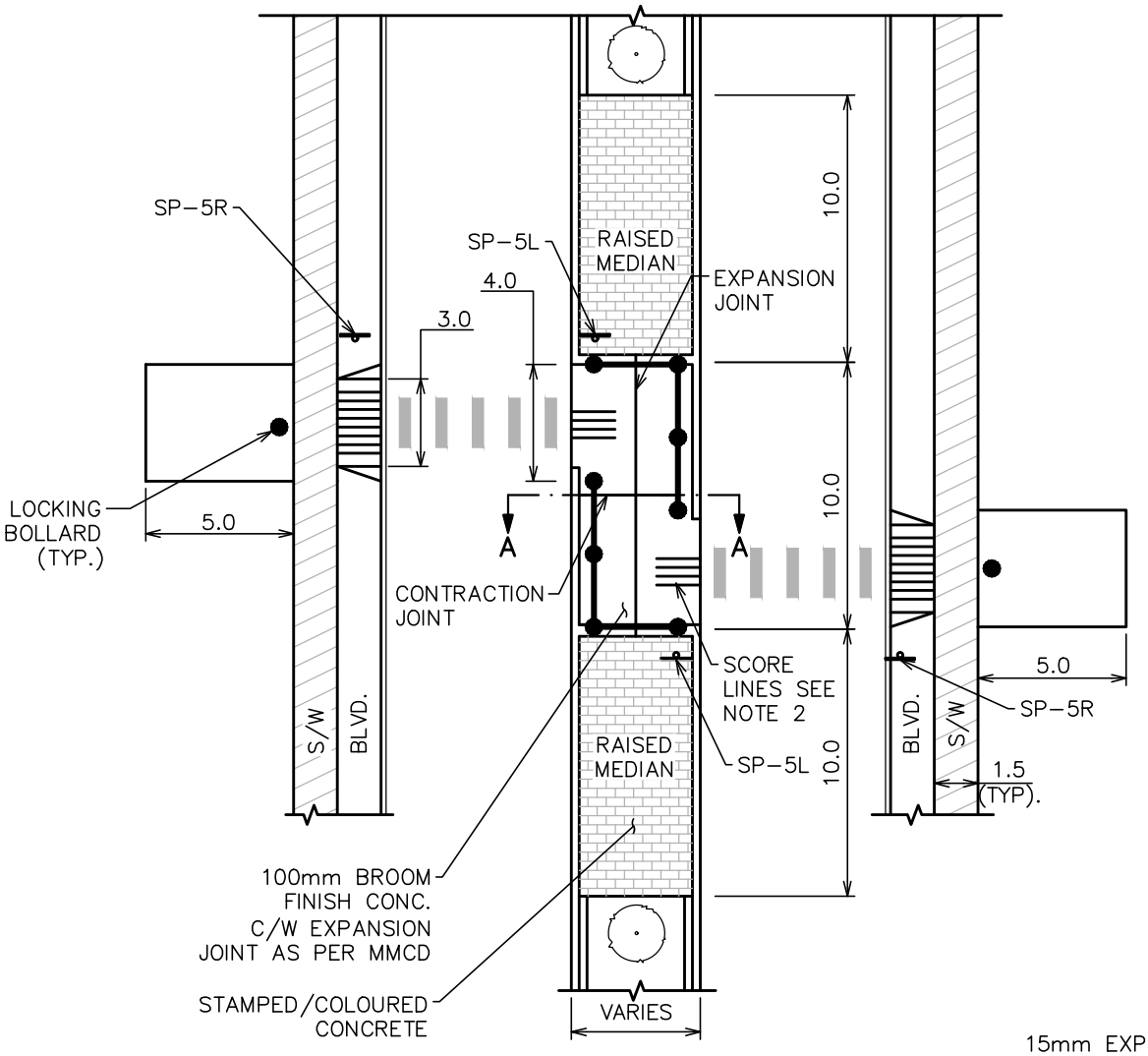
CITY OF SURREY the future lives here.

SUPPLEMENTARY STANDARD DRAWINGS

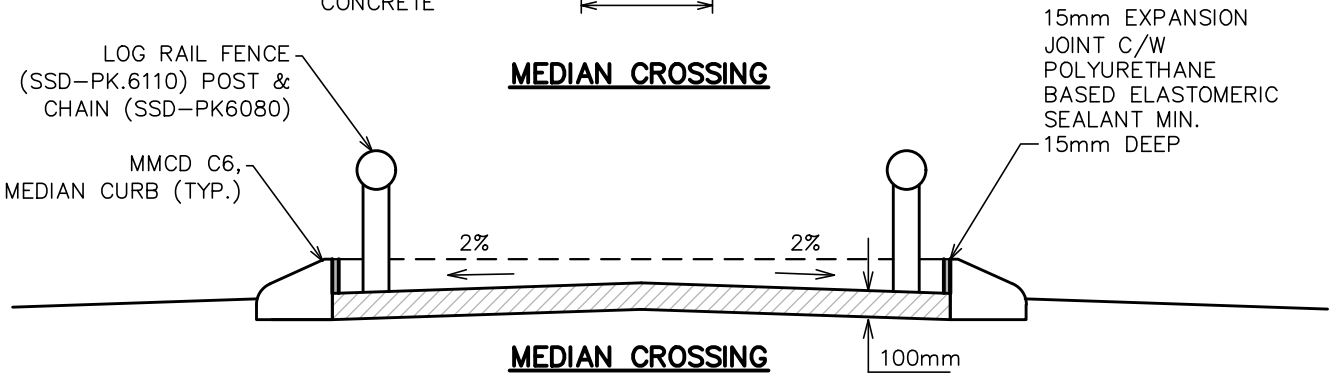
Approved By :

2024 G.M. Engineering

DRAWING NUMBER: SSD–R.11



MEDIAN CROSSING



MEDIAN CROSSING SECTION A-A

NOTES:

1. DRAINAGE FEATURES IN THE MEDIAN AS REQUIRED.
2. SCORE LINES 40cm APART, USE 3/8" TROWEL, EDGE TO BE AS CLOSE AS FLUSH WITH BROOM FINISH (TYP.)

			All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: PATHWAYS, MEDIAN MID BLOCK CROSSING DETAIL
	Revision Date	Approved	

CITY OF SURREY the future lives here.

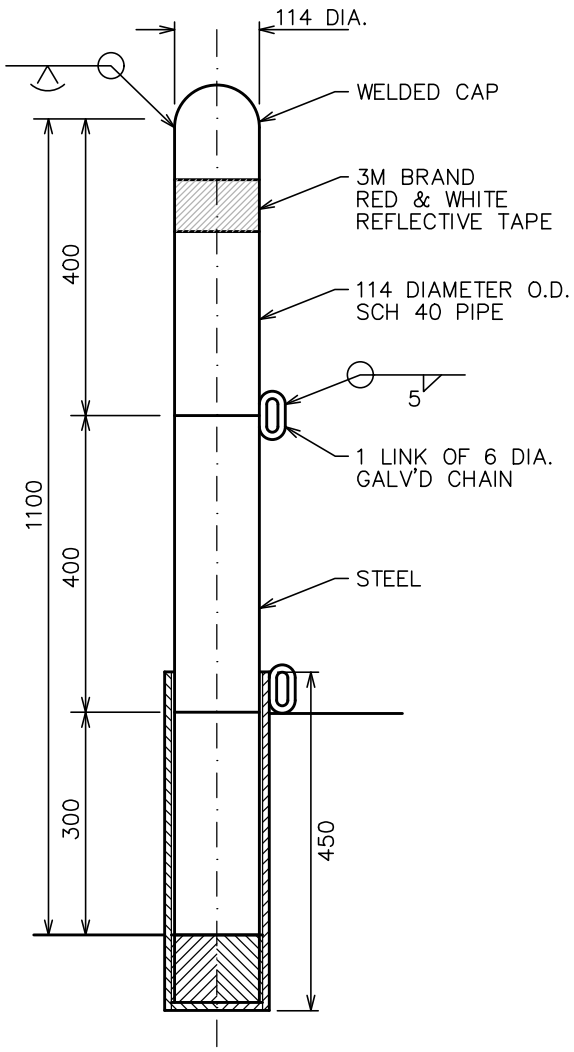
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

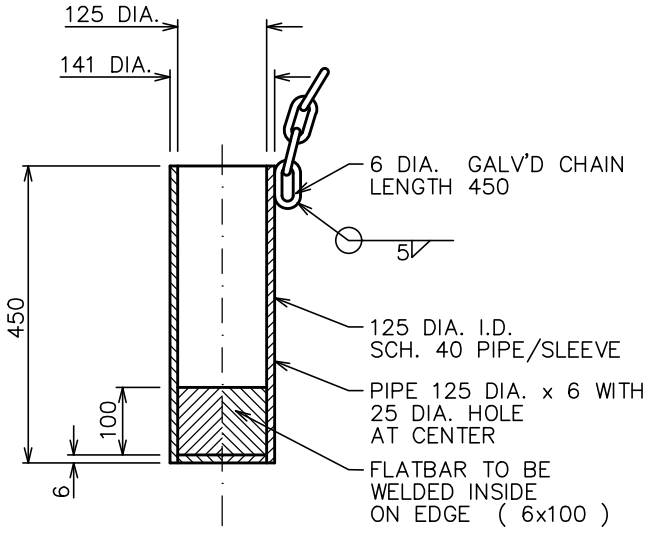
2024 G.M. Engineering

DRAWING NUMBER SSD-R.12

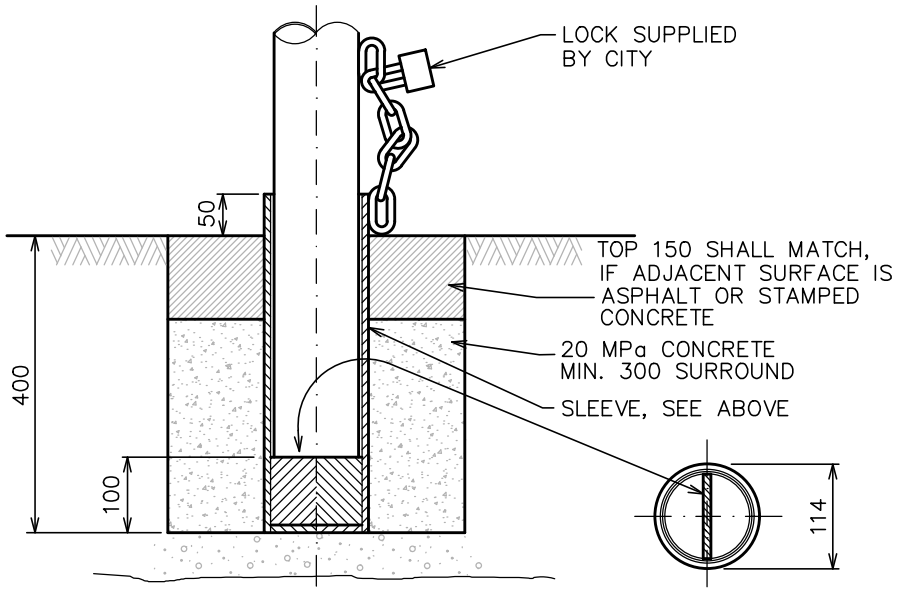
1



POST



SLEEVE



ASSEMBLY

NOTE:
1. FINISH POWDER COATED WHITE.

		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **PATHWAYS, LOCKING BOLLARD**

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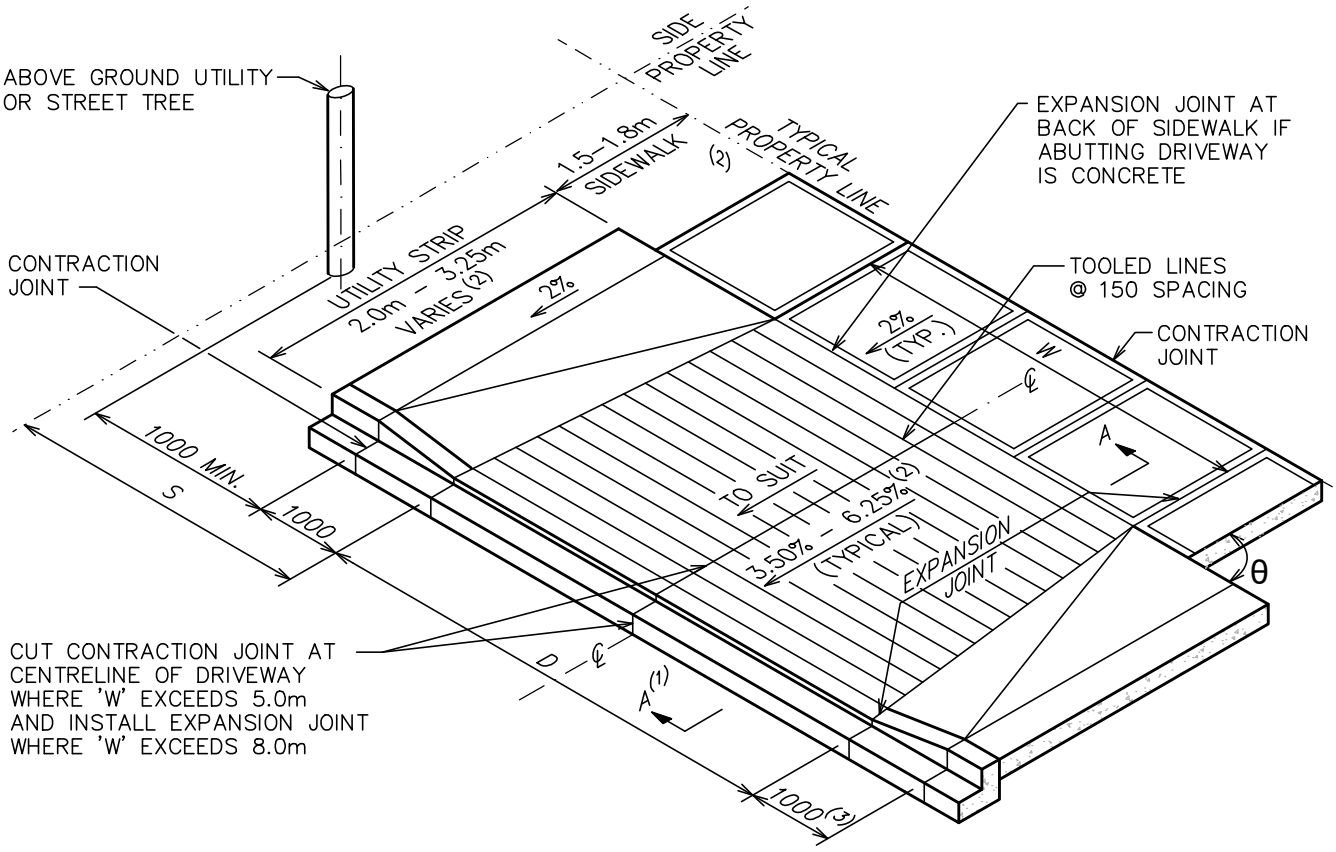
SUPPLEMENTARY
STANDARD
DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD-R.13

1

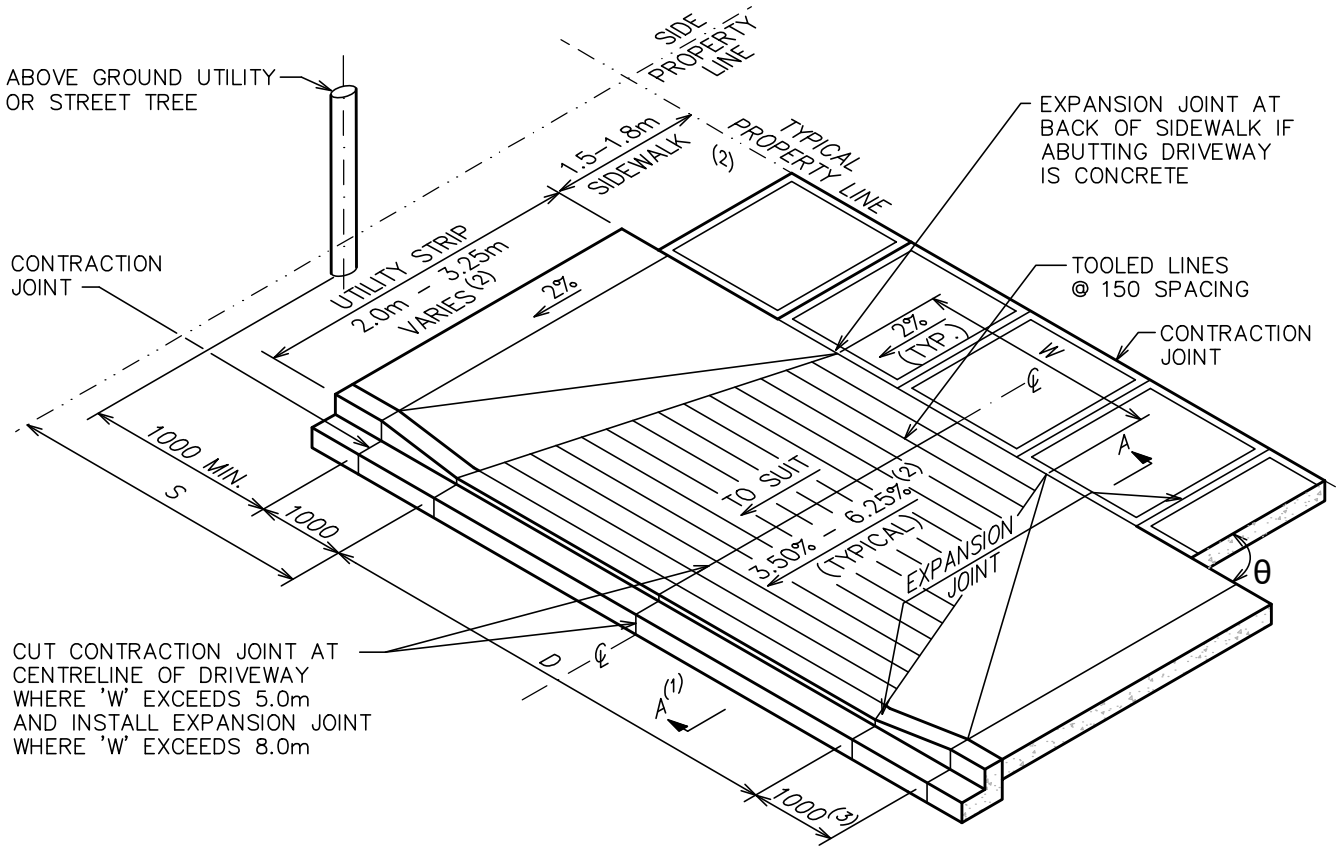


ZONE	OPERATION	W		S	θ – MIN. ANGLE BTWN. THE FRONTAGE PROP. LINE AND THE EDGE OF DRIVEWAY (DEG.)	D
		MIN. (m)	STD. (m)	MIN. DISTANCE FROM SIDE PROPERTY LINE (m)		
SINGLE FAMILY RESIDENTIAL	N/A	4.5	6.0	1.4	90	6.0–8.0m (PER ZONING BY–LAW)

NOTES:

1. FOR UTILITY STRIP LESS THAN 2.0m, SIDEWALK SLOPE MUST REMAIN AT 2%
2. FLARE IS NOT PERMITTED FOR SINGLE FAMILY RESIDENTIAL UNLESS DIRECTED BY CITY OF SURREY.

		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	2024 SCOTT NEUMAN	Title: DRIVEWAYS, SINGLE FAMILY RESIDENTIAL LETDOWN
	Revision Date Approved	
CITY OF SURREY the future lives here. SUPPLEMENTARY STANDARD DRAWINGS	Approved By : 2024 G.M. Engineering	DRAWING NUMBER SSD–R.14



ZONE	OPERATION	W		S	θ – MIN. ANGLE BTWN. THE FRONTAGE PROP. LINE AND THE EDGE OF DRIVEWAY (DEG.)	D
		MIN. (m)	STD. (m)	MIN. DISTANCE FROM SIDE PROPERTY LINE (m)		
MULTI FAMILY RESIDENTIAL	TWO WAY	N/A	7.3	2.0	90	9.7
	ONE WAY	N/A	4.5	2.0	45	
LANE	RESIDENTIAL	N/A	7.3	2.0	90	9.7
	COMMERCIAL	N/A	9.3	2.0	45	
COMMERCIAL	TWO WAY	7.3	9.0	2.0	90	11.4
	ONE WAY	N/A	4.5	2.0	45	
INDUSTRIAL	TWO WAY	9.0	11.0	2.0	90	13.4
	ONE WAY	N/A	5.0	2.0	30	
ALR	TWO WAY	6	11.0	2.0	90	11.0

NOTES:

1. FOR UTILITY STRIP LESS THAN 2.0m, SIDEWALK SLOPE MUST REMAIN AT 2%
2. FLARE IS NOT PERMITTED FOR SINGLE FAMILY RESIDENTIAL UNLESS DIRECTED BY CITY OF SURREY.

		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **DRIVEWAYS, MULTI–FAMILY/COMMERCIAL/INDUSTRIAL LETDOWN**

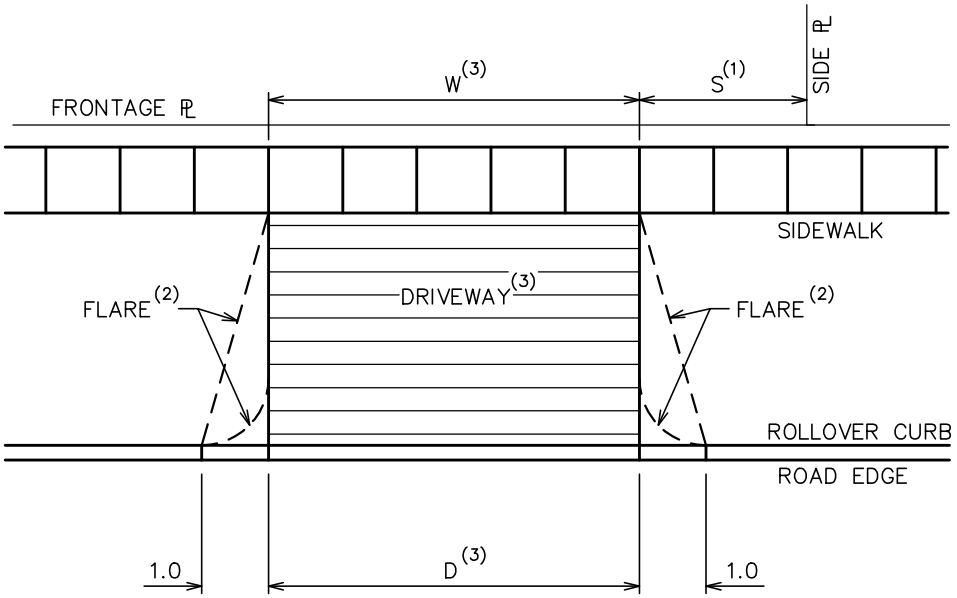
CITY OF SURREY the future lives here.

SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER: SSD–R.15 1

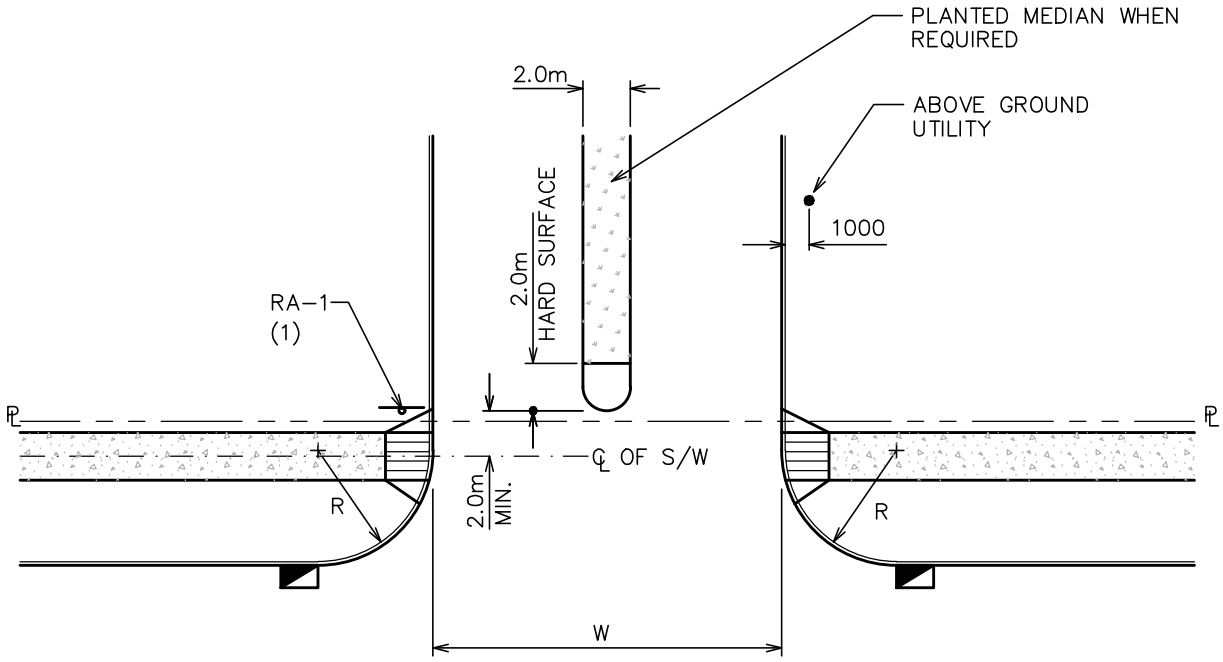


NOTES:

1. SEE TABLES ON SSD–CC.16 FOR MINIMUM DISTANCE FROM SIDE PROPERTY LINE.
2. FLARE IS NOT PERMITTED FOR SINGLE FAMILY ZONES ON LOCAL OR COLLECTOR ROADS.
3. SEE TABLES ON SSD–CC.16 FOR WIDTH OF DRIVEWAY.

			All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title **DRIVEWAYS, CROSSING FOR ROLLOVER CURBS DETAILS**
	Revision Date	Approved	
CITY OF SURREY the future lives here.	SUPPLEMENTARY STANDARD DRAWINGS		Approved By : 2024 G.M. Engineering
			DRAWING NUMBER SSD–R.16

1



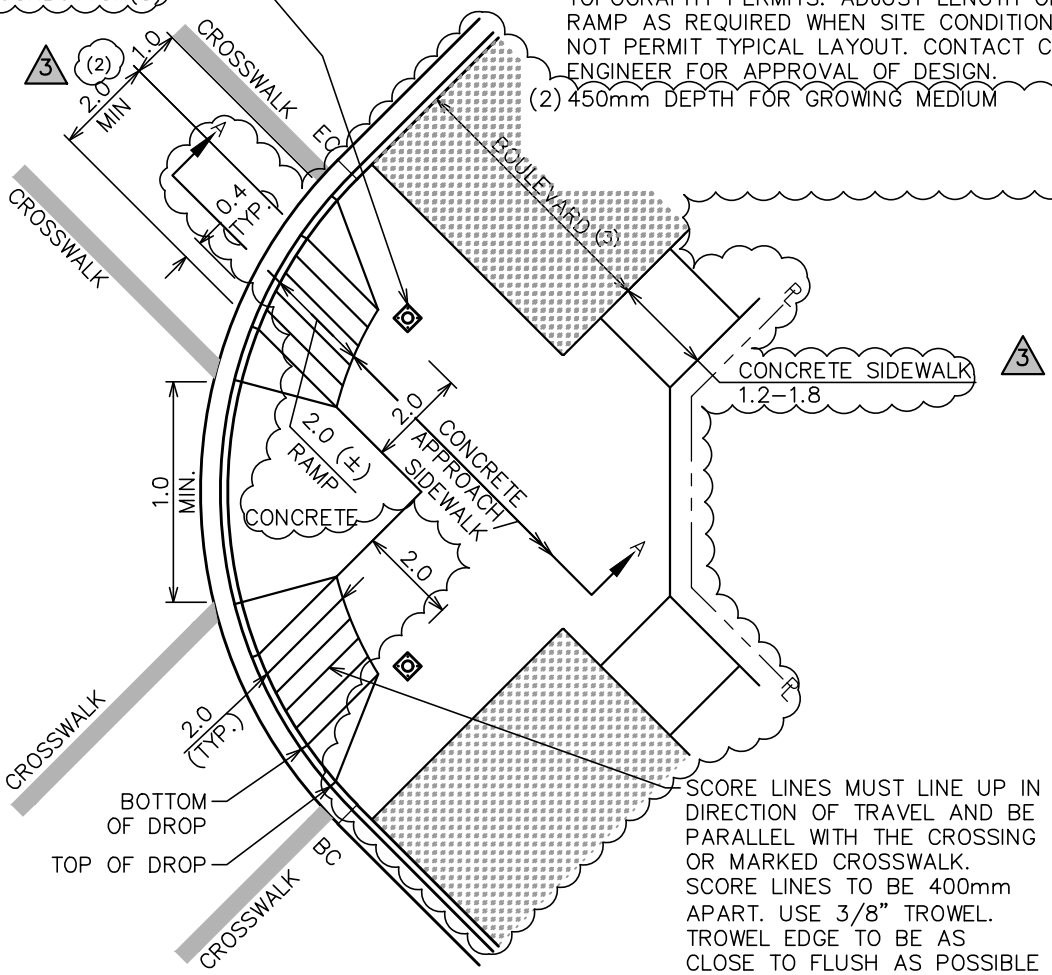
ZONE	DRIVEWAY TYPE	W		R	
		MIN. (m)	MAX. (m)	MIN.	MAX.
COMMERCIAL, MULTI-FAMILY	TWO WAY	7.3	9.0 (EXCLUDING MEDIAN)	7.0	9.0
	ONE WAY	4.5	4.5 (1)		
INDUSTRIAL ZONE	TWO WAY	9.0	11.0 (EXCLUDING MEDIAN)	9.0	12.0
	ONE WAY	5.0	5.0		
		(1)	(1)		

NOTES: 1) SIGN TO BE INSTALLED AND MAINTAINED BY PROPERTY OWNER

			All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: DRIVEWAYS, CURB RETURN CROSSING
	Revision Date	Approved	
CITY OF SURREY the future lives here.	SUPPLEMENTARY STANDARD DRAWINGS	Approved By : 2024 G.M. Engineering	DRAWING NUMBER SSD-R.17

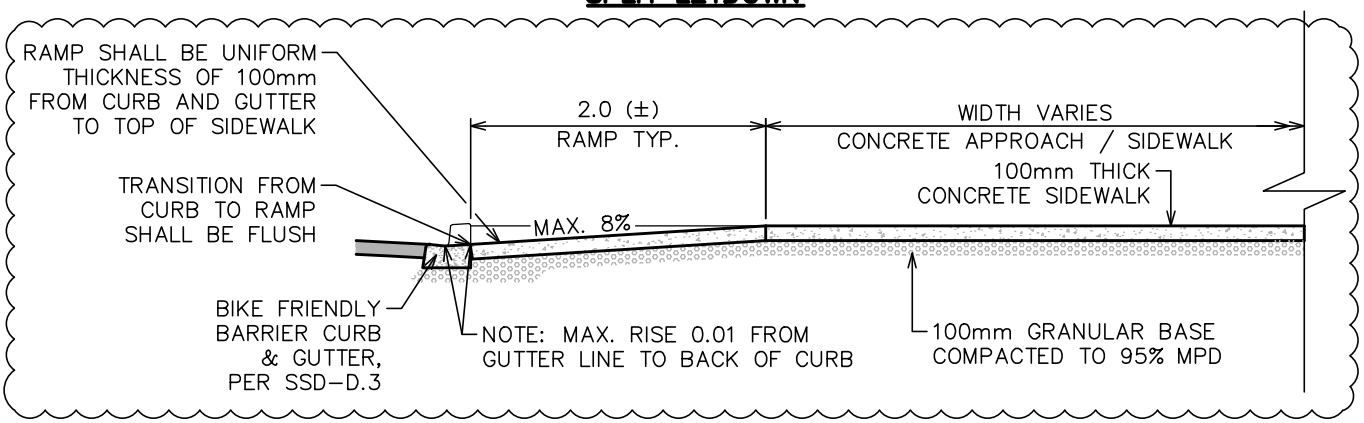
IF PEDESTRIAN CONTROL BUTTON IS PRESENT THEN CONCRETE MUST BE PLACED UP TO BASE OF POLE FACE WITH PUSHBUTTON(S)

NOTES: (1) STANDARD RAMP LENGTH: 2.0m AT CENTRE OF RAMP. RECOMMENDED RAMP SLOPE: 7.0% ± 1.0%. MAX. SLOPE 8.0% (1:12) WHERE TOPOGRAPHY PERMITS. ADJUST LENGTH OF RAMP AS REQUIRED WHEN SITE CONDITIONS DO NOT PERMIT TYPICAL LAYOUT. CONTACT CITY ENGINEER FOR APPROVAL OF DESIGN.
(2) 450mm DEPTH FOR GROWING MEDIUM



SCORE LINES MUST LINE UP IN DIRECTION OF TRAVEL AND BE PARALLEL WITH THE CROSSING OR MARKED CROSSWALK. SCORE LINES TO BE 400mm APART. USE 3/8" TROWEL. TROWEL EDGE TO BE AS CLOSE TO FLUSH AS POSSIBLE WITH BROOM FINISH.

SPLIT LETDOWN



SECTION A–A CURB RAMP

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **SPLIT LETDOWN AT INTERSECTION. BOULEVARD TREATMENT**

CITY OF SURREY
the future lives here.

SUPPLEMENTARY STANDARD DRAWINGS

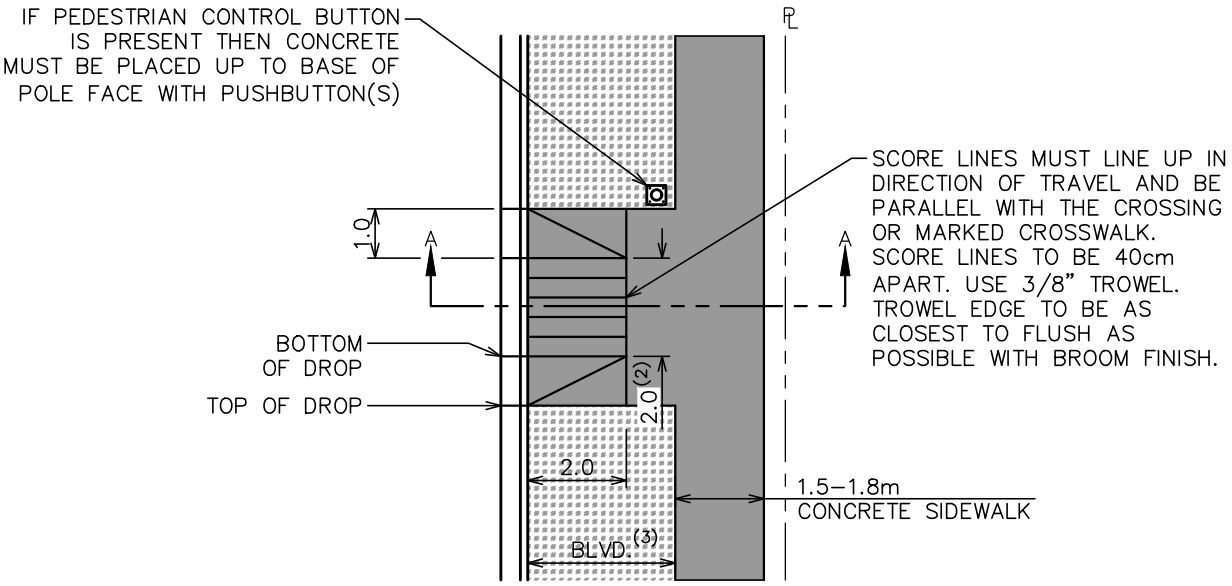
Approved By :

2024 G.M. Engineering

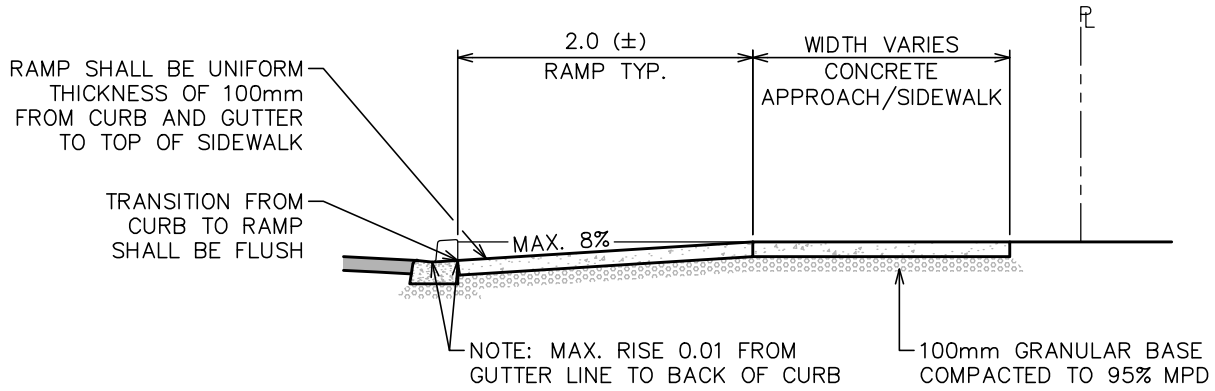
DRAWING NUMBER
SSD–R.18

NOTES: (1) STANDARD RAMP LENGTH: 2.0m AT CENTRE OF RAMP. RECOMMENDED RAMP SLOPE: 7.0% ± 1.0%. MAX. SLOPE 8.0% (1:12) WHERE TOPOGRAPHY PERMITS. ADJUST LENGTH OF RAMP AS REQUIRED WHEN SITE CONDITIONS DO NOT PERMIT TYPICAL LAYOUT. CONTACT CITY ENGINEER FOR APPROVAL OF DESIGN.
(2) 3.0m MIN. WIDE LETDOWN FOR CONNECTION TO MUP.
(3) 600mm DEPTH FOR GROWING MEDIUM AND/OR 450mm DEPTH FOR INSTALLATION OF SOD.

3



SINGLE RAMP



SECTION A–A CURB RAMP

			All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: SINGLE RAMP LETDOWN WITH PARALLEL SCORING
	Revision Date	Approved	

CITY OF SURREY the future lives here.

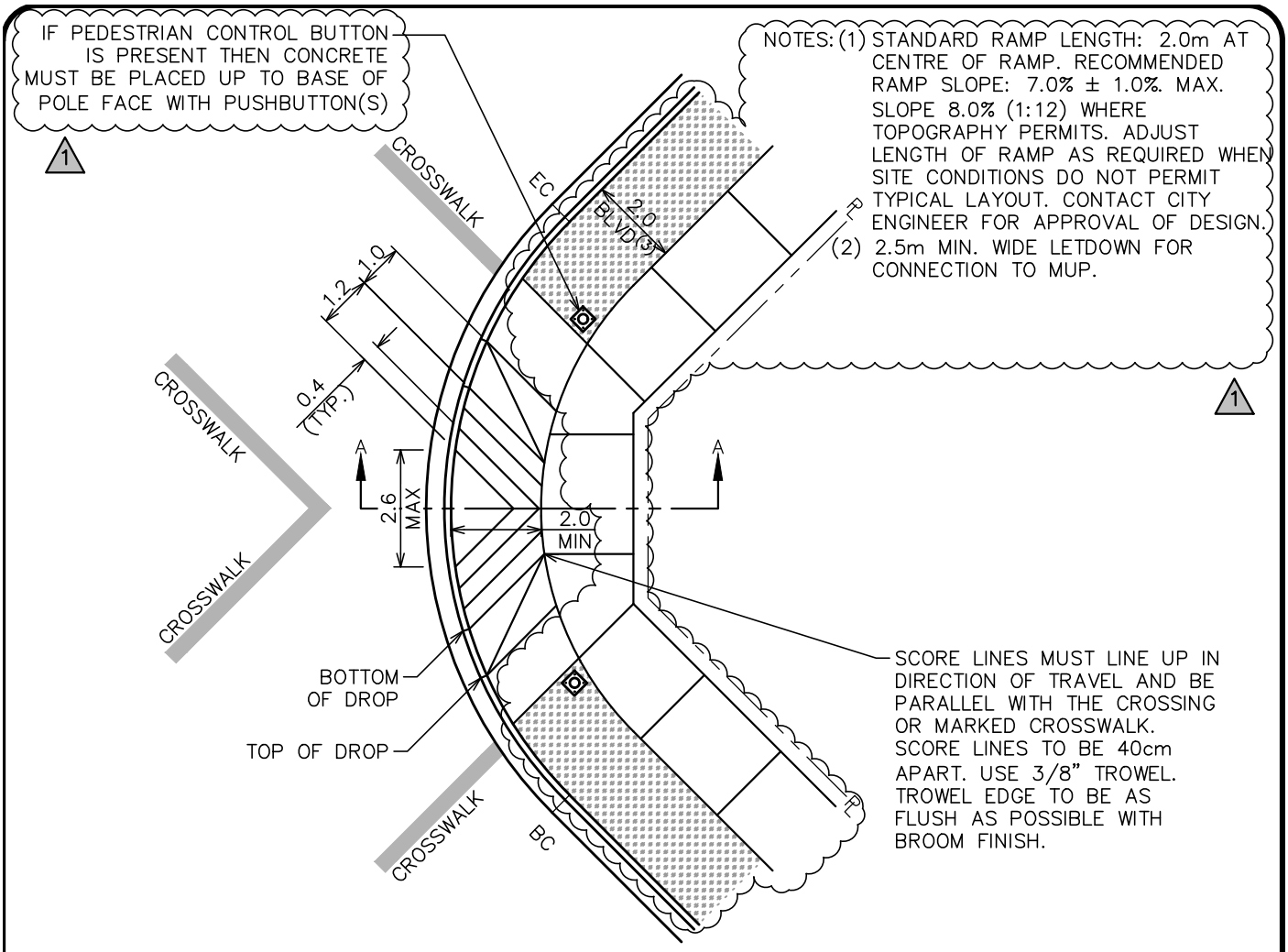
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

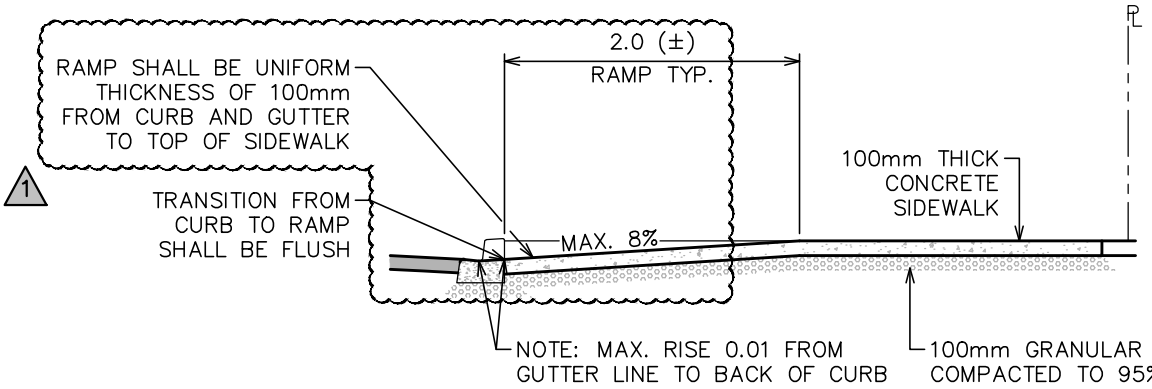
2024 G.M. Engineering

DRAWING NUMBER: SSD–R.19

1



SINGLE RAMP



SECTION A–A CURB RAMP

			All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: SINGLE LETDOWN AT INTERSECTION. BOULEVARD LESS THAN 2.99m
	Revision Date	Approved	

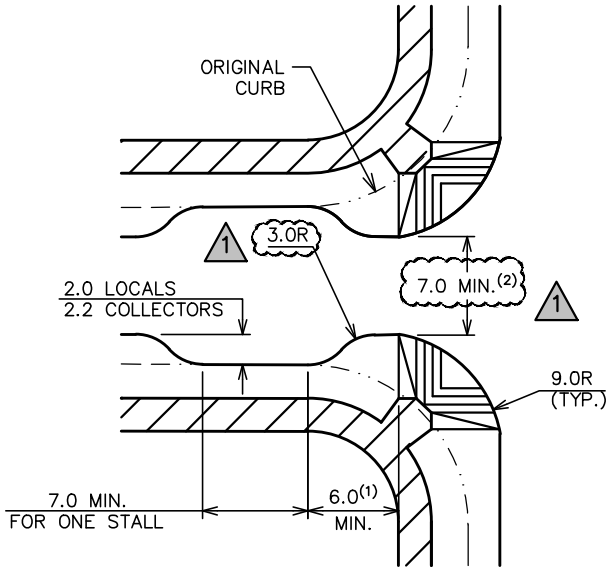
CITY OF SURREY
the future lives here.

SUPPLEMENTARY STANDARD DRAWINGS

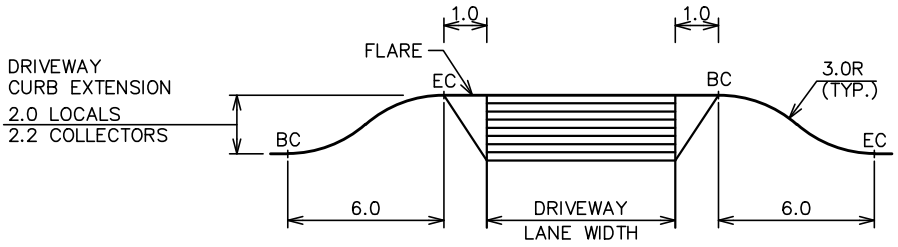
Approved By :

2024 G.M. Engineering

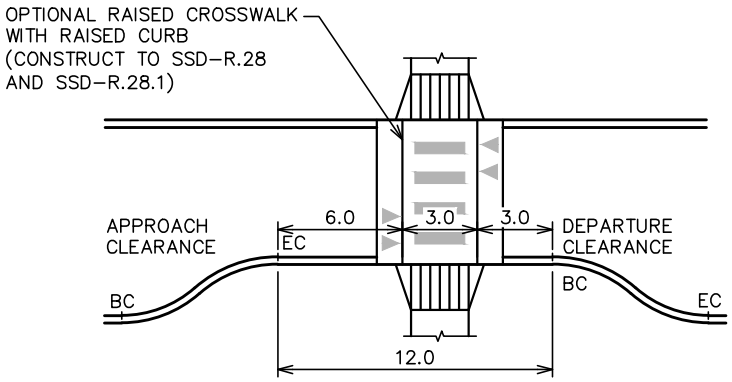
DRAWING NUMBER: SSD–R.20



INTERSECTION CURB EXTENSION DETAILS



DRIVEWAY/LANE DETAIL



MIDBLOCK CROSSING DETAIL

NOTES:

1. VARY AS REQUIRED TO MEET STOPPING SIGHT DISTANCE.
2. MINIMAL INCREASES TO 8.5m FOR LOCAL TO ARTERIAL INTERSECTIONS AND NO CURB EXTENSION ON THE LOCAL ROAD DEPARTURE SIDE.
3. HYDRANTS SHOULD GENERALLY BE LOCATED WITHIN CURB EXTENSIONS. CURB EXTENSIONS MAY REQUIRE LENGTHENING TO RESTRICT PARKING WITHIN 5m OF HYDRANT.

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **TRAFFIC CALMING, CURB EXTENSIONS AND ON-STREET PARKING BAY**

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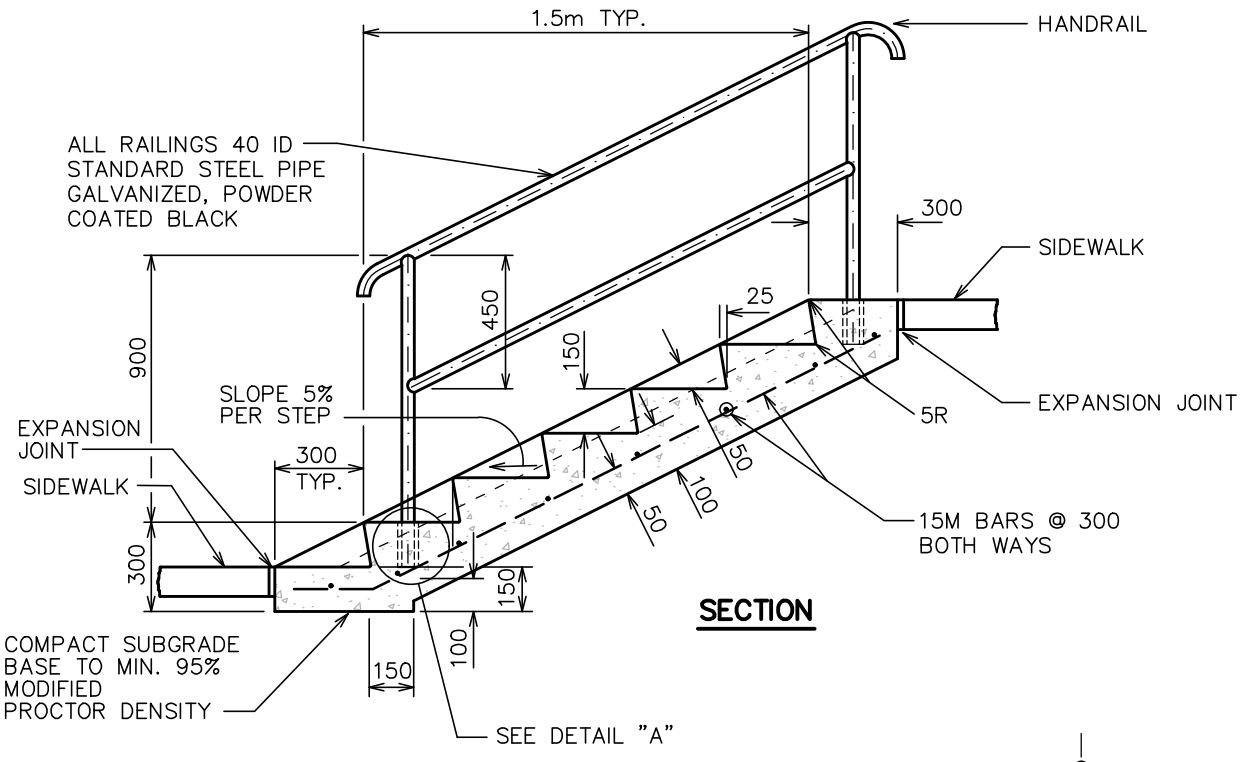
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

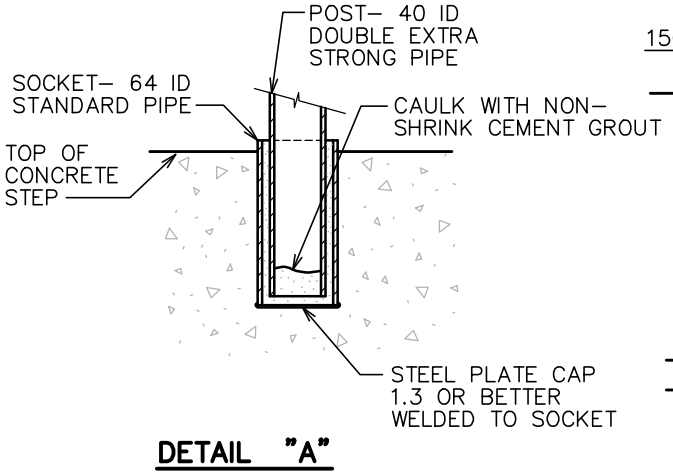
2024 G.M. Engineering

DRAWING NUMBER: SSD-R.21

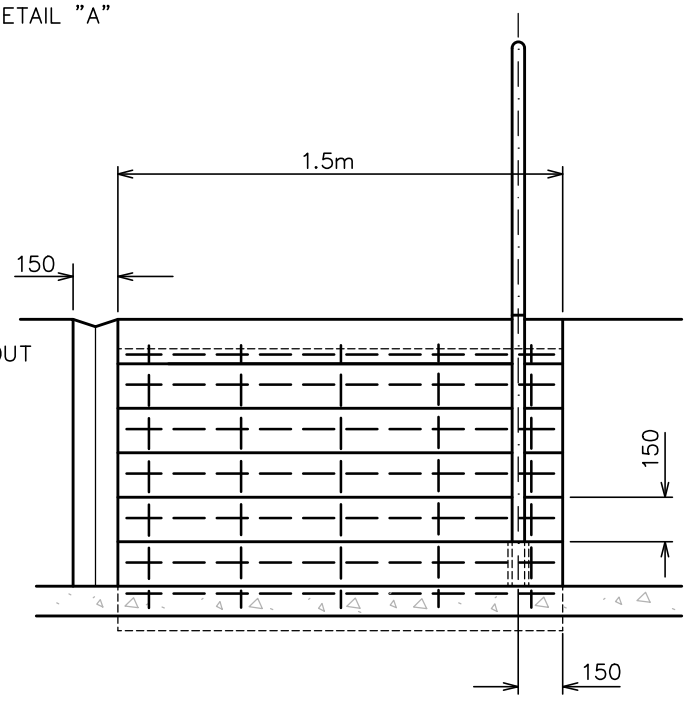
1



SECTION



DETAIL "A"



FRONT ELEVATION

NOTE: (1) LARGER STAIRS TO BE DESIGNED BY AN ENGINEER.

			All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title **CONCRETE STEPS WITHOUT FOOTING – WITH BICYCLE RAMP**
	Revision Date	Approved	

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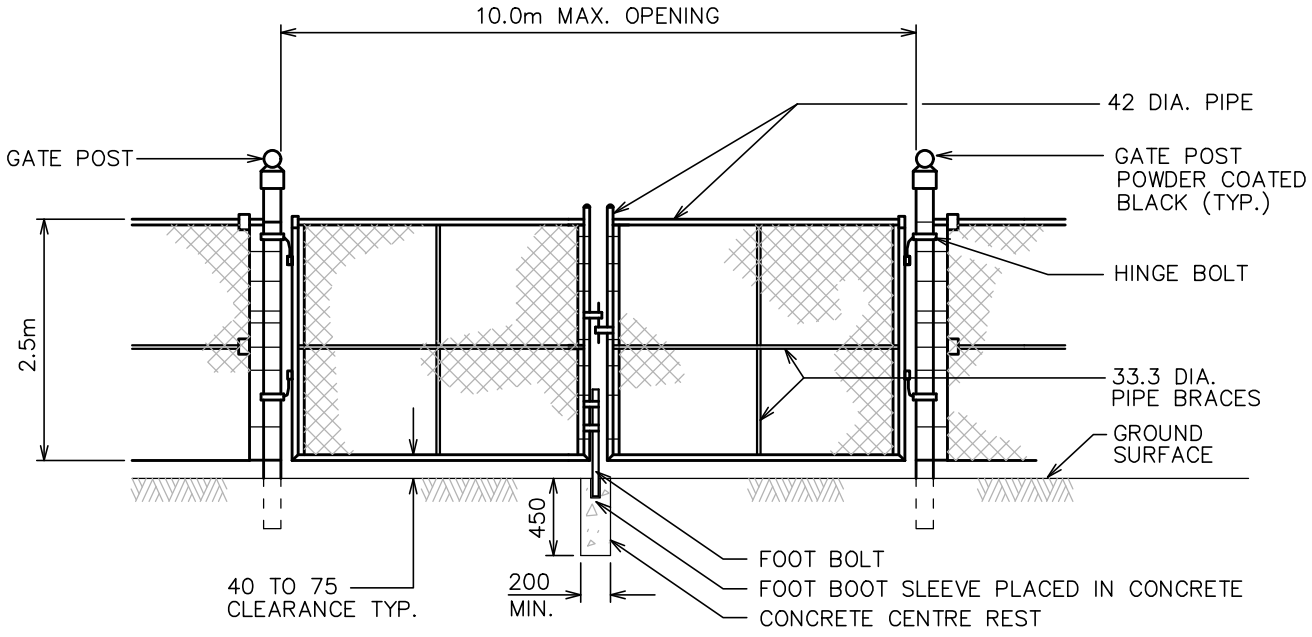
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

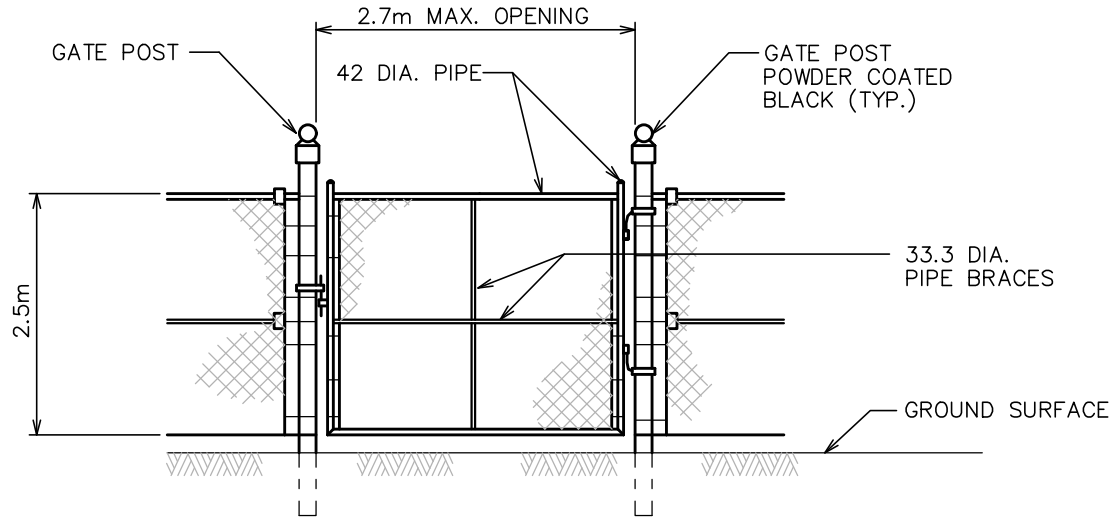
2024 G.M. Engineering

DRAWING NUMBER

SSD–R.22



SECURITY DOUBLE GATE



SECURITY SINGLE GATE

NOTES:

1. GATE PANELS UP TO 1.8m WIDE REQUIRE HORIZONTAL BRACE ONLY.
2. GATE PANELS OVER 1.8m WIDE REQUIRE HORIZONTAL AND VERTICAL BRACES.
3. CHAIN LINK FENCE FABRIC: 6ga. 50mm BLACK VINYL COVERED WIRE MESH

		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **SECURITY CHAIN-LINK FENCE – GATES**

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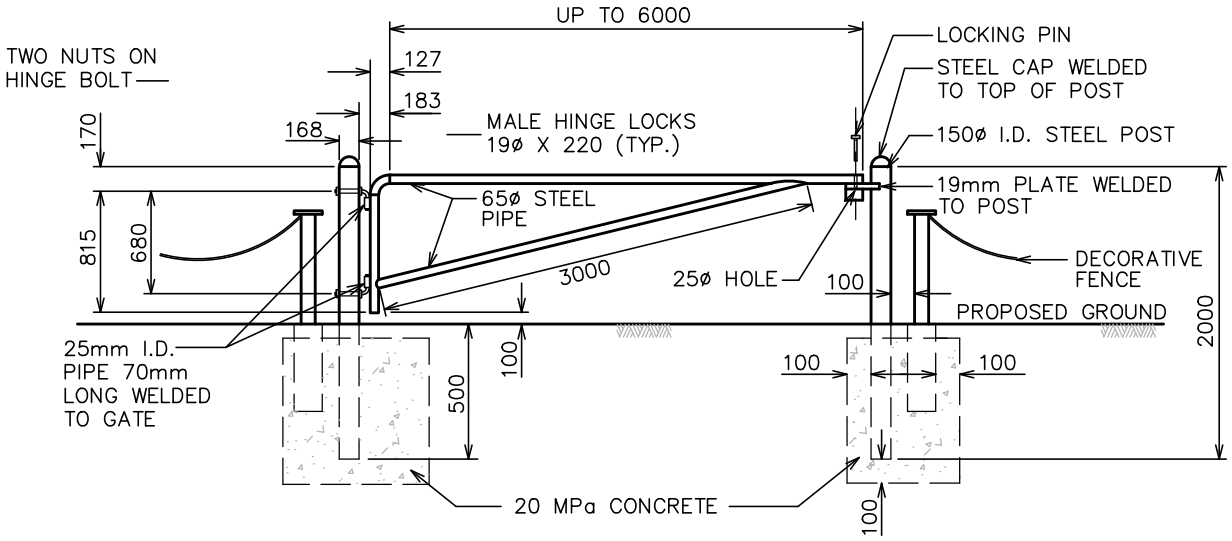
SUPPLEMENTARY STANDARD DRAWINGS

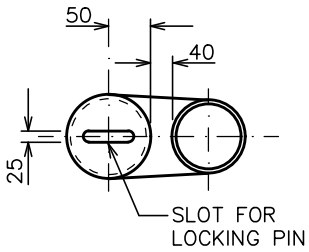
Approved By :

2024 G.M. Engineering

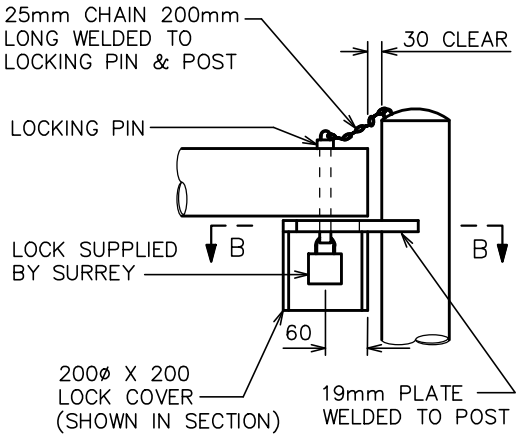
DRAWING NUMBER
SSD-R.23
1

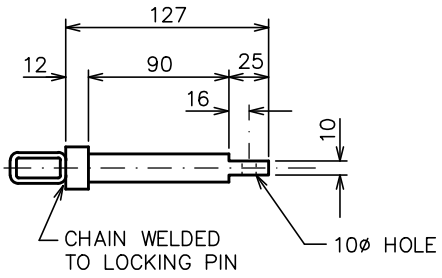


GATE DETAILS

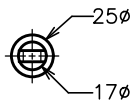


SECTION B–B





SIDE VIEW



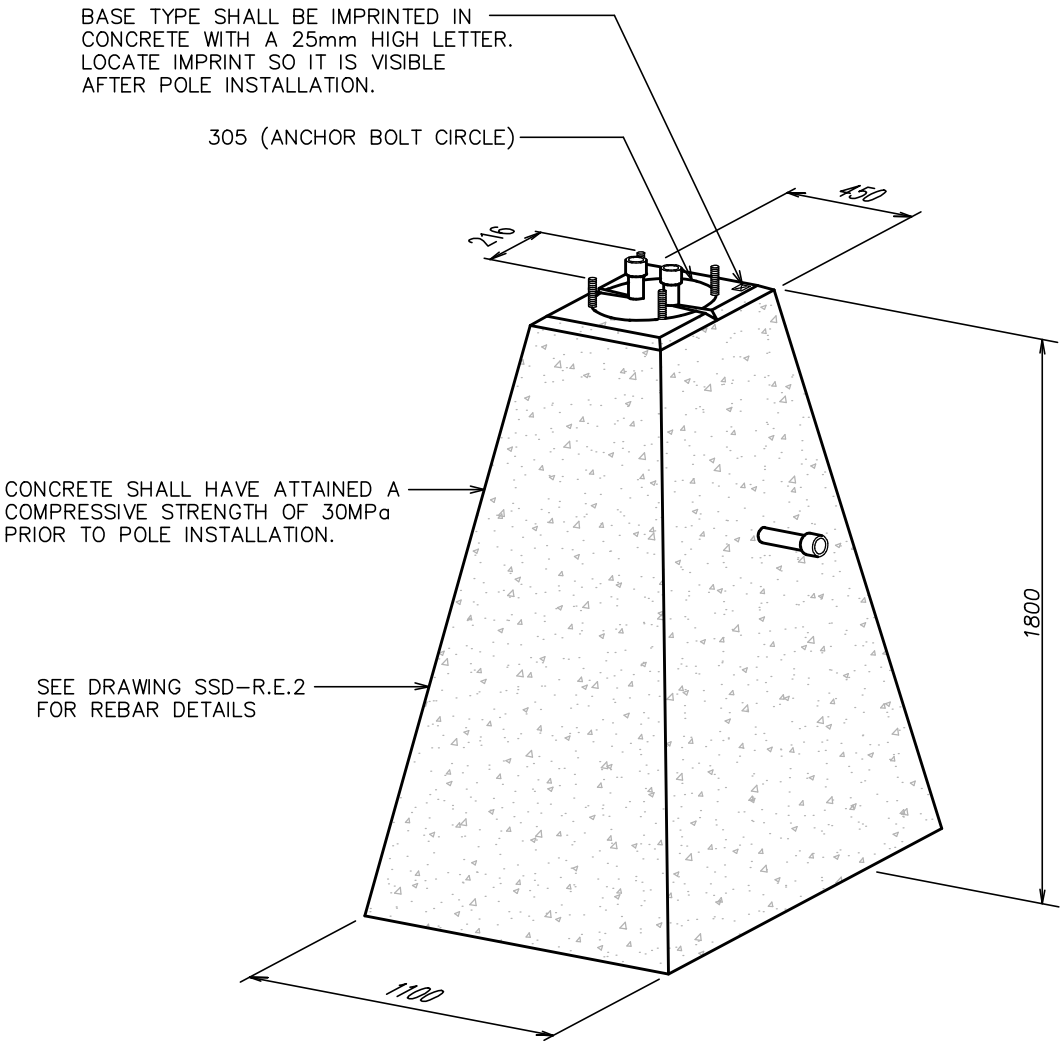
END VIEW

GATE LOCKING PIN DETAIL

NOTES:

1. ALL GATE COMPONENTS TO HAVE PRIME COAT AND TWO COATS OF WHITE ENAMEL PAINT.
2. ALL STEEL TO BE A MINIMUM OF A36 GRADE.

		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024 — Revision Date	SCOTT NEUMAN — Approved
		Title: SWING GATE DETAILS
CITY OF SURREY the future lives here.	SUPPLEMENTARY STANDARD DRAWINGS	Approved By : 2024 G.M. Engineering
		DRAWING NUMBER: SSD–R.24 (1)



PRECAST CONCRETE BASES

			All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: TYPE D2 CONCRETE BASE FOR 13.5m DAVIT POLE PRECAST
	Revision Date	Approved	

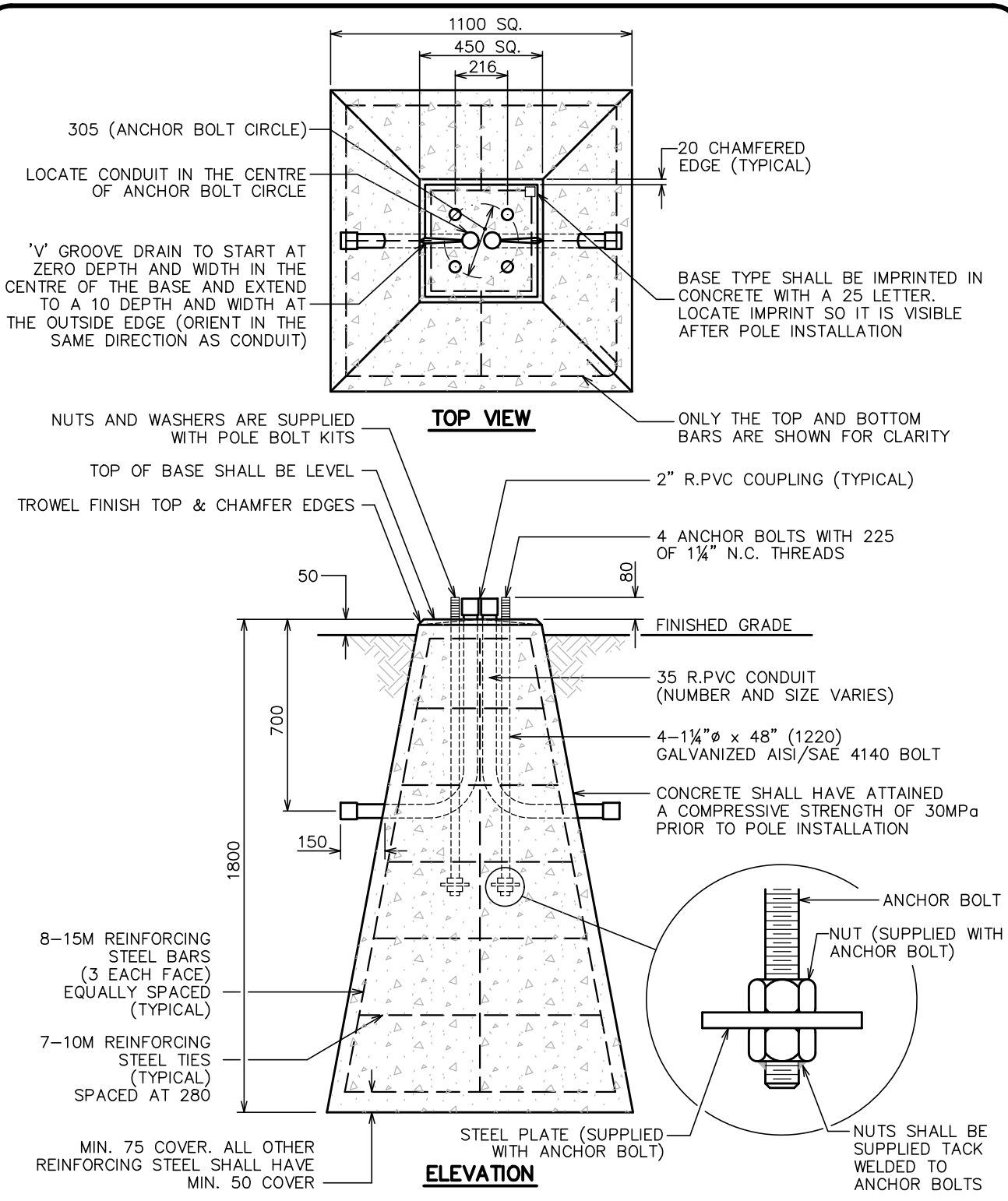
CITY OF SURREY the future lives here.

SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER SSD-R.E.1



		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title **PRECAST TYPE D2 CONCRETE BASE FOR 13.5m DAVIT POLE**

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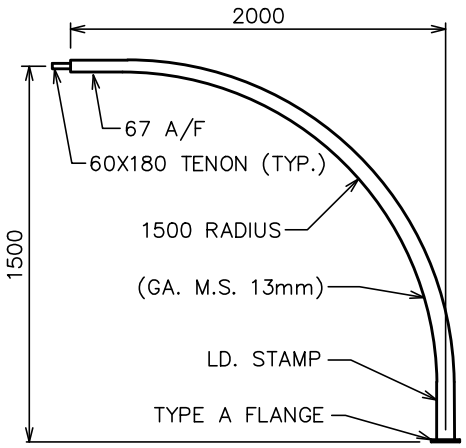
SUPPLEMENTARY STANDARD DRAWINGS

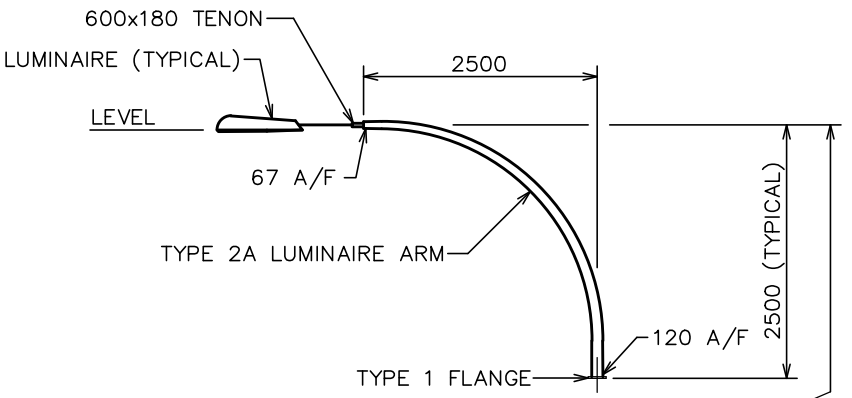
Approved By :

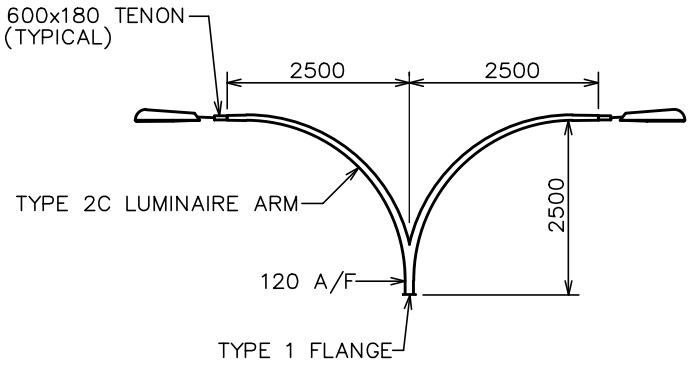
2024 G.M. Engineering

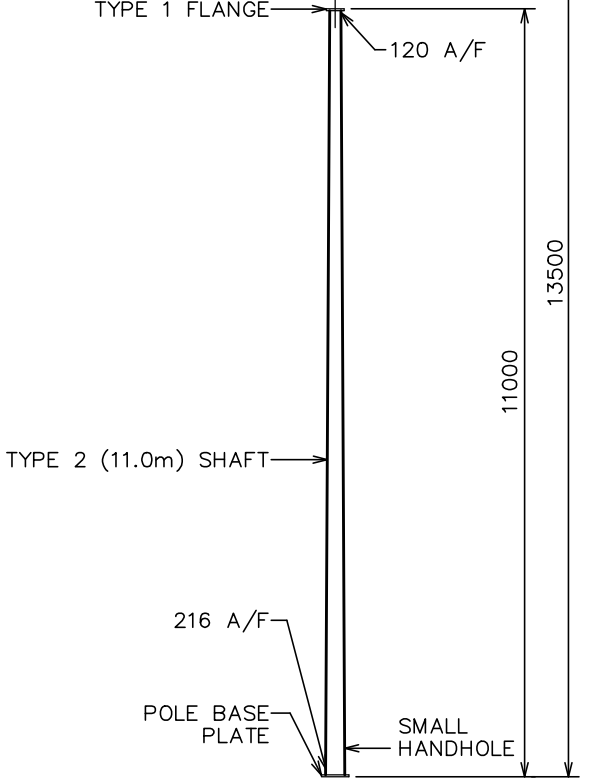
DRAWING NUMBER
SSD–R.E.2

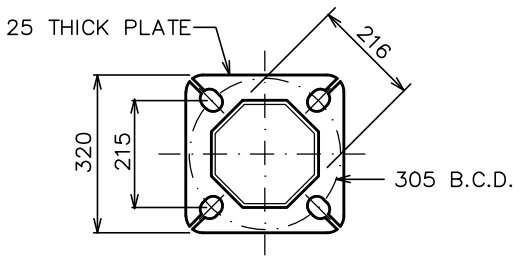


SPECIAL TYPE 2A ARM









POLE BASE PLATE

ELEVATION

			All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: **TYPE 2 SHAFT INSTALLATION DETAILS FOR 13.5m DAVIT POLE**
	Revision Date	Approved	

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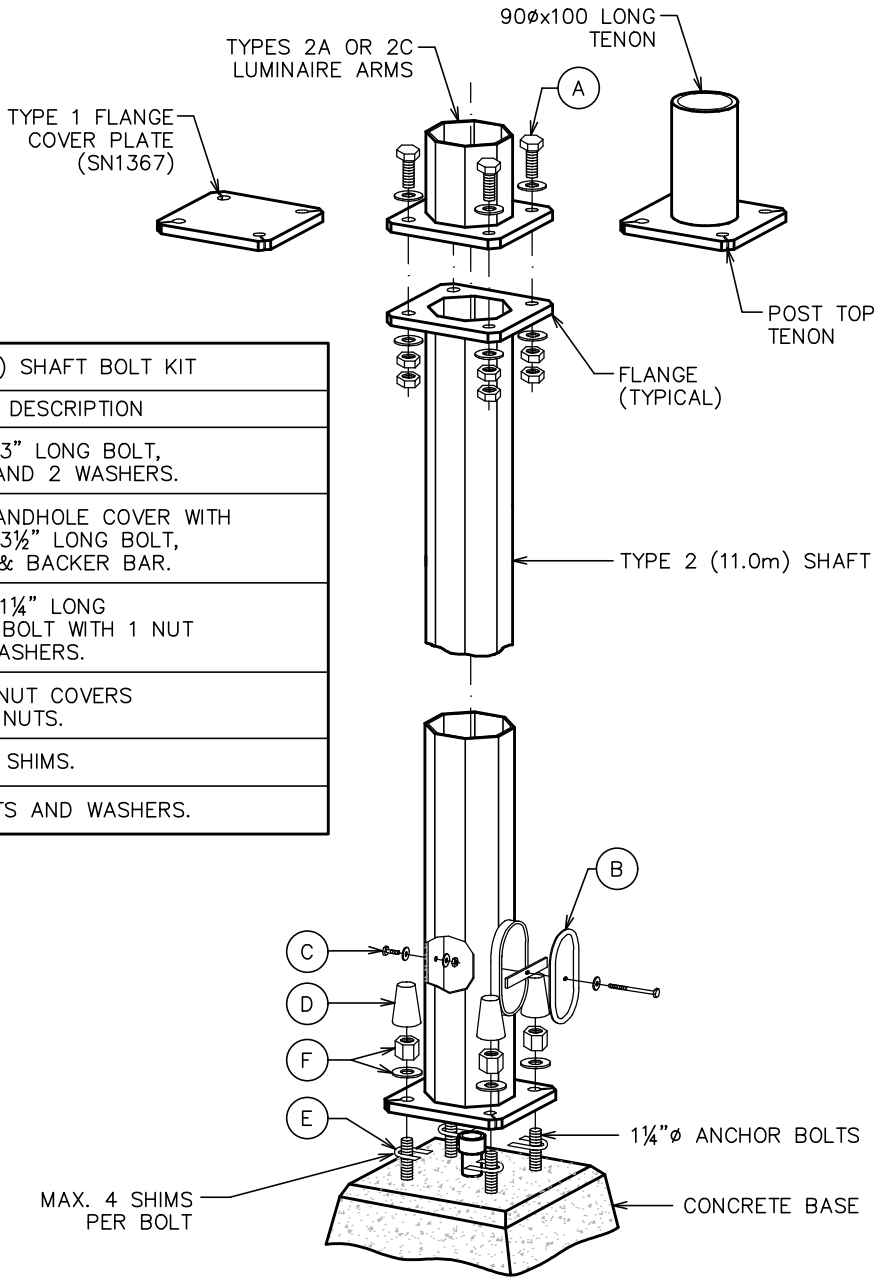
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD-R.E.3

TYPE 2 (11.0m) SHAFT BOLT KIT		
ITEM	QUANTITY	DESCRIPTION
A	4	5/8"ø x 3" LONG BOLT, 2 NUTS AND 2 WASHERS.
B	1	SMALL HANDHOLE COVER WITH 3/8"ø x 3½" LONG BOLT, WASHER & BACKER BAR.
C	1	3/8"ø x 1¼" LONG BONDING BOLT WITH 1 NUT AND 2 WASHERS.
D	4	PLASTIC NUT COVERS FOR 1¼" NUTS.
E	4	LEVELING SHIMS.
F	4	1¼"ø NUTS AND WASHERS.



POLE ASSEMBLY DETAIL

			All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: TYPE 2 SHAFT POLE ASSEMBLY FOR 13.5m DAVIT POLE
	Revision Date	Approved	

CITY OF SURREY the future lives here.

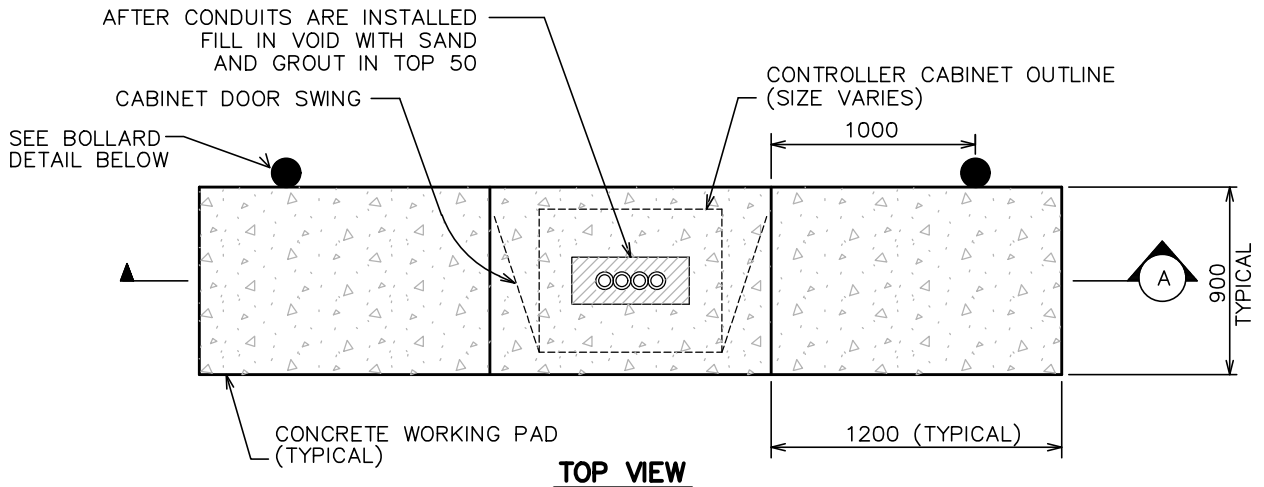
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

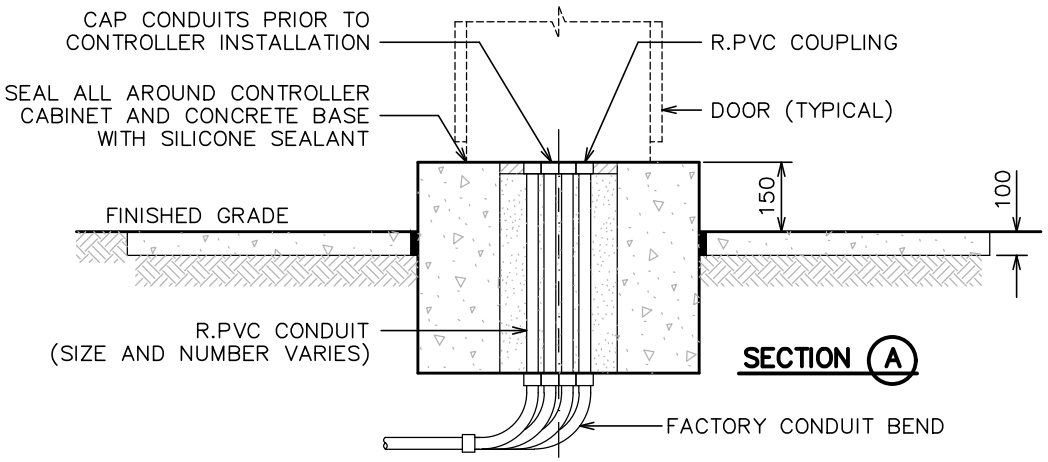
2024 G.M. Engineering

DRAWING NUMBER

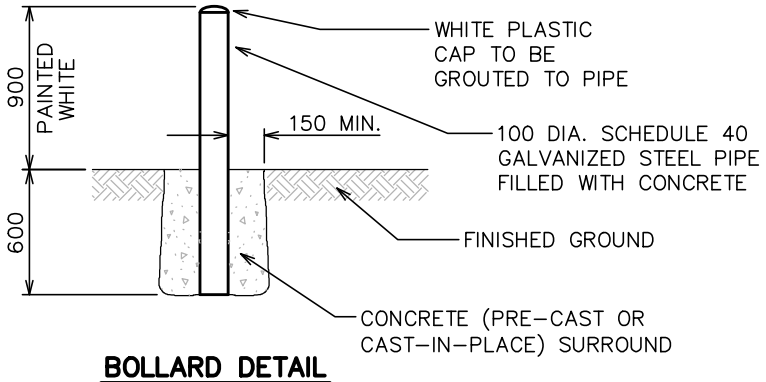
SSD-R.E.4



TOP VIEW



SECTION (A)



BOLLARD DETAIL

			All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: MODEL 332 TRAFFIC SIGNAL CABINET INSTALLATION
	Revision Date	Approved	

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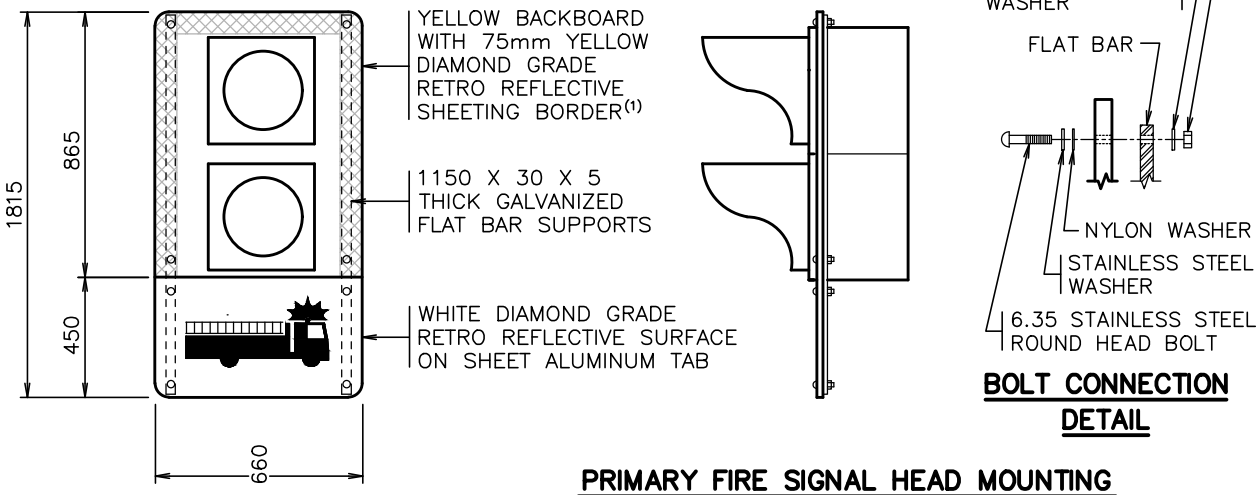
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

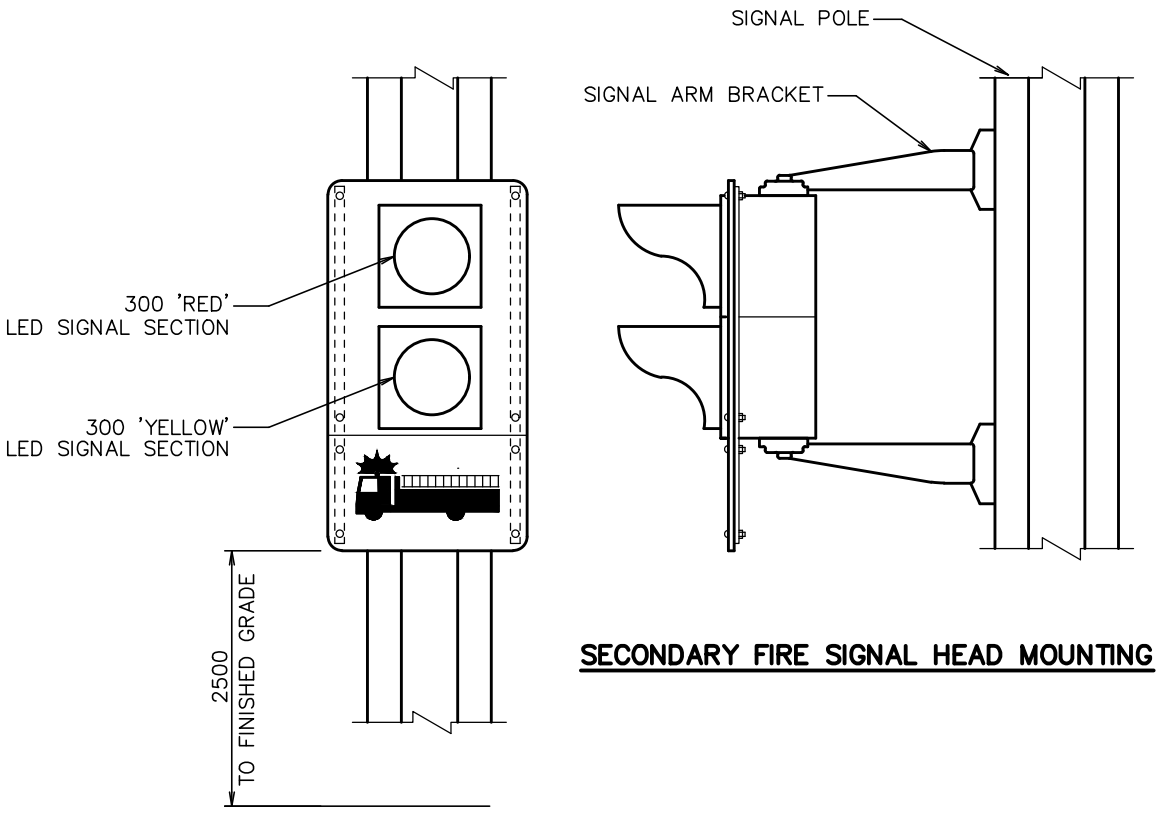
DRAWING NUMBER
SSD-R.E.5



BOLT CONNECTION DETAIL

PRIMARY FIRE SIGNAL HEAD MOUNTING

SUPPLEMENTARY TAB SIGN
(ID–22SR OR ID–22SL) AS PER MUTCD



SECONDARY FIRE SIGNAL HEAD MOUNTING

NOTE: (1) SCOTCH LITE DIAMOND GRADE VIP REFLECTIVE, SERIES 3990

			All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: FIRE SIGNAL SIGNS
	Revision Date	Approved	

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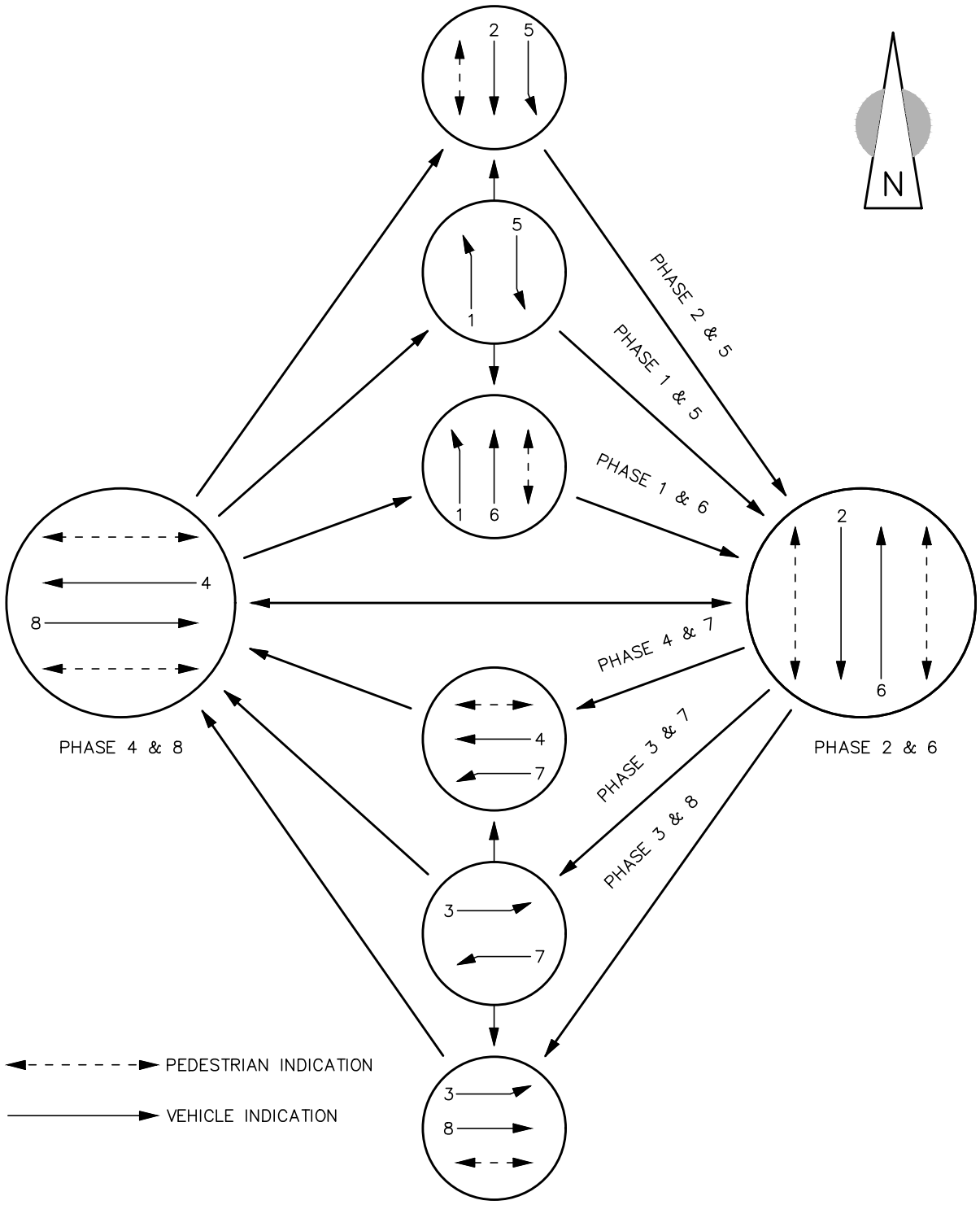
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD–R.E.6



			All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: **PHASING DIAGRAM FOR 8-PHASE CONTROLLER**
	Revision Date	Approved	

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SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD-R.E.7

UPPER	1	Phase 5 E.CT	
	2	CENTER LANE NORTH BOUND PHASE 6 E.CT TB3 (7,8)	LEFT TURN LANE NORTH BOUND PHASE 6 E.CT TB3 (5,6)
	3	PHASE 6 E	CURB LANE NORTH BOUND PHASE 6 E.CT TB3 (9,10)
	4	PHASE 6 CALL	
	5	PHASE 7 E.CT	
	6	CENTER LANE EAST BOUND PHASE 8 E.CT TB5 (11,12)	LEFT TURN LANE EAST BOUND PHASE 8 E.CT TB5 (9,10)
	7	PHASE 8 E	CURB LANE EAST BOUND PHASE 8 E.CT TB7 (1,2)
	8	PHASE 8 CALL	
	9	WB LEFT TURN PHASE 7 E.CT TB7 (11,12)	SB LEFT TURN PHASE 5 E.CT TB7 (9,10)
	10	NOT ASSIGNED	NOT ASSIGNED
	11	NOT ASSIGNED	NOT ASSIGNED
	12	EV C	EV A
	13	EV D	EV B
LOWER	14	RR 2	RR 1

INPUT FILE 'J' FRONT VIEW

LOWER	1	Phase 1 E.CT	
	2	CENTER LANE SOUTH BOUND PHASE 2 E.CT TB2 (7,8)	LEFT TURN LANE SOUTH BOUND PHASE 2 E.CT TB2 (5,6)
	3	PHASE 2 E	CURB LANE SOUTH BOUND PHASE 2 E.CT TB2 (9,10)
	4	PHASE 2 CALL	
	5	PHASE 3 E.CT	
	6	CENTER LANE WEST BOUND PHASE 4 E.CT TB4 (11,12)	LEFT TURN LANE WEST BOUND PHASE 4 E.CT TB4 (9,10)
	7	PHASE 4 E	CURB LANE WEST BOUND PHASE 4 E.CT TB6 (1,2)
	8	PHASE 4 CALL	
	9	EB LEFT TURN PHASE 3 E.CT TB6 (11,12)	NB LEFT TURN PHASE 1 E.CT TB6 (9,10)
	10	NOT ASSIGNED	NOT ASSIGNED
	11	NOT ASSIGNED	NOT ASSIGNED
	12	PED PHASE 4 TB8 (5,6)	PED PHASE 2 TB8 (4,6)
	13	PED PHASE 8 TB9 (8,9)	PED PHASE 6 TB9 (7,9)
UPPER	14	STOP TIME	FLASH SENSOR

INPUT FILE 'I' FRONT VIEW

LEGEND

EV	EMERGENCY VEHICHLE
CT	COUNT
E	EXTENSION
PED	PEDESTRIAN PUSH BUTTON
RR	RAILROAD PRE-EMPTION

THIS SIDE UP →

1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

All Dimensions Shown In Millimetres,
Unless Otherwise Noted

Title **332 CONTROLLER CABINET TYPICAL LOOP, PRE-EMPTION AND PEDESTRIAN ASSIGNMENTS**

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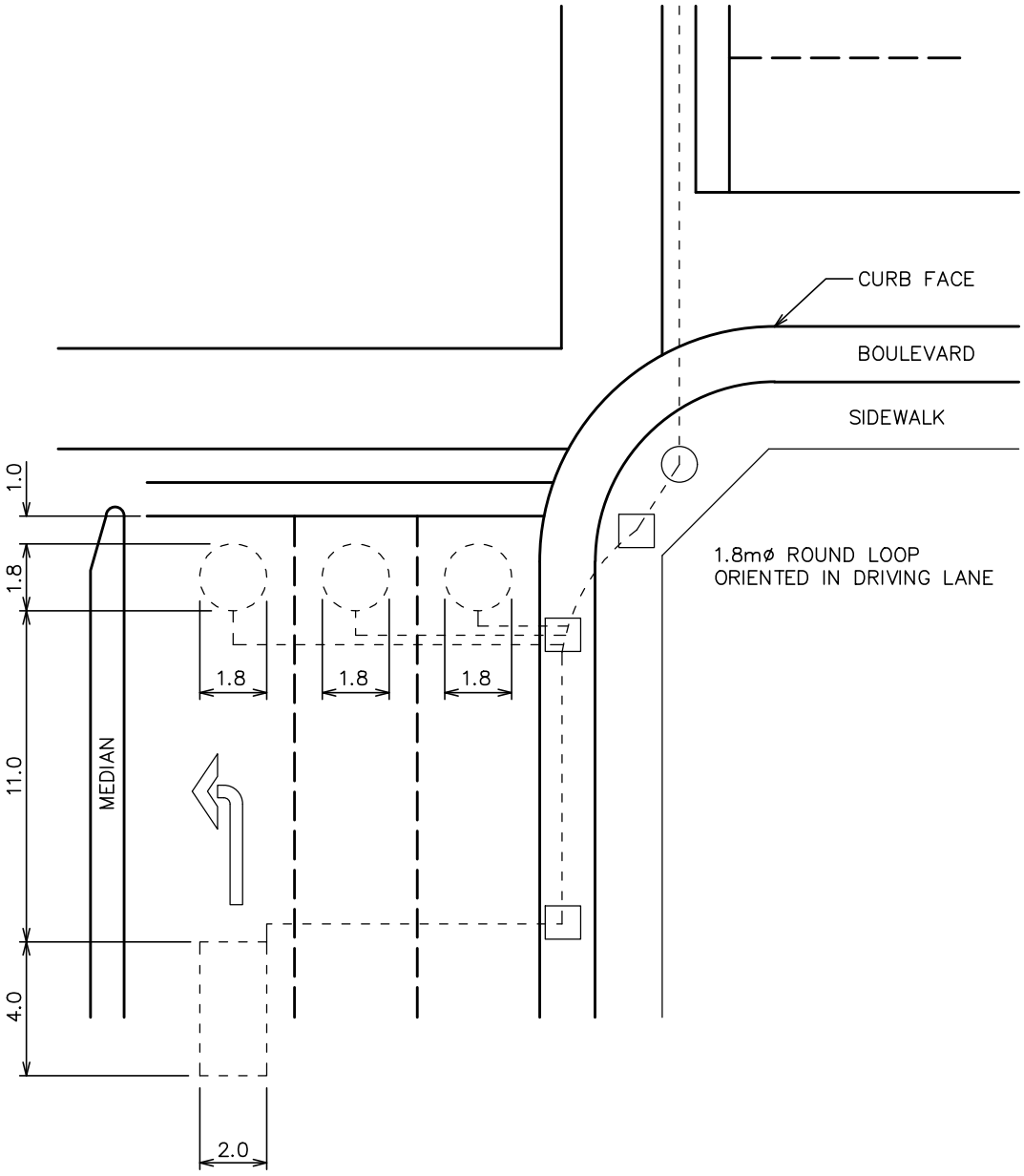
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD-R.E.8



NOTES: (1) LOOPS SHALL BE LOCATED IN THE CENTRE OF EACH LANE UNLESS OTHERWISE NOTED ON CONTRACT DRAWINGS.

			All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: TYPICAL DETECTOR LOOP LOCATIONS
	Revision Date	Approved	

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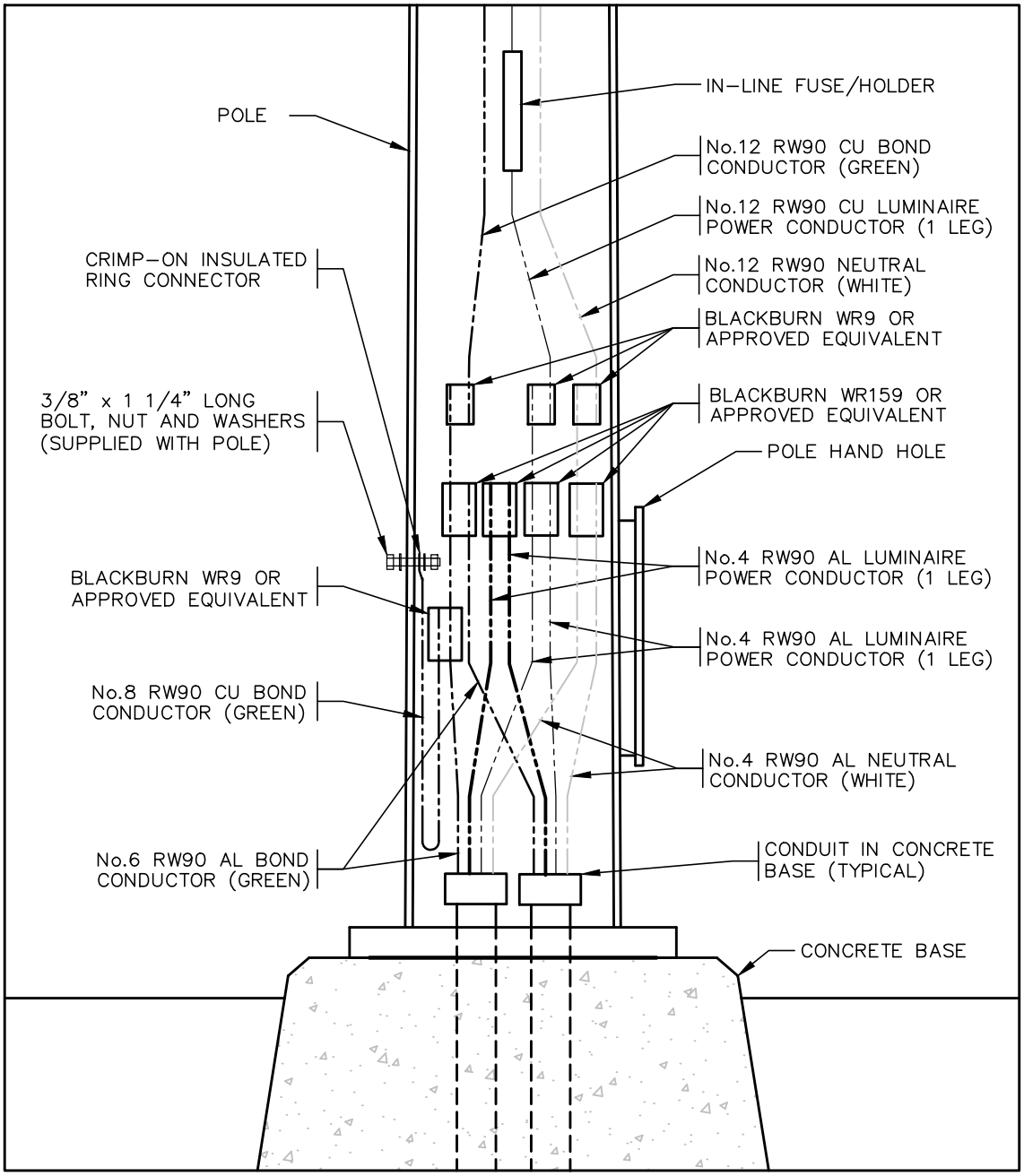
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER

SSD-R.E.9



POLE ELEVATION/CROSS-SECTION

N.T.S.

LEGEND

- BOND CONDUCTOR
- POWER CONDUCTOR (1 LEG)
- POWER CONDUCTOR (1 LEG)
- NEUTRAL CONDUCTOR

1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

All Dimensions Shown In Metres, Unless Otherwise Noted

Title: **LUMINAIRE WIRING IN POLE HAND HOLE**

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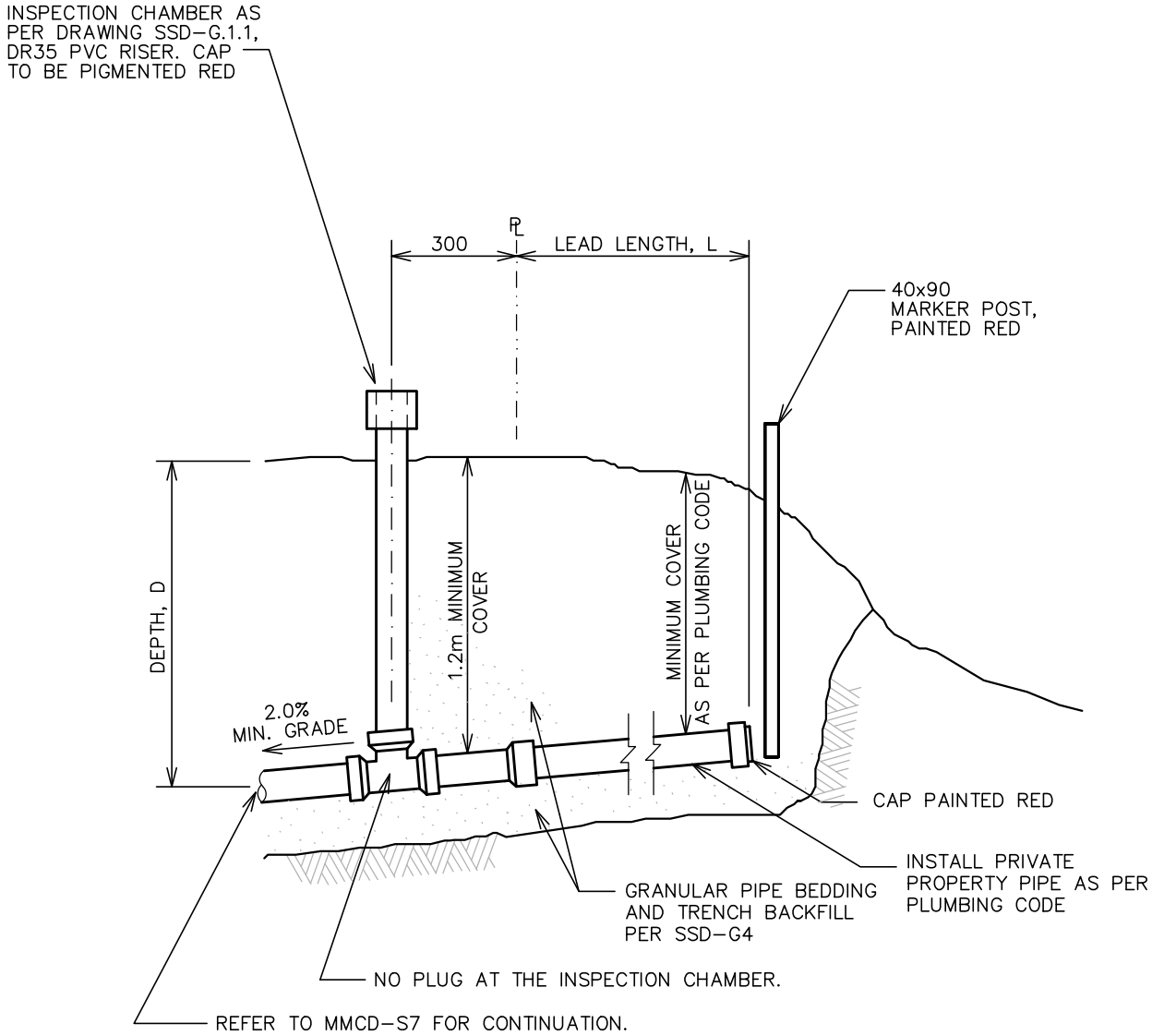
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER

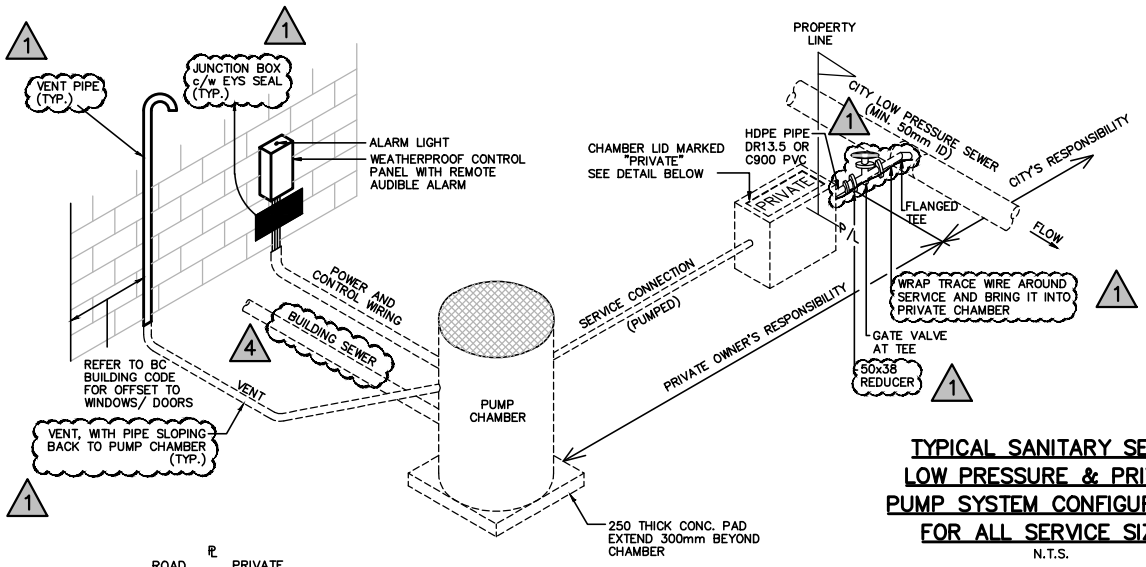
SSD-R.E.10



NOTES:

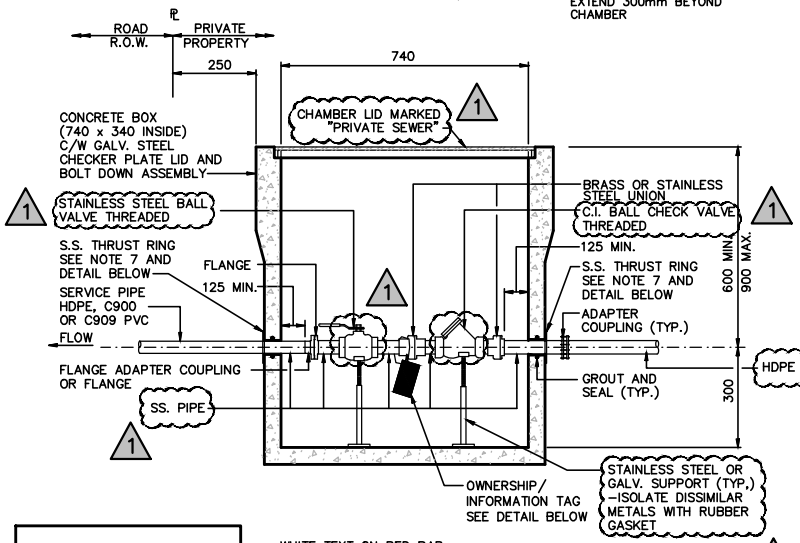
1. LEAD LENGTH, L = DEPTH, D OR 2.0m WHICHEVER IS GREATER.
2. SERVICE LEADS TO BE 100mm DIA. DR28 (WHITE) FOR SINGLE FAMILY RESIDENTIAL AND 150mm FOR COMMERCIAL/INDUSTRIAL OR AS SPECIFIED ON CONTRACT DRAWINGS.
3. FACTORY INSTALLED PLUG SHOULD NOT BE INSTALLED AT THE INSPECTION CHAMBER
4. REFER TO DESIGN CRITERIA MANUAL, SECTION 4.0 4.3.4.1, FOR TRIGGER WHEN LARGE SERVICE CONNECTIONS REQUIRE A MANHOLE AT PROPERTY LINE OR MAIN.

			All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: SANITARY SEWER SERVICE LEAD AT PROPERTY
	Revision Date	Approved	
CITY OF SURREY the future lives here.	SUPPLEMENTARY STANDARD DRAWINGS	Approved By : 2024 G.M. Engineering	DRAWING NUMBER SSD–S.1



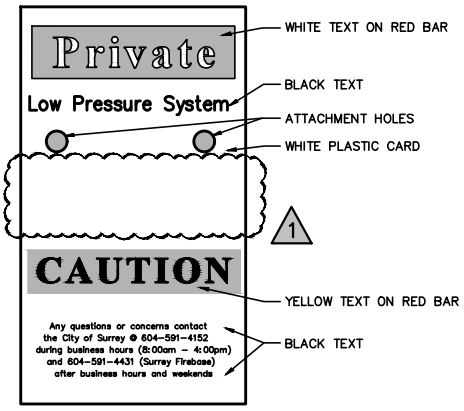
TYPICAL SANITARY SEWER LOW PRESSURE & PRIVATE PUMP SYSTEM CONFIGURATION FOR ALL SERVICE SIZES

N.T.S.



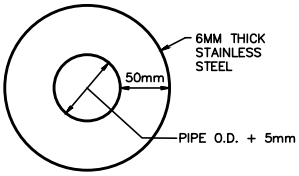
PROPERTY LINE CHAMBER DETAIL FOR UP TO 75mm LOW PRESSURE SERVICE CONNECTION

N.T.S.



OWNERSHIP/INFORMATION TAG DETAIL

N.T.S.



THRUST RING DETAIL

N.T.S.

NOTES:

(1) ALL WORK SHALL BE DESIGNED BY AN APPROPRIATELY QUALIFIED PROFESSIONAL ENGINEER.

(2) ALL WORKS ON PRIVATE PROPERTY ARE SUBJECT TO BUILDING AND PLUMBING CODES.

(3) STAINLESS STEEL TO BE GRADE 304 OR 316.

(4) THRUST RING SLIPPED OVER PIPE AND WELDED IN PLACE.

(5) ALL PIPE SIZES REFER TO INSIDE DIAMETER (I.D.).

(6) RESTRICTIVE COVENANT SHALL BE REQUIRED FOR ALL PUMPED CONNECTIONS.

		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	DAVID MATSUBARA
	Revision Date	Approved

Title: **PRIVATE PUMP SYSTEM CONFIGURATION UP TO 75mm**

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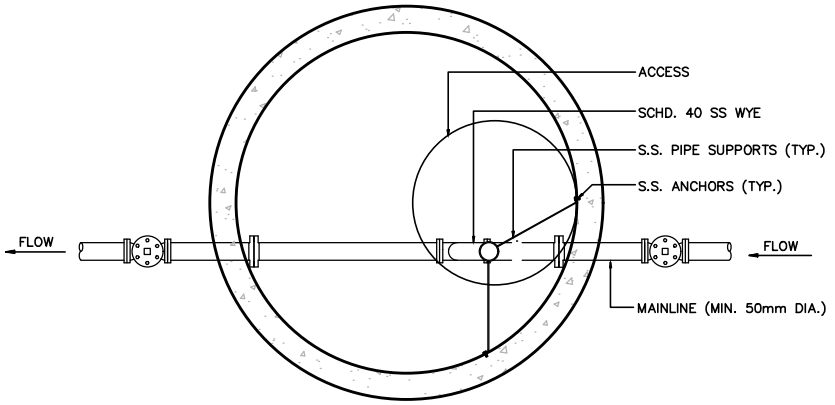
SUPPLEMENTARY STANDARD DRAWINGS

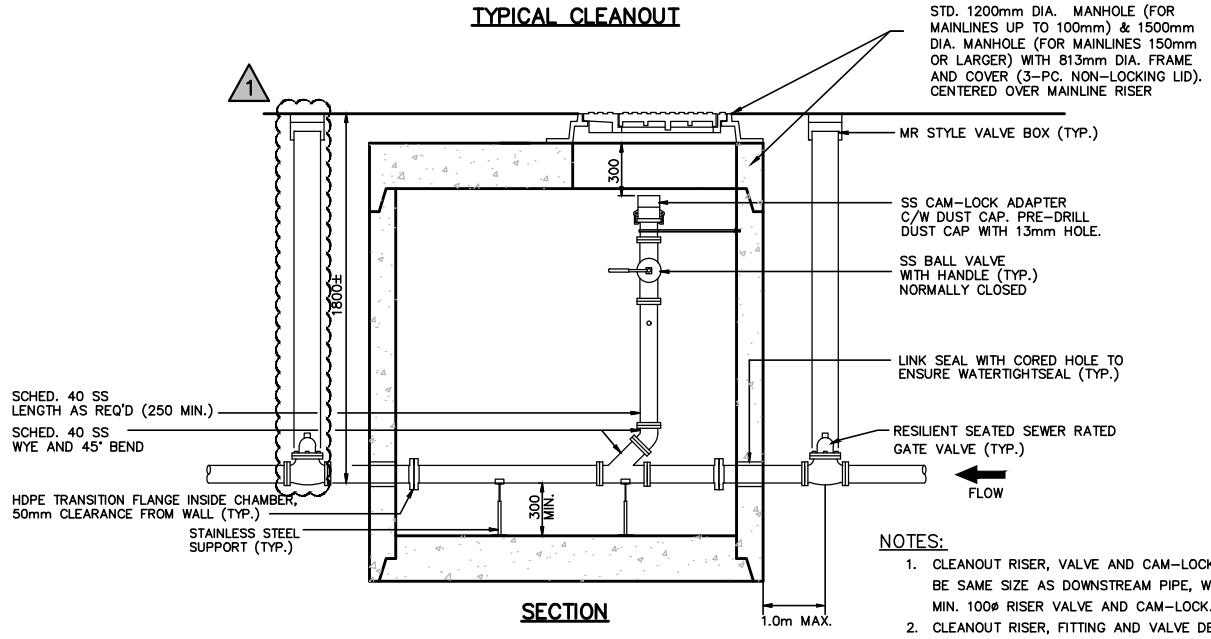
Approved By :

2024 G.M. Engineering

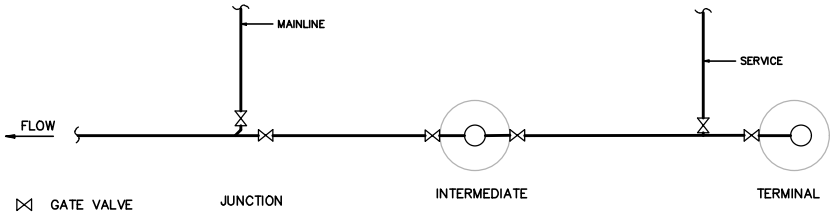
DRAWING NUMBER: SSD-S.2



TYPICAL CLEANOUT



SECTION

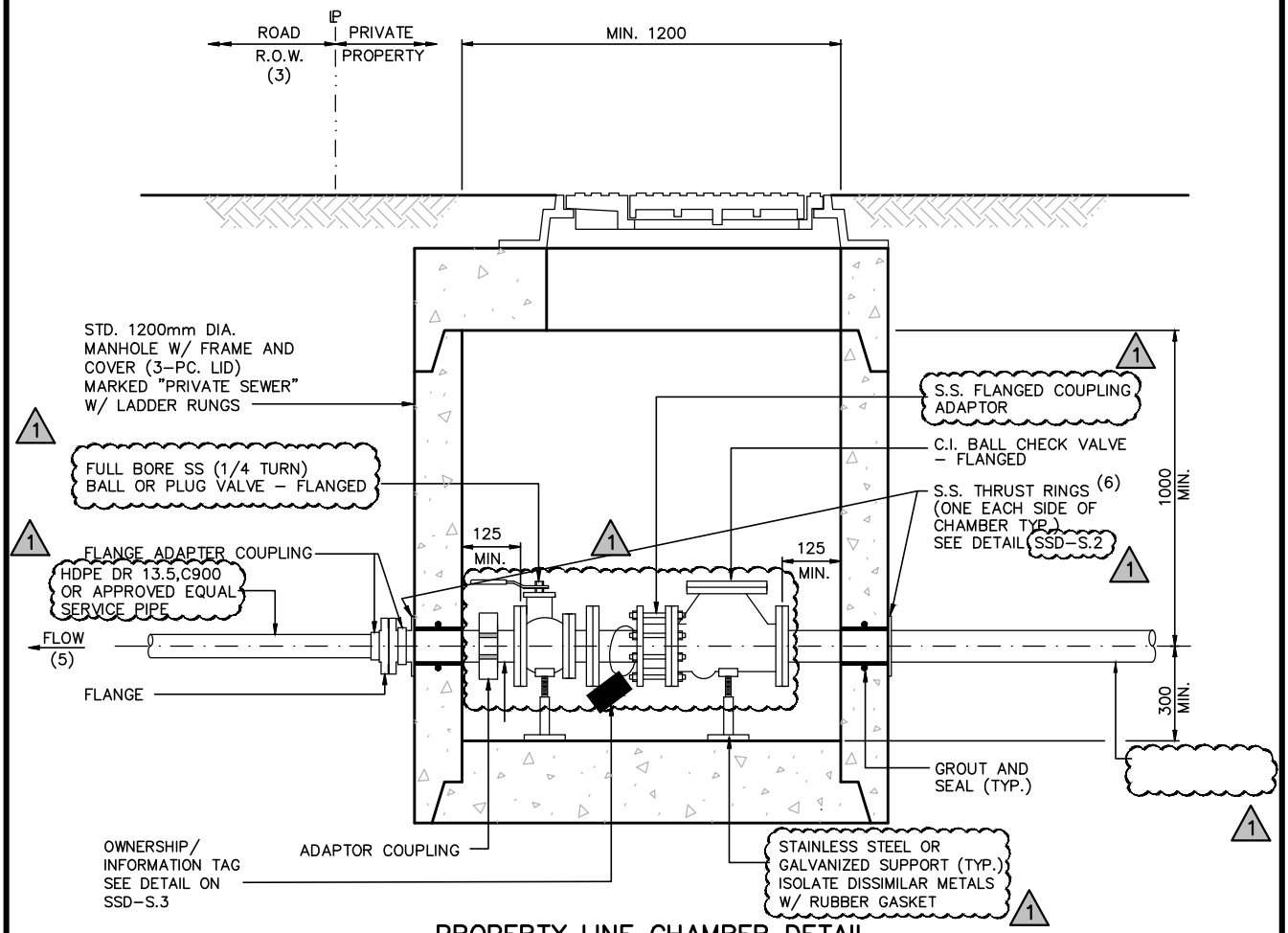


CLEANOUT TYPES

NOTES:

1. CLEANOUT RISER, VALVE AND CAM-LOCK TO BE SAME SIZE AS DOWNSTREAM PIPE, WITH MIN. 100ø RISER VALVE AND CAM-LOCK.
2. CLEANOUT RISER, FITTING AND VALVE DETAILS COMMON FOR ALL CLEANOUT TYPES.
3. ALL FITTINGS TO BE FLANGED. VICTAULIC COUPLINGS PERMITTED ON MAINLINE ONLY.
4. SEE MMCD STANDARD MANHOLE DRAWING FOR RUNGS AND OTHER DETAILS. SEAL RISER JOINTS TO ENSURE WATERTIGHT.
5. DESIGN ENGINEER SHALL ENSURE ALL COMPONENTS FIT INSIDE MH AND IN COMPLIANCE WITH WCB REQUIREMENTS.
6. STAINLESS STEEL TO BE GRADE 304 OR 316

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved
Title	CLEANOUT MANHOLE FOR LOW PRESSURE SEWERS	
CITY OF SURREY the future lives here.	SUPPLEMENTARY STANDARD DRAWINGS	Approved By : 2023 G.M. Engineering
DRAWING NUMBER	SSD-S.3	1



PROPERTY LINE CHAMBER DETAIL FOR 100mm AND LARGER

N.T.S.

NOTES:

(1) ALL WORKS ON PRIVATE PROPERTY ARE SUBJECT TO BUILDING AND PLUMBING CODES.

(2) PROPERTY OWNER IS RESPONSIBLE FOR MAINTENANCE OF ALL SEWER CONNECTION COMPONENTS INCLUDING PIPE BETWEEN PROPERTY LINE AND THE CITY SEWER.

(3) THRUST RING SLIPPED OVER PIPE AND WELDED IN PLACE.

(4) RESTRICTIVE COVENANT SHALL BE REQUIRED FOR ALL PUMPED CONNECTIONS.

(5) VALVE REQUIRED ON SERVICE CONNECTION AT MAINLINE TEE/WYE.

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	DAVID MATSUBARA
	Revision Date	Approved

Title: **TYPICAL LOW PRESSURE SEWER CONNECTION**
PROPERTY LINE CHAMBER, 100mm AND LARGER SERVICE

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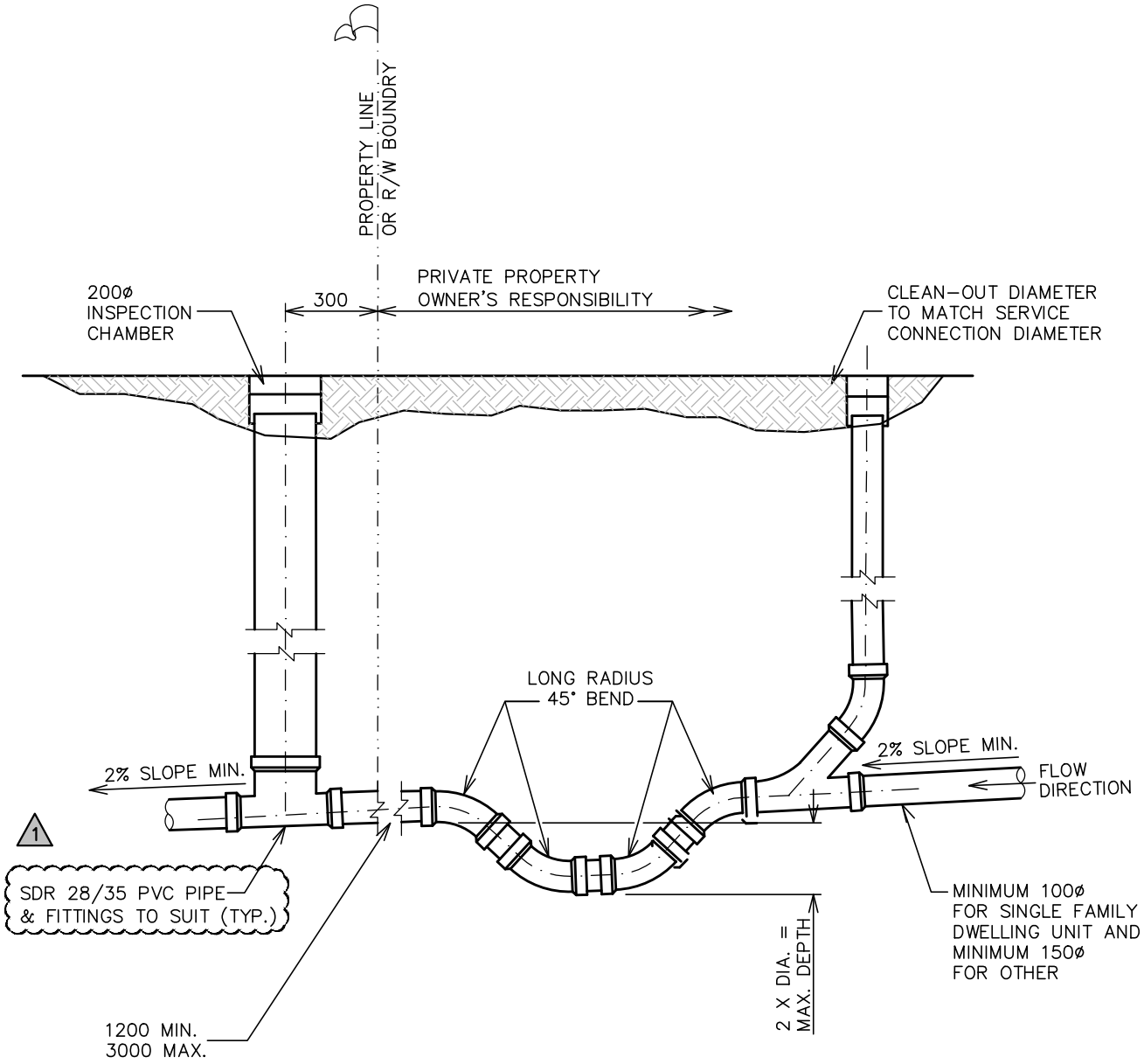
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD-S.4

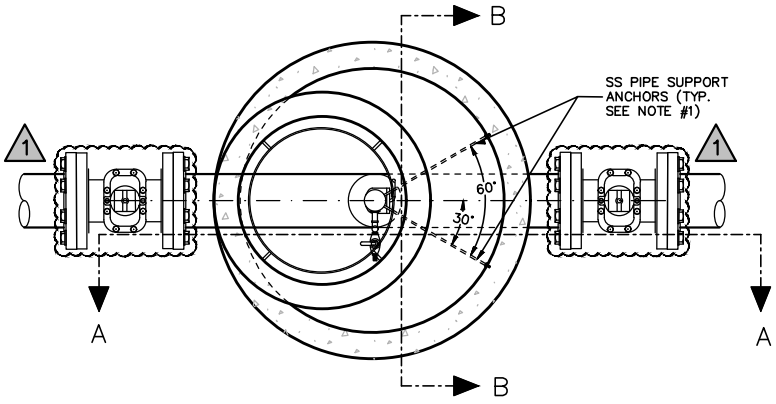
1



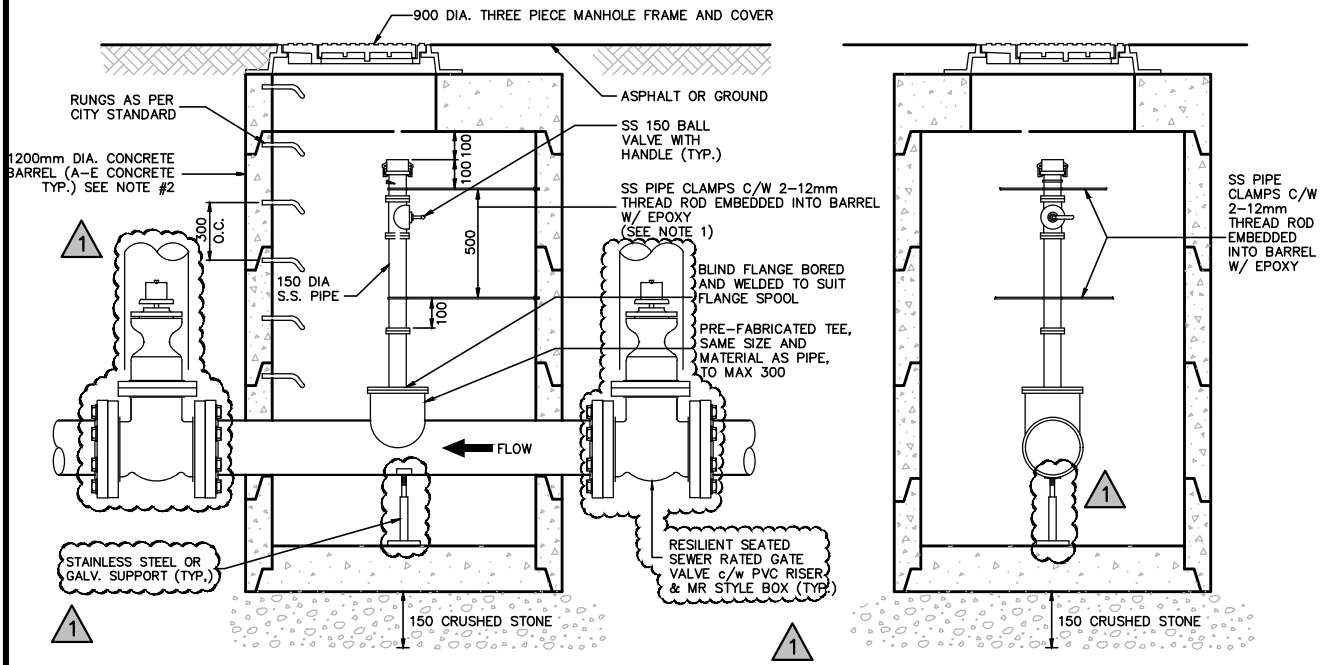
SERVICE CONNECTION P-TRAP ON PRIVATE PROPERTY
(GUIDELINE ONLY – SLOPES LESS THAN 10%)

NOTES: 1) P-TRAP OFFSET FROM PL TO BE 1/3 HOUSE SET BACK DISTANCE, AND MIN 1200mm

			All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: SERVICE CONNECTION P-TRAP PRIVATE PROPERTY
	Revision Date	Approved	
CITY OF SURREY the future lives here.	SUPPLEMENTARY STANDARD DRAWINGS		Approved By : 2024 G.M. Engineering
			DRAWING NUMBER SSD-S.5 1



PLAN VIEW



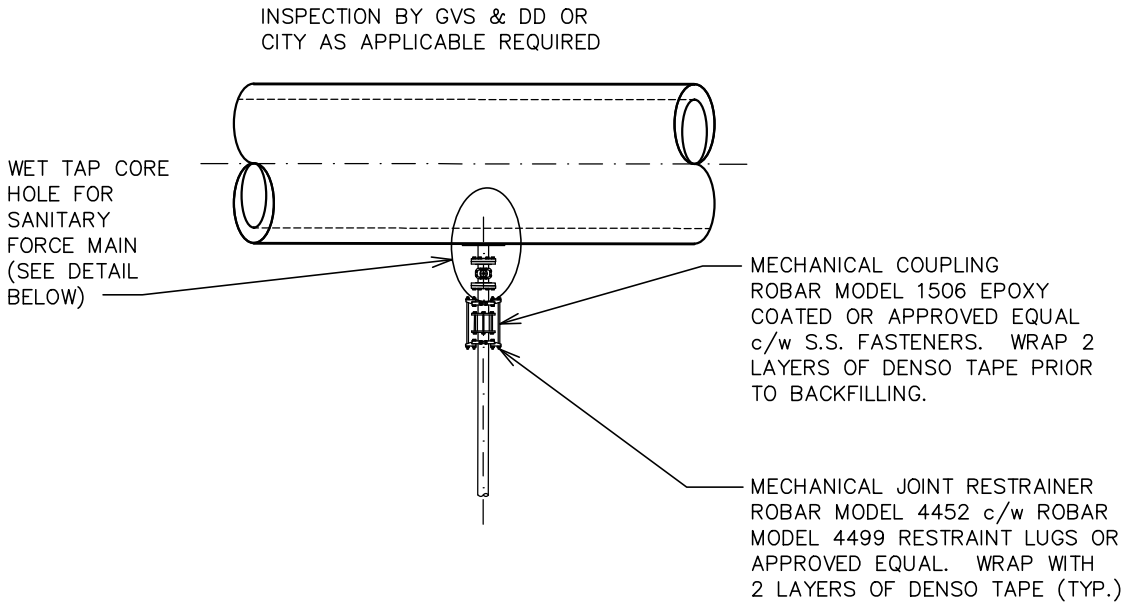
SECTION A-A

SECTION B-B

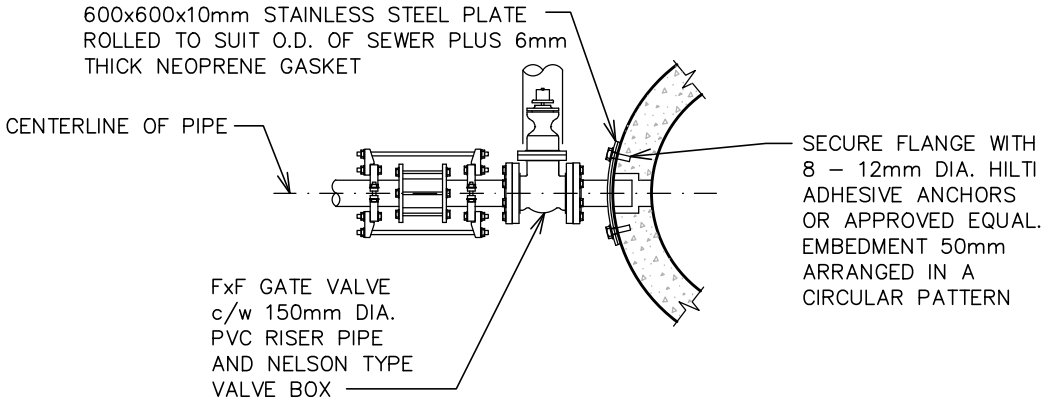
NOTES:

1. WHEN PLACING PIPE SUPPORT, CONSIDER MAINTENANCE ACCESS AND ADJUST LOCATIONS ACCORDINGLY.
2. ALL JOINTS TO BE SEALED TO MAKE MANHOLE WATER-TIGHT.
3. DESIGN ENGINEER TO ENSURE COMPONENTS FIT INSIDE THE MANHOLE DEPTH.

		All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved
Title	MANHOLE FOR FORCEMAINS AND PRESSURE SEWERS	
CITY OF SURREY the future lives here.	SUPPLEMENTARY STANDARD DRAWINGS	Approved By : 2024 G.M. Engineering
DRAWING NUMBER	SSD-S.6	

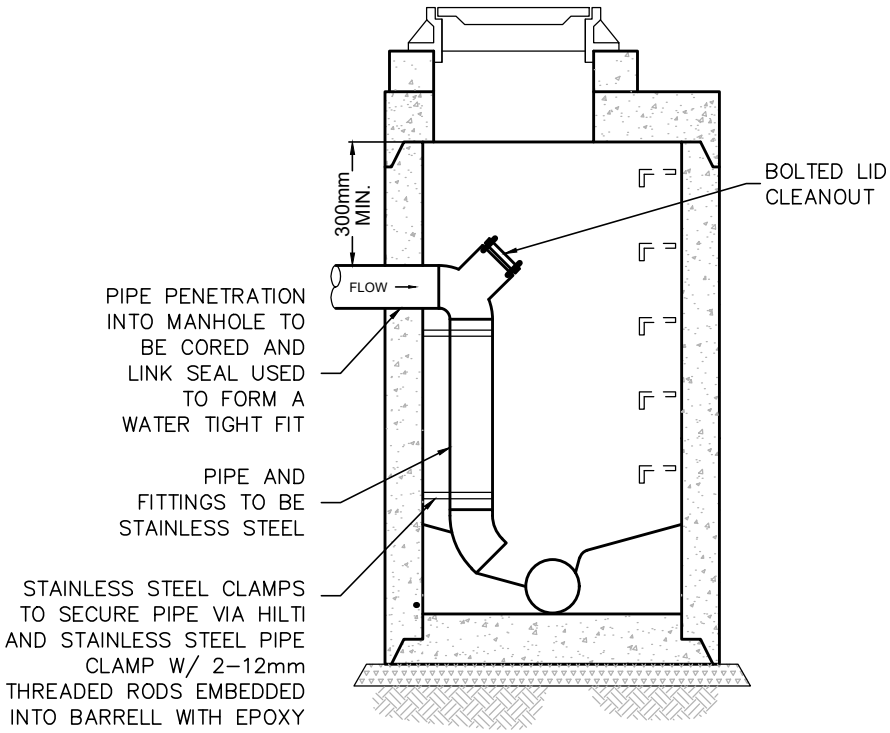


DETAIL AT INTERCEPTOR OR TRUNK



WET TAP CONNECTION DETAIL – SECTION

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved
Title	TYPICAL FORCEMAIN CONNECTION WET TAP CORING	
CITY OF SURREY the future lives here.	SUPPLEMENTARY STANDARD DRAWINGS	Approved By : 2024 G.M. Engineering
DRAWING NUMBER	SSD–S.7	1



NOTE:

1. STAINLESS STEEL GRADE 304 OR 316.

		All Dimensions Shown In Metres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **LOW PRESSURE SEWER INSIDE DROP MANHOLE**

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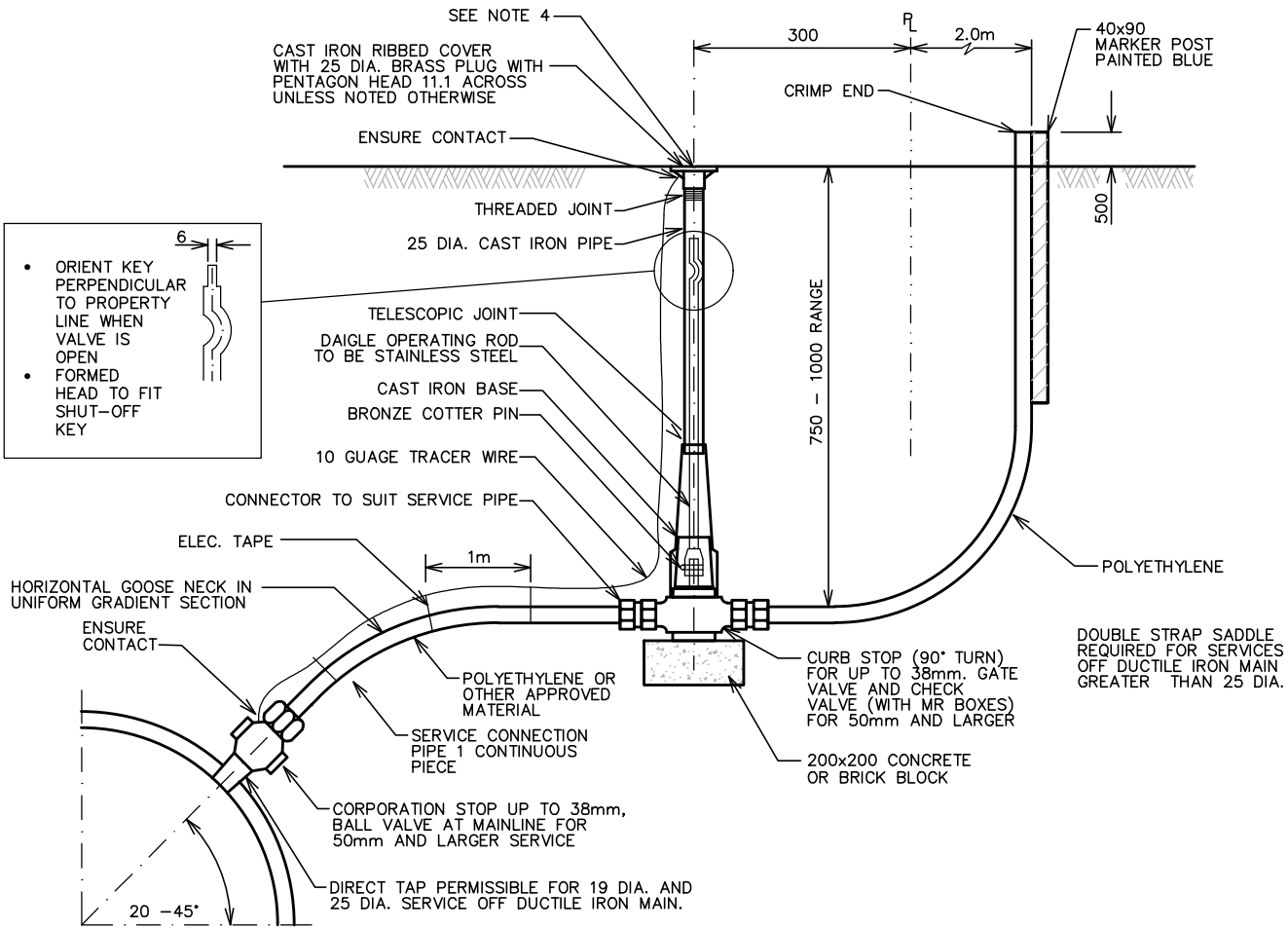
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD–S.8



NOTES:

1. FOR ALL METER AND METER CHAMBER REQUIREMENTS, REFER TO "WATER METER AND SERVICE CONNECTION DESIGN CRITERIA MANUAL".
2. CONNECTIONS GREATER THAN 50 SHALL BE RESTRAINED TO THE CITY WATER MAIN.
3. ALL FITTINGS OVER 50 DIAMETER SHALL HAVE FLANGE OR HUB JOINTS.
4. WHEN CURB STOP INSTALLED IN DRIVEWAY PLACE IN CHAMBER. COVER MARKED 'WATER' SEE MMCD DRAWING S9 FOR TYPICAL DETAIL.
5. OPERATING ROD DIAMETERS – 14mm FOR 25mm OR SMALLER CURB STOPS
   – 19mm FOR 32mm TO 38mm CURB STOPS
6. TRACER WIRE SHALL BE ATTACHED TO CORP AND CURB STOPS WITH ANODE NUTS AND SECURED TO SERVICE PIPE @ 1m INCREMENTS USING ELECTRICAL TAPE, DO NOT COIL AROUND SERVICE PIPE.

		All Dimensions Shown In Millimeters, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **SINGLE FAMILY WATER SERVICE CONNECTION 19mm TO 50mm ONLY**

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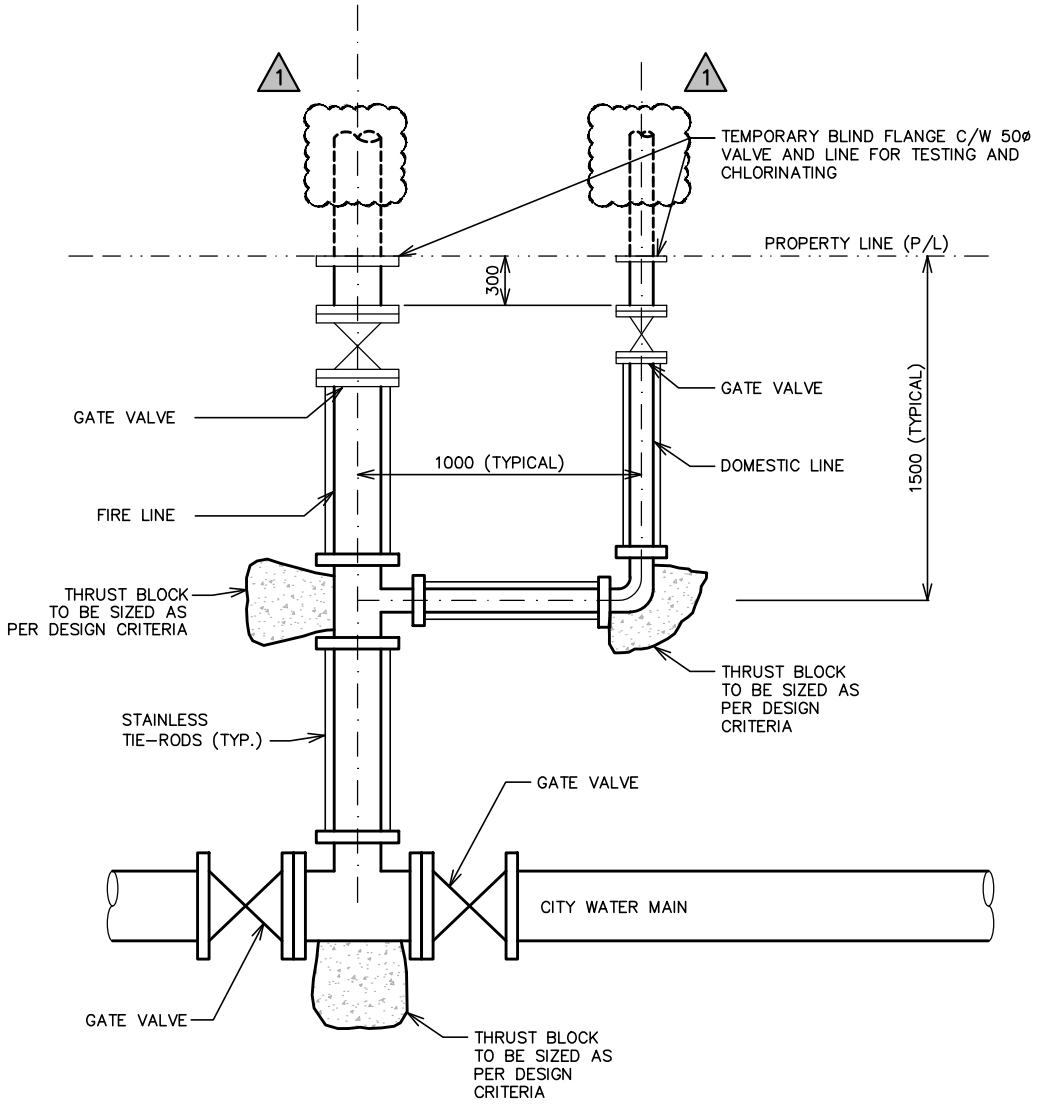
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD–W.1

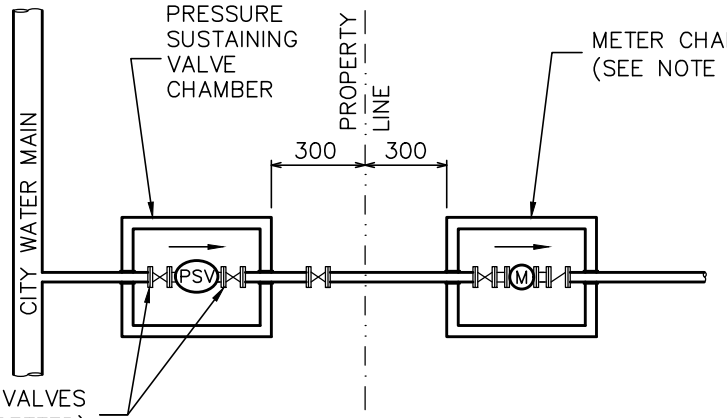


FIRELINE/DOMESTIC SERVICE CONNECTION

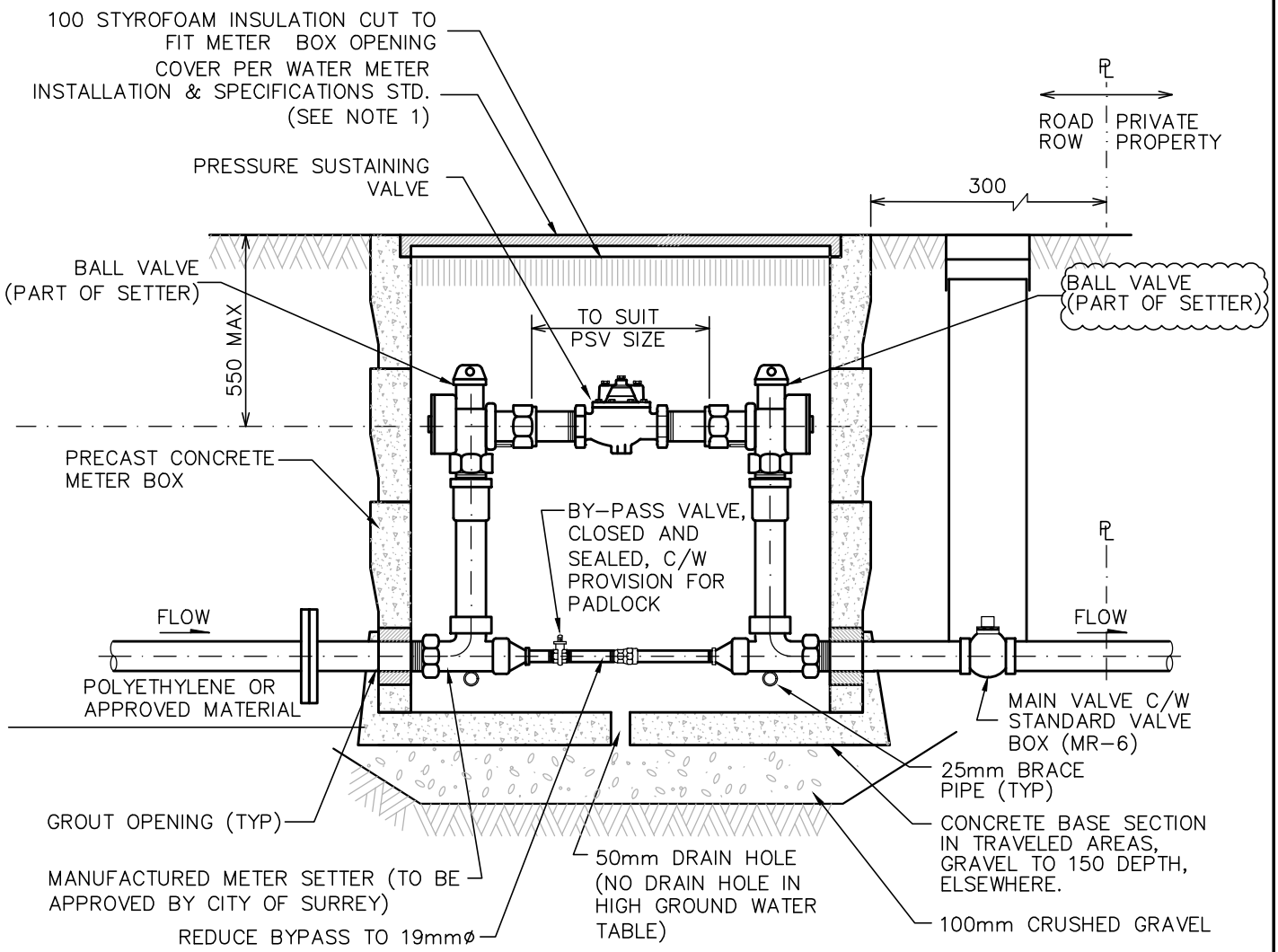
NOTES:

1. ALL CONNECTIONS TO BE CONTINUOUSLY RESTRAINED TO THE CITY WATER MAIN.

			All Dimensions Shown In Millimeters, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: MULTI-FAMILY/INDUSTRIAL COMMERCIAL WATER SERVICE CONNECTION
	Revision Date	Approved	
CITY OF SURREY the future lives here.	SUPPLEMENTARY STANDARD DRAWINGS		Approved By : 2024 G.M. Engineering
			DRAWING NUMBER SSD-W.2



LOCATION PLAN



NOTES: (1) THIS DRAWING SHOULD BE REVIEWED IN CONJUNCTION WITH THE DOCUMENT "WATER METER AND SERVICE CONNECTION DESIGN CRITERIA MANUAL".

		All Dimensions Shown In Millimeters, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **50mm PRESSURE SUSTAINING VALVE & CHAMBER INSTALLATION**

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SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER
SSD-W.3

NOTES:

1. TEMPORARY BLOW-OFFS PIPE MATERIAL TO BE GALVANIZED INSTEAD OF BRASS.
2. 50 DIA. GATE VALVES TO BE AVK OR MUELLER.
3. THRUST BLOCK AND TIE-RODS NOT REQUIRED WHERE THE CAP AND PIPE ARE MECHANICALLY RESTRAINED. THRUST BLOCK MAY BE INSTALLED UPON APPROVAL BY CITY WHERE MECHANICAL RESTRAINT IS NOT FEASIBLE.
4. DOUBLE NUT TIE RODS AT REVERSE ANCHOR PLATES & CAP.
5. THRUST BLOCKS OF 20MPa CONCRETE TO BE PLACED AGAINST UNDISTURBED GROUND.

		All Dimensions Shown In Millimeters, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **BLOW-OFF CHAMBER**

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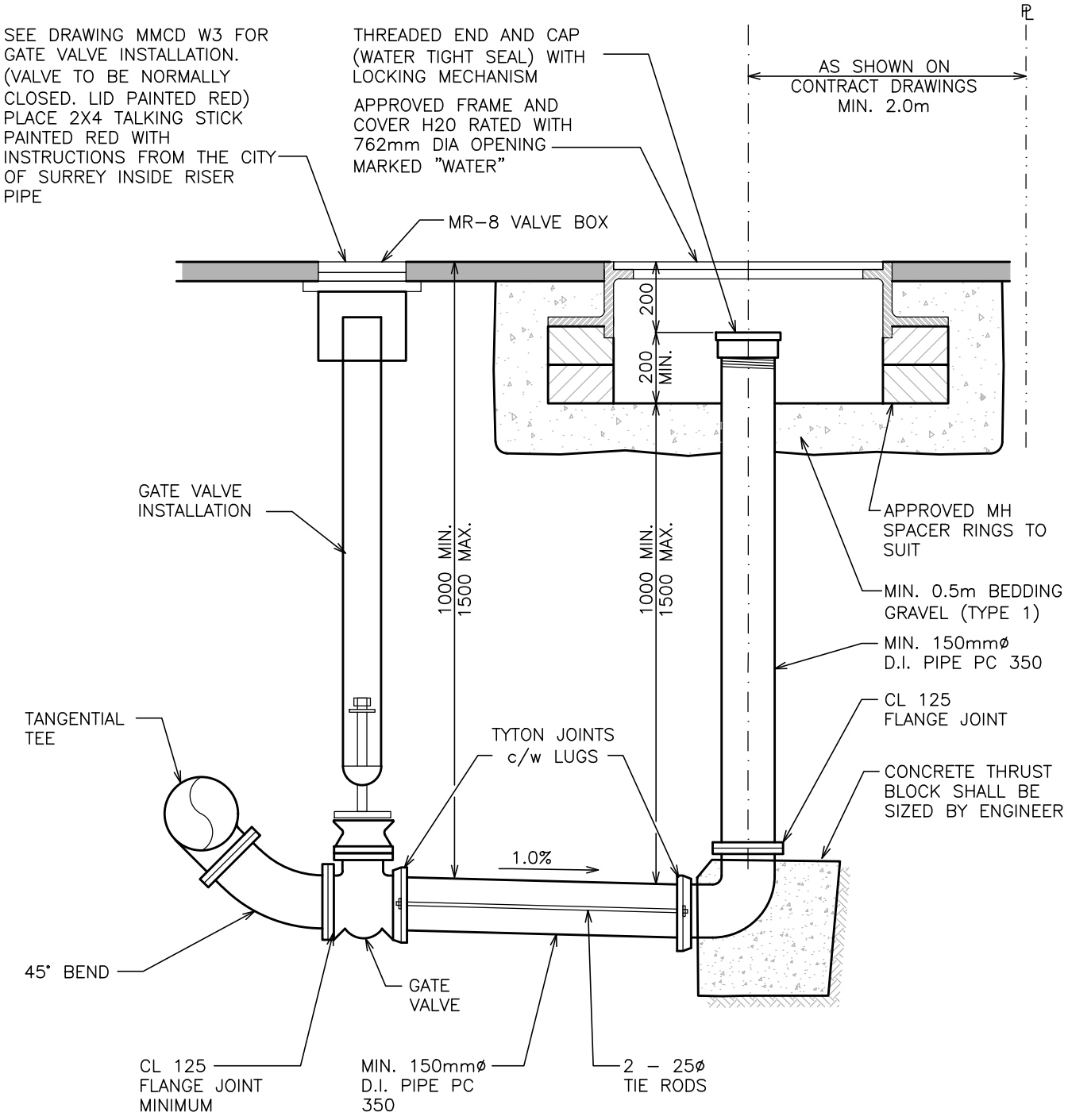
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2023 G.M. Engineering

DRAWING NUMBER

SSD-W.4



NOTES: (1) COMBINATION AIR VALVE & CHAMBER IS REQUIRED AT THE HIGH END OF THE ISOLATED SECTION OF WATERMAIN TO BE BLOWN DOWN.

		All Dimensions Shown In Millimeters, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN
	Revision Date	Approved

Title: **BLOW DOWN CHAMBER**

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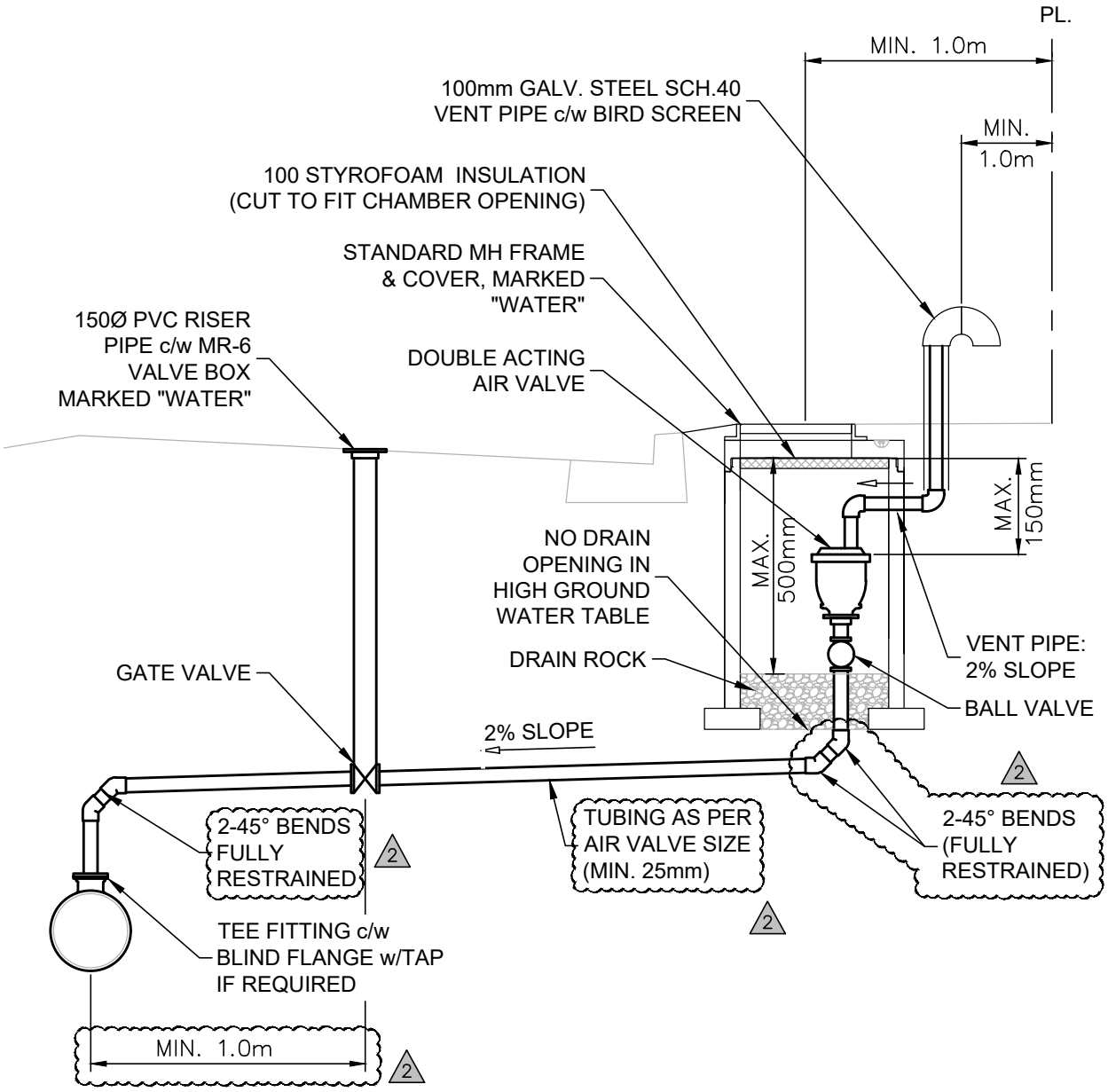
SUPPLEMENTARY STANDARD DRAWINGS

Approved By :

2024 G.M. Engineering

DRAWING NUMBER

SSD-W.5



NOTES:

1. LARGER SIZE AIR VALVE CHAMBER IS TO BE DESIGNED BY THE CONSULTANT TO ACCOMMODATE DOUBLE BLOCK AND BLEED REQUIREMENTS.
2. REFER TO CONTRACT DRAWINGS, SECTION 31 23 01 FOR DETAILED SPECIFICATIONS.
3. VENT LOCATION IS FLEXIBLE TO OPTIMIZE CHAMBER PLACEMENT WITHIN BOULEVARDS.
4. PIPES AND FITTINGS SHALL BE SIZED TO ACCOMMODATE AIR VALVE.

2

5. COPPER OR POLYETHYLENE TUBING TO BE USED FOR AIR VALVES UP TO 75mm IN SIZE.
6. ZINC COATED DUCTILE IRON PIPE TO BE TO BE USED FOR AIR VALVES LARGER THAN 75mm.

			All Dimensions Shown In Millimetres, Unless Otherwise Noted
1	SEPTEMBER 2024	SCOTT NEUMAN	Title: **COMBINATION AIR VALVE**
	Revision Date	Approved	
CITY OF SURREY the future lives here.	SUPPLEMENTARY STANDARD DRAWINGS	Approved By : 2024 G.M. Engineering	DRAWING NUMBER SSD–W.6