memo

The Corporation of the City of North Vancouver
Engineering, Parks & Environment Department

To	Developer, Esplanade Corridor (private developer or City)
From	Suzanne Smith, Planner, Engineering, Parks & Environment
Re	**Esplanade Streetscape Design Standard – Clarification on Lighting**
Date	February 14, 2005

This memo is to provide clarification of key elements of the Esplanade Streetscape Design Standard relating to lighting.

- **Street and Pedestrian Light Combo** 25-HS-L
  - Fixture: SDS-150-MH-120-Bk-PRCSR: 150W, 120V, Metal halide, Black (glossy);
  - Arm: Stainless steel strut rod and clevis set for round pole (black) at 8.812m (to light fixture)
  - Ped fixture: ICS-70-MH-120-5S-Bk-VA1006-Bk: 70W, 120V, Metal halide, Black
  - Ped arm: upsweep arm for round pole, Black at 4.26m.
  - Pole: Large Dorchester, Black, round (16 sided), 8.0m high, ped arm at 4.26m, with *double* Banner arms (clamp on) at 5.5m and 7.0m.
- **Pedestrian Light**
  - Fixture: ICS-70-MH-120-5S-Bk-VA1006-Bk: 70W, 120V, Metal halide, Black
  - Pole: Large Dorchester, Black, round (16 sided), 4.26m high.

General

- **Bird Control devices** are required on all lighting fixtures (not bolted)
- **Poles**
  - Dorchester **base** (see attached #1)
  - No 'removable decorative cap' on pole top (see attached #2)
- **Houseside shields** required for all roadway lights.

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Attach. #1

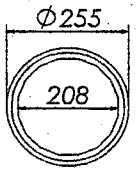
Item #	Qty.	Description	Material
1	1	16 Sided Shaft, 4.76mm Th.	G40.21-300W
2	1	Base Plate	G40.21-300W
3	1	Hand Hole Ring c/w Cover	G40.21-300W
4	1	Grounding Bolt, 3/8" Dia., x 1 1/2" Lg.	G40.21-300W
5	1	Transition Ring	G40.21-300W
6	1	Decorative Base	Al
7	1	Duplex Receptacle Box	G40.21-300W
8	1	Flange Plate	G40.21-300W
9	1	Tenon, 4" O.D. x 250mm Lg.	A53 Gr.B
10	4	Anchor Bolt, 1 1/4" Dia., x 36" Lg., c/w 1 Washer & 1 Nut (Existing)	Gr.-4100
11	2	Banner Arms	A53 Gr.B
12	1	Top Plate	G40.21-300W
13	1	Fixture Arm (Supplied by others)	-

Design Criteria:

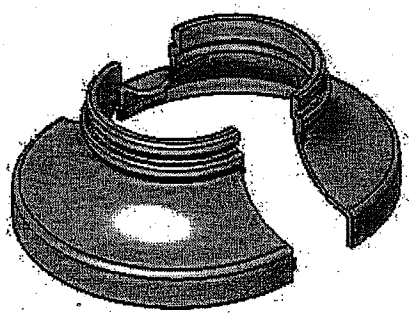
Design Standards:
- *CAN/CSA S6-00 – Canadian Highway Bridge Design Code.*

Notes:

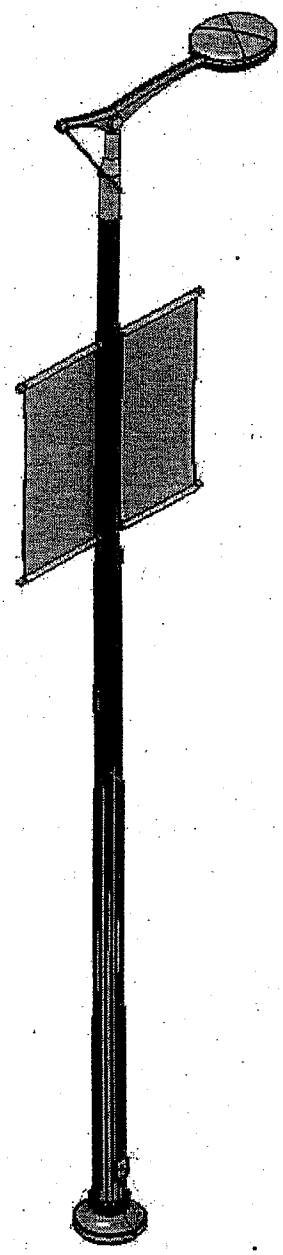
1. *All welding per CSA W59 1989.*
2. *All steel including fasteners shall be hot dip galvanized after fabrication. Galvanizing shall conform to CSA G164M 1992.*
3. *All steel including fasteners shall be powder coated. Color to be textured semi gloss black.*
4. *Torque bolts & nuts using the "Turn-of-nut" tightening method. Bring all bolts and nuts in the joint to a "Snug-tight" condition. "Snug-tight" is the tightness attained by a few impacts of an impact wrench or the full effort of a man using a spud wrench. When all bolts in the joint are "Snug-tight", each bolt shall be tightened additionally by rotating the bolt or nut 1/3 turn+/- 30°*



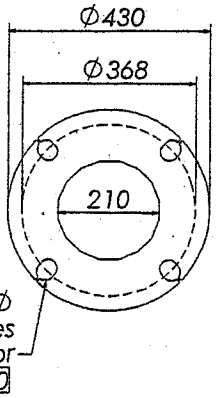
05
Transition Ring
19mm Th.



06
Dorchester
Decorative Base



Decorative Pole
Isometric View



02
Base Plate
25.4mm Th.

REV. #	REV. DESCRIPTION	REV. DATE	BY
0	Initial Release	24 Jan. 2004	IG

DESIGNED: TED BROCKMAN
DRAWN: JOAN GIOSAN
APPROVED: TED BROCKMAN
DATE:

PROFESSIONAL ENGINEER SEAL

Contact: Kim Watt
kwatt@wceng.com

West Coast Engineering Group Ltd.

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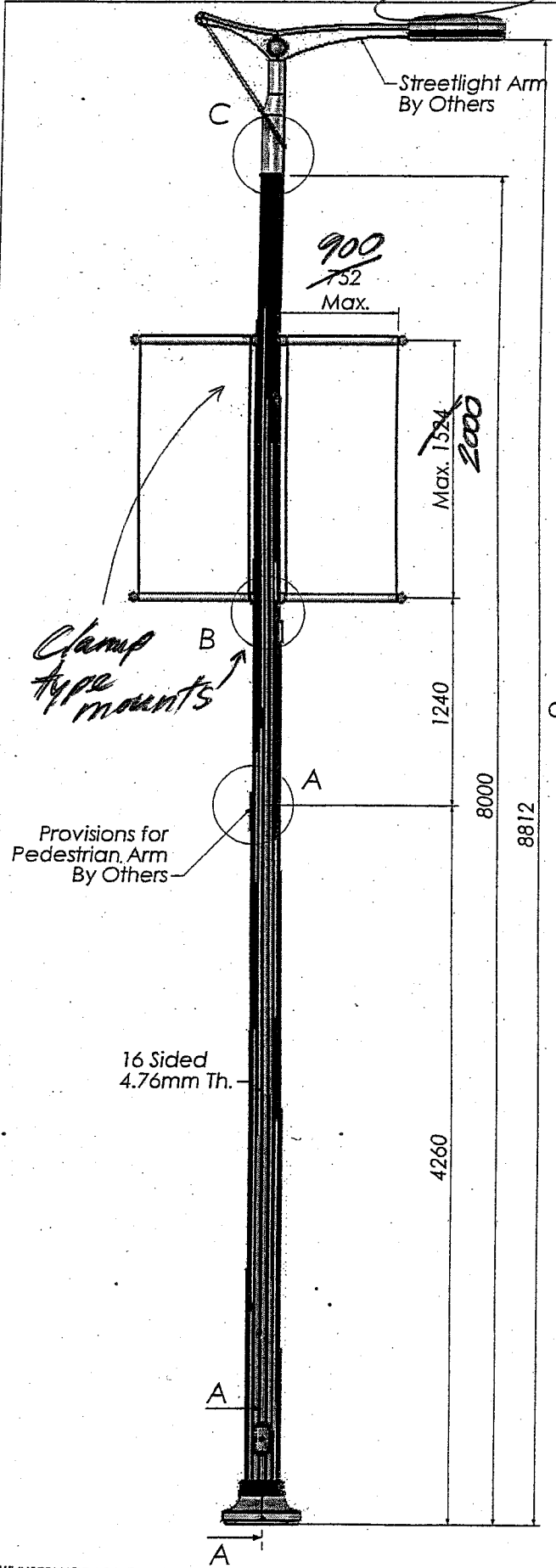
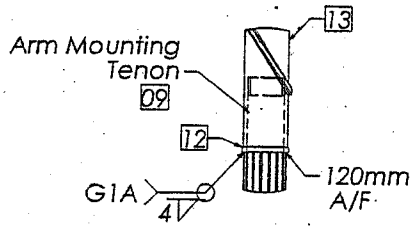
www.wceng.com

PROJECT: City of North Vancouver
Esplanade and Lonsdale

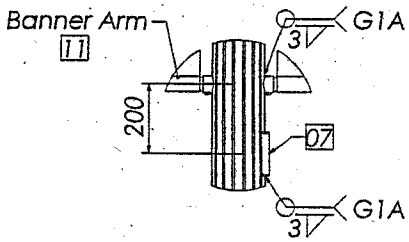
SCALE: NTS
QTY: 1
JOB #: Pending
SHEET 1 OF 1
DWG. #: Large - Dorchester
REV. 0

Bird control device (not bolted)

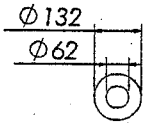




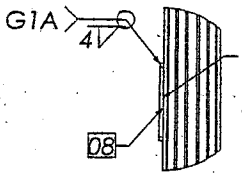
Detail C



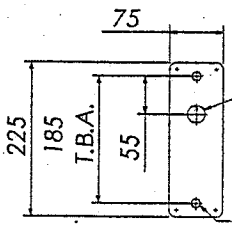
Detail B



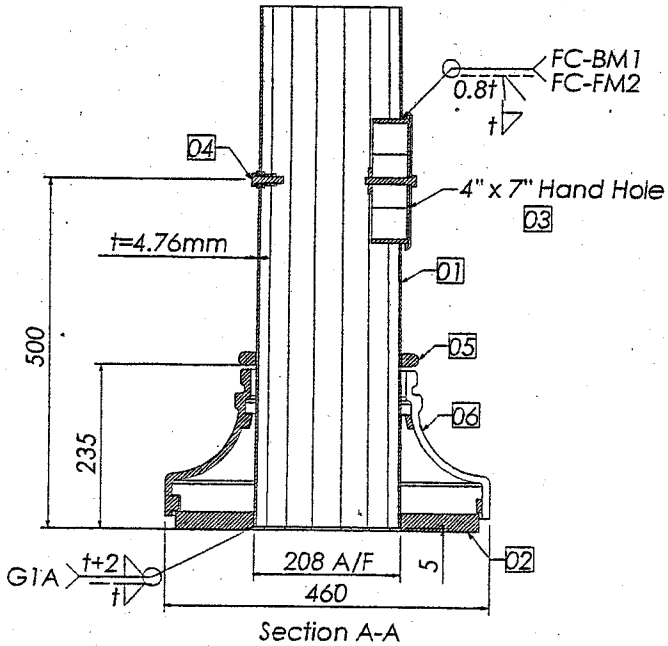
Top Plate
12.7mm Th.



Detail A



08
Flange Plate
9.5mm Th.



Section A-A

38mm
Slotted Ho

w Bird control device (not bolted)

Attach #1

Item #	Qty.	Description	Material
1	1	16 Sided Shaft, 4.76mm Th.	G40.21-300W
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10	4	Anchor Bolt, 1 1/4" Dia., x 36" Lg., c/w 1 Washer & 1 Nut (Existing)	Gr.-4100
11	2	Banner Arms	A53 Gr.B
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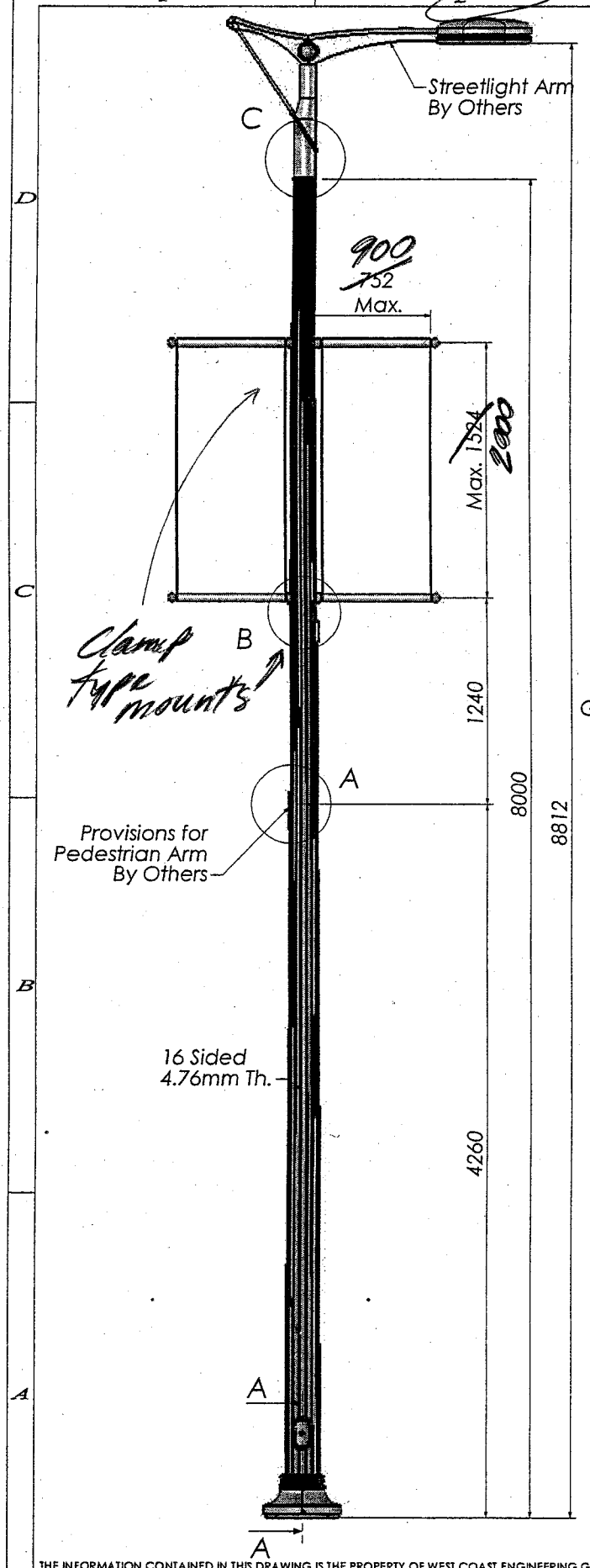
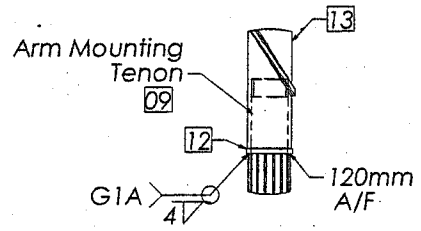
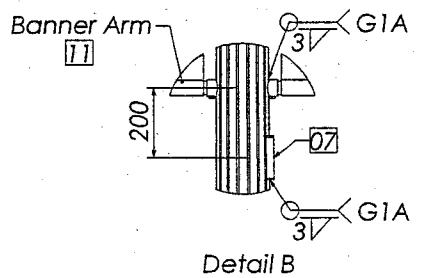
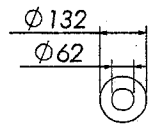




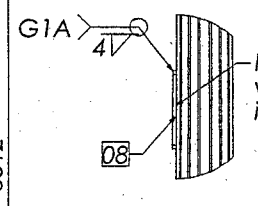
Detail C



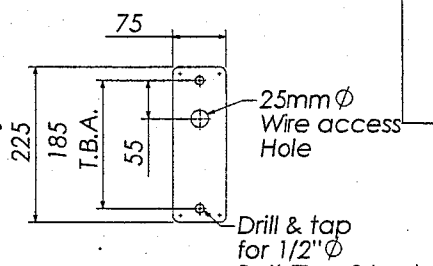
Detail B

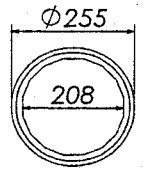


Top Plate
12.7mm Th.



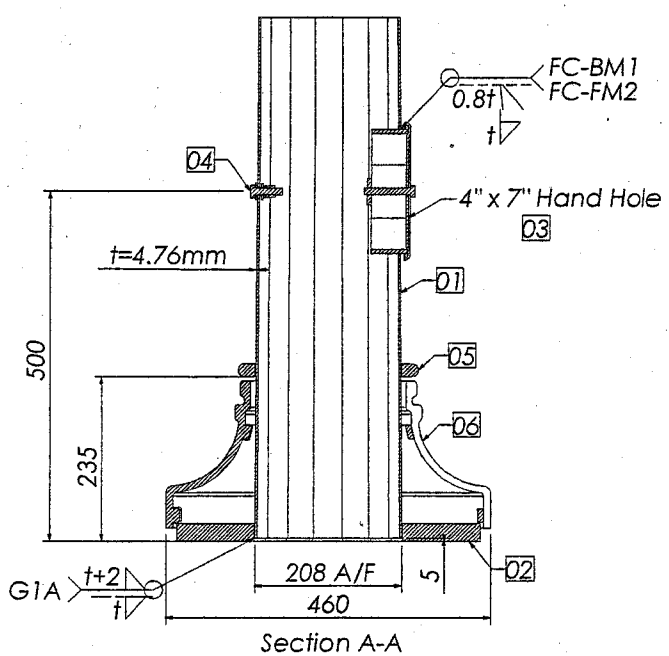
Detail A



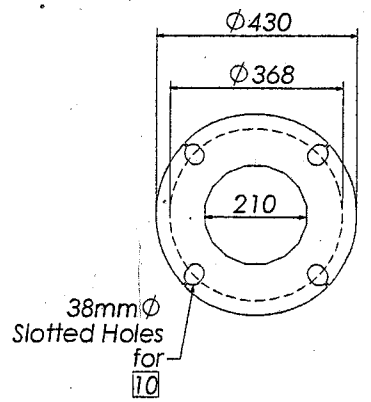


05
Transition Ring
19mm Th.

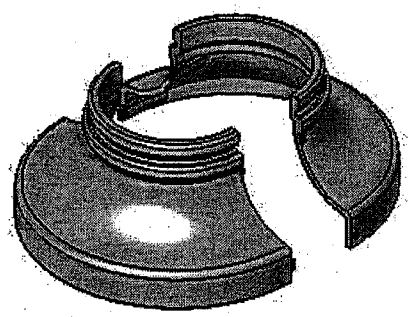
08
Flange Plate
9.5mm Th.



Section A-A



02
Base Plate
25.4mm Th.



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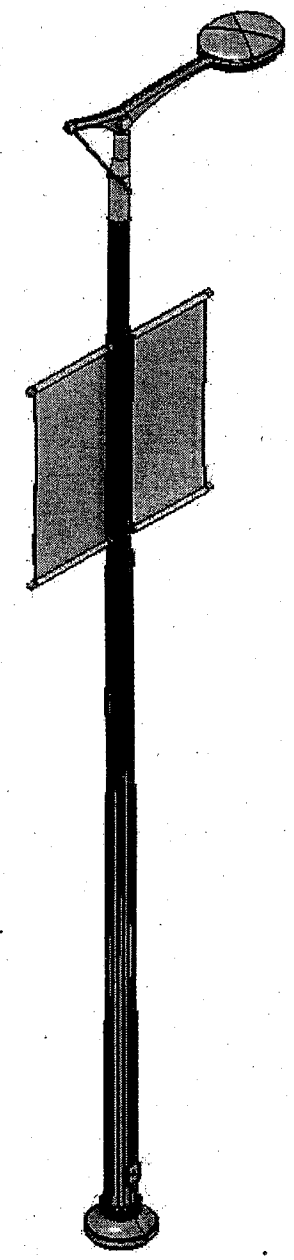
Dorchester
Decorative Base



Decorative Pole
Isometric View

Design Criteria:

Design Standards:
- *CAN/CSA S6-00 – Canadian Highway Bridge Design Code.*

Notes:

1. *All welding per CSA W59 1989.*
2. *All steel including fasteners shall be hot dip galvanized after fabrication. Galvanizing shall conform to CSA G164M 1992.*
3. *All steel including fasteners shall be powder coated. Color to be textured semi gloss black.*
4. *Torque bolts & nuts using the "Turn-of-nut" tightening method. Bring all bolts and nuts in the joint to a "Snug-tight" condition. "Snug-tight" is the tightness attained by a few impacts of an impact wrench or the full effort of a man using a spud wrench. When all bolts in the joint are "Snug-tight", each bolt shall be tightened additionally by rotating the bolt or nut 1/3 turn+/- 30°*

REV. #	REV. DESCRIPTION	REV. DATE	BY
0	Initial Release	24 Jan. 2004	IG

DESIGNED: TED BROCKMAN
DRAWN: IOAN GIOSAN
APPROVED: TED BROCKMAN
DATE:

PROFESSIONAL ENGINEER SEAL

Contact: Kim Watt kwatt@wceng.com

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Ph.(604)946-1256 Fx.(604)946-1203
www.wceng.com

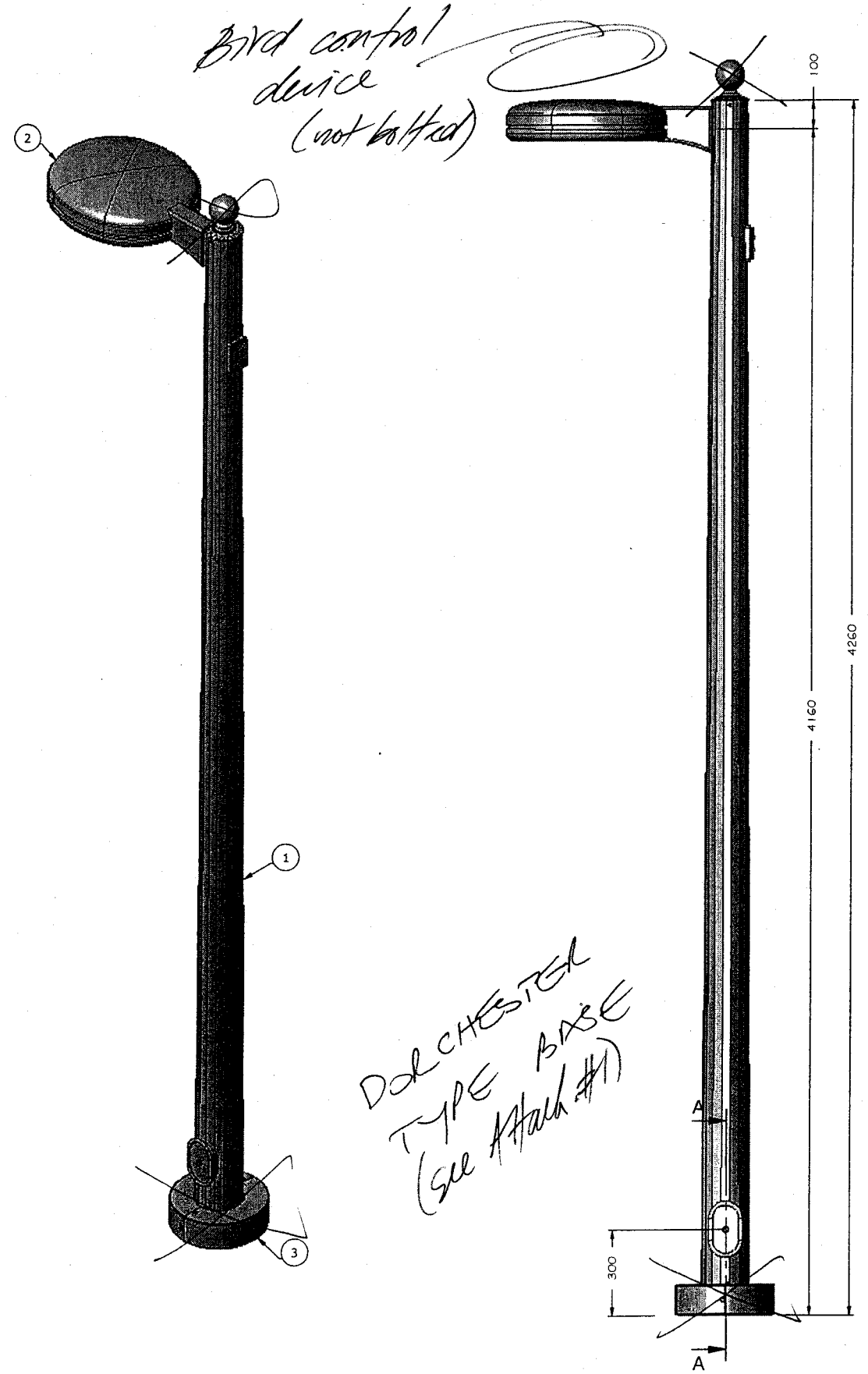
PROJECT: City of North Vancouver Esplanade and Lonsdale

SCALE: NTS
QTY: 1
JOB #: Pending
SHEET: 1 OF 1
DWG. #: Large - Dorchester
REV. 0

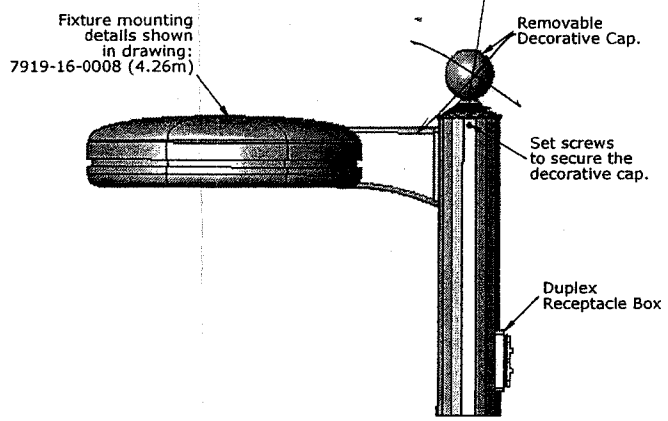
Attach. #2

#	QTY.	PART NO.	DESCRIPTION	MATERIAL
1	1	7010-16-0008 (4.26m)	16 Sided Pole, See drawing: 7010-16-0008 (4.26m).	
2	1	412-00-0004	Pedestrian Luminaire Arm, supplied by others	
3	1	7916-00-16-001-2	Round Base Cover, See Drawing: 7916-00-16-001-2.	

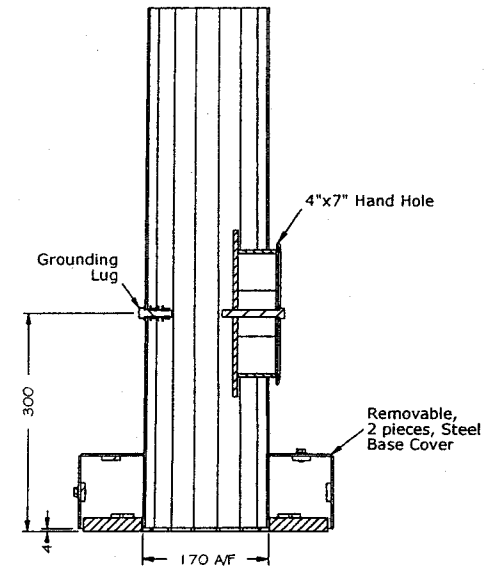
Bird control device (not bolted)



DOMÉ CAP WITH BIRD CONTROL



Pole - Top View



Section A-A

DORCHESTER TYPE BASE (see Attach #1)

NOTES:
DESIGN STANDARDS: CAN/CSA S6-00 – Canadian Highway Bridge Design Code.
WELDING: All welding per CSA W59 1989.
FINISH: All steel shall be hot dip galvanized after fabrication as per CSA G164M 1992.
The silicon content of the galvanized steel shall be Si <= 0.04% or 0.15% <= Si <= 0.25%
Powder Coated Textured Semi Gloss Black.

REV.	DESCRIPTION	DATE	BY	APPRD

DESIGNED: IOAN GIOSAN
DRAWN: IOAN GIOSAN
APPROVED: TED BROCKMAN
PROFESSIONAL ENGINEER SEAL
14 Feb 2005
DATE: 20-DEC-2004

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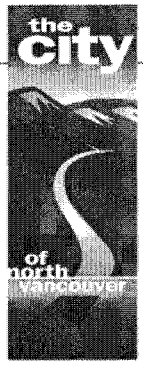
www.wceng.com

PROJECT: NORTH VANCOUVER - ESPLANADE & LONSDALE 4.26m - 16 Sided Pole Assembly Details	SCALE: NTS
	QTY: 3
PART #: 9050-16-0001-1	SHEET 1 OF 1
DWG. #: 12406-1	REV. 0

memo

The Corporation of the City of North Vancouver
Engineering, Parks & Environment Department



To Developer, Esplanade Corridor (private developer or City)

From Suzanne Smith, Planner, Engineering, Parks & Environment

Re **Esplanade Streetscape Design Standard**

Date January 27, 2005

Via

Attached you will find the Esplanade Streetscape Design Standard.

These are not construction drawings but do provide the overall design for the corridor and specifications on materials and implementation practices to be used in its implementation. Included:

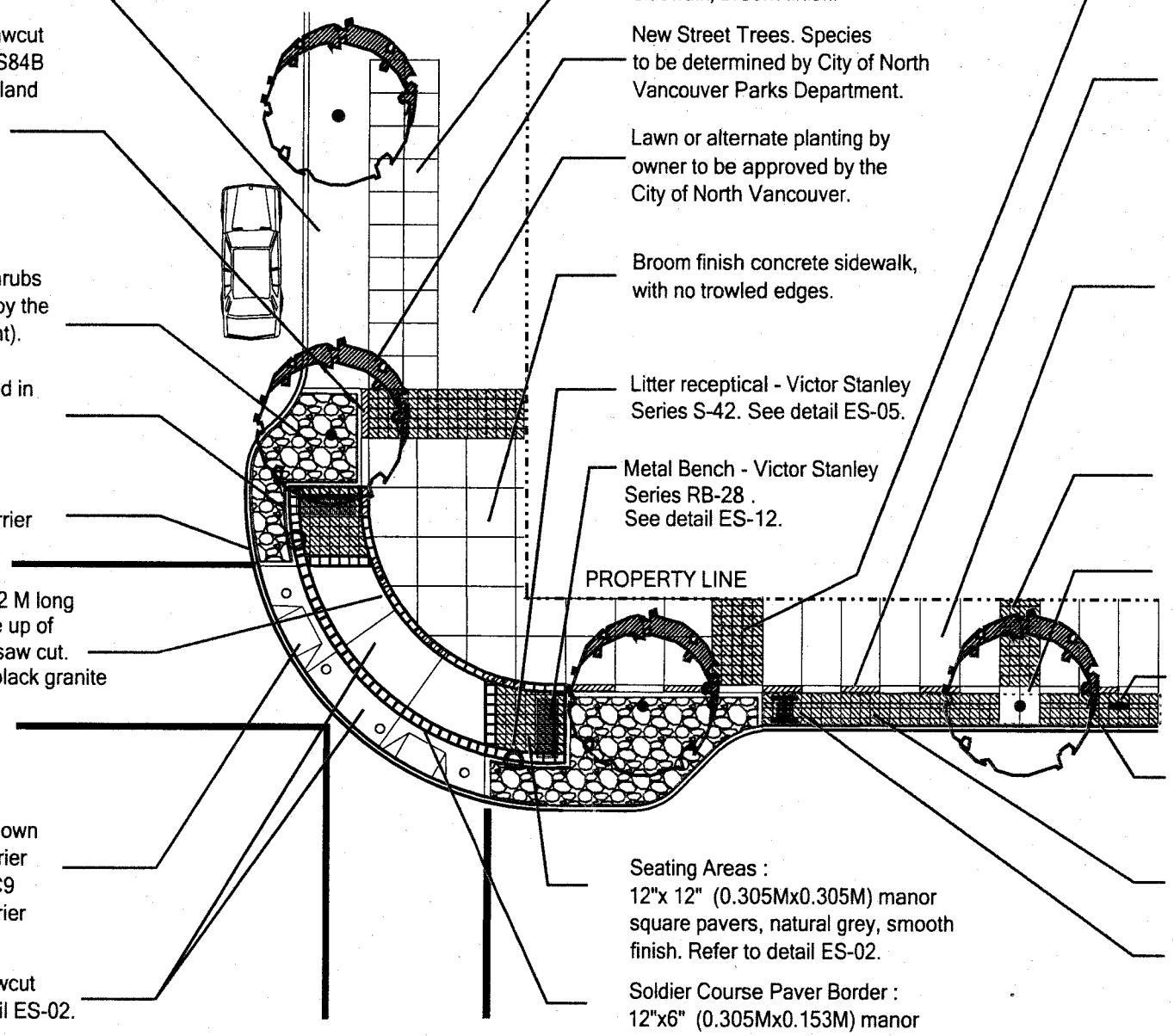
- P-L1 – Corner detail of Planting and Materials Plan (11x17)
- 5 Design cutsheets (11x17)
- 11 Detail Sheets (81/2x11). Sheet number ES-04 has been removed.
- Roadway and Pedestrian Streetlighting design and supplier information.

Most of the elements of the design have been implemented along the section of streetscape in front of the Time development at Esplanade and Chesterfield Ave.

If you have questions regarding the design please contact me directly.

Regards,

Suzanne Smith, B.A., M.A. (Planning)
Planner, Engineering, Parks & Environment
City of North Vancouver
141 W. 14th Street, North Vancouver, V7M 1H9
Phone: 604-990-4240 Fax: 604-985-8439
Email: ssmith@cnv.org Web: www.cnv.org



Existing 1.89 wide lawn boulevard

Granite banding 0.229M x 1.257M with sawcut edges, alternating strips of flame finish QS84B black granite and flame finish QS14 fox island granite surface.
Refer to detail ES-08
Supplied by :
Quadra Stone : 604-266-5341

Native and near native drought tolerant shrubs and ground covers (species as indicated by the City of North Vancouver Parks Department).

Concrete Border; 6" (0.152M) wide, poured in place. Refer to detail ES-03.

Concrete Barrier Curb and Gutter
As per MMCD Drawing C5 (Concrete Barrier Curb - Wide Base).

9" wide Granite banding approximately 1.2 M long (depending on geometry of design), made up of 6" long cut to fit segments. All edges are saw cut. Alternating bands of flame finish QS84B black granite and flame finish QS14 fox island granite.
Supplied by :
Quadra Stone : 604-266-5341

Wheelchair Ramp and Concrete Curb letdown as per MMCD Drawing C5 (Concrete Barrier Curb - Wide Base) and MMCD Drawing C9 (Wheelchair Ramp For Sidewalk and Barrier Curbs).

Broom finished concrete sidewalk with sawcut joints and no trowled edges. Refer to detail ES-02.

Existing 2.13 (7'-0") wide Concrete sidewalk, broom finish.

New Street Trees. Species to be determined by City of North Vancouver Parks Department.

Lawn or alternate planting by owner to be approved by the City of North Vancouver.

Broom finish concrete sidewalk, with no trowled edges.

Litter receptical - Victor Stanley Series S-42. See detail ES-05.

Metal Bench - Victor Stanley Series RB-28 .
See detail ES-12.

Seating Areas :
12"x 12" (0.305Mx0.305M) manor square pavers, natural grey, smooth finish. Refer to detail ES-02.

Soldier Course Paver Border :
12"x6" (0.305Mx0.153M) manor square pavers, charcoal, smooth finish. Refer to detail ES-02.

Sidewalk bands with 12"x6" (0.305Mx0.153M) manor square pavers, natural grey, smooth finish, Refer to detail ES-08.

Granite banding 0.229M x 1.257M with sawcut edges, alternating strips of flame finish QS84B black granite and flame finish QS14 fox island granite surface.
Refer to detail ES-08
Supplied by :
Quadra Stone : 604-266-5341

Broom finish concrete sidewalk (no trowled edges) Control Joints to match edge of 4' granite strips 1.829M (72") x 1.524 (48") O.C. perpendicular to property line, refer to detail ES-08.

Sidewalk bands with 12"x6" pavers, manor square, charcoal, smooth finish to match pattern in boulevard.

Rectanguler pedestrian proof tree grate ; 48" x 48" x 3/4" tree grate with 9" diameter opening. Model SP-48 from Dobney Foundry. Over excavate pit for new plantings. Refer to detail ES-06 and ES-07.

Bike Bollard model E12-BRO from Frances Andrew 13 7/8" x 39 1/2", two Bike capacity, Refer to detail ES-11 .

Extent of structural soil trench as per City of North Vancouver Engineering standards.

Boulevard Pavers :
12"x6" (0.305Mx0.153M) manor square pedestrian pavers, charcoal, smooth finish, Refer to detail ES-08.

Bike rack model Expo 2704 from Cora Bike Rack Ltd. Colour Black, capacity 4, Refer to detail ES-10.

Esplanade Landscape Improvements

Planting and Materials Plan : Pedestrian Areas
Design Gideline Prototypical : NOT FOR CONSTRUCTION

Amended : CM 05-01-18
File : T:\Projects Cmiles\Land Projects\Espl-01W-R-07\dwg\EsplanadeOverall.dwg

Scale: 1:200

0 2.5m 5m 10m

Drawing :

P-L1

EXISTING MIXED-USE DEVELOPMENT

MIXED-USE DEVELOPMENT

MATCHLINE B

MATCHLINE C

PROPERTY LINE

Semisch Ave.

PROPERTY LINE

PROPERTY LINE

Bike rack (refer to plan enlargement)

Sidewalk bands with 12"x6" pavers, manor square, charcoal, smooth finish to match pattern in boulevard

Broom finish concrete sidewalk (no trowled edges) Control Joints to match edge of 4' granite strips

Granite band with alternating flame finish black granite and flame finish fox island granite (refer to plan enlargement)

Boulevard with 12"x6" pavers, manor square, charcoal, smooth finish (refer to plan enlargement)

Bike rack (refer to plan enlargement)

PROPERTY LINE

Existing concrete sidewalk, broom finish

12"x6" manor square pavers, natural grey, smooth finish

Metal bench (refer to detail)

Trash receptical (refer to detail)

Broom finished concrete border with curb let-downs

Steel bollards (refer to detail)

12"x6" pavers, manor square charcoal, smooth finish (refer to detail).

12"x6" manor square pavers, natural grey, smooth finish (closest to corner only)

Bike rack (refer to plan enlargement)

PROPERTY LINE

2.7m Parking

1.6m Bike Lane

3.5m Drive Aisle

3.4m Drive Aisle

Esplanade

Street Trees
Species as per City of North Vancouver Parks Department

Native + near native drought tolerant shrubs + groundcovers (Species as indicated by the City of North Vancouver Parks Department)

3.4m Drive Aisle

3.5m Drive Aisle

1.5m Bike Lane

2.7m Parking

48"x48" metal tree grates (refer to detail)

GATEWAY TO WATERFRONT PARK

Bike rack (refer to plan enlargement)

Native + near native drought tolerant shrubs + groundcovers (Species as indicated by the City of North Vancouver Parks Department)

12"x6" manor square pavers, natural grey, smooth finish

Concrete border, broom finish

Metal bench + trash receptacle (Refer to detail)

Steel bollards (refer to detail)

Granite band with alternating flame finish black granite and flame finish fox island granite (refer to plan enlargement)

Boulevard with 12"x6" pavers, manor square, charcoal, smooth finish (refer to plan enlargement)

Broom finish concrete sidewalk (no trowled edges) Control Joints to match edge of 4' granite strips

Granite band with alternating flame finish black granite and flame finish fox island granite (refer to plan enlargement)

Bike rack (refer to plan enlargement)

WATERFRONT PARK

Esplanade Landscape Improvement Plan

Design Gideline Prototypical : NOT FOR CONSTRUCTION

Scale: 1:250

Project North

Amended : CM 05-01-18

File : T:\Projects Cmiles\Land Projects\Espl-01W-R-07\dwg\EsplanadeOverall.dwg

MATCHLINE C

ESPLANDE CINEMAS

Sidewalk bands with 12"x6" pavers, manor square, charcoal, smooth finish to match pattern in boulevard

Boulevard with 12"x6" pavers, manor square, charcoal, smooth finish (refer to plan enlargement)

PROPERTY LINE

Existing concrete sidewalk, broom finish
12"x6" manor square pavers, natural grey
Metal bench (refer to detail)
Broom finished concrete border with curb let-downs
Steel bollards (refer to detail)
12"x12" manor square pavers, natural grey
12"x6" manor square pavers, natural grey, smooth finish (closest to corner only)
Bike rack (refer to plan enlargement)

PROPERTY

Chesterfield

PROPERTY LINE

MATCHLINE D

2.7m Parking
1.6m Bike Lane
3.5m Drive Aisle

Street Trees
Species as per City of North Vancouver Parks Department

Bike rack (refer to plan enlargement)

Trash receptical (refer to detail)

3.4m Drive Aisle

Esplanade

3.4m Drive Aisle
3.5m Drive Aisle
1.5m Bike Lane
2.7m Parking

Granite band with alternating flame finish black granite and flame finish fox island granite (refer to plan enlargement)

48"x48" metal tree grates (refer to detail)

Bike rack (refer to plan enlargement)

PROPERTY LINE

Broom finish concrete sidewalk (no trowled edges)
Control Joints to match edge of 4' granite strips

Bike rack (refer to plan enlargement)
Native + near native drought tolerant shrubs + groundcovers (Species as indicated by the City of North Vancouver Parks Department).
12" x12" manor square paver in seating area, natural grey
Concrete sidewalk, broom finish, no trowled edges
6"x12" manor square paver in border, charcoal, smooth finish
6"x9" granite squares to continue 4' alternating light/dark pattern.
12"x6" paver bands, manor square, natural grey, smooth finish

PROPERTY LINE

COMMERCIAL OFFICE/RETAL

Esplanade Landscape Improvement Plan

Design Gideline Prototypical : NOT FOR CONSTRUCTION

Scale: 1:250

Project North

Amended : CM 05-01-18
File : T:\Projects Cmiles\Land Projects\Espl-01W-R-07\dwg\EsplanadeOverall.dwg

PROPOSED SITE 5

MATCHLINE D

MATCHLINE E

Sidewalk bands with 12"x6" pavers,
manor square, charcoal, smooth finish
to match pattern in boulevard

PROPERTY LINE

Broom finish concrete sidewalk (no trowled edges)
Control Joints to match edge of 4' granite strips

Boulevard with 12"x6" pavers,
manor square, charcoal, smooth finish
(refer to plan enlargement)

PROPERTY LINE

2.7m Parking

1.6m Bike Lane

3.5m Drive Aisle

3.4m Drive Aisle

3.4m Drive Aisle

3.5m Drive Aisle

1.5m Bike Lane

2.7m Parking

Bike rack (refer to
plan enlargement)

48"x48" metal tree grates
(refer to detail)

Bike rack (refer to
plan enlargement)

Street Trees
Species as per City of North
Vancouver Parks Department

MID-BLOCK
CROSSING
Concrete Crosswalk

Esplanade

Broom finished concrete border with curb let-downs

Steel bollards (refer to detail)

Metal bench (refer to detail)
on concrete pad

Trash receptical (refer to detail)

Bike rack (refer to
plan enlargement)

Bike rack (refer to
plan enlargement)

Bike rack (refer to
plan enlargement)

PROPERTY LINE

PROPERTY LINE

Native + near native drought
tolerant shrubs + groundcovers
(Species as indicated by
the City of North Vancouver Parks
Department)

12"x6" paver bands, manor square,
natural grey, smooth finish
(closest to midblock crossing)

12" x12" manor square paver in
sidewalk and border, charcoal

Sidewalk bands with 12"x6" pavers,
manor square, charcoal, smooth finish
to match pattern in boulevard

Granite band with alternating flame finish
black granite and flame finish
fox island granite (refer to plan enlargement)

COMMERCIAL OFFICE

COMMERCIAL OFFICE

Esplanade Landscape Improvement Plan

Design Gideline Prototypical : NOT FOR CONSTRUCTION

Scale: 1:250

Project
North

Amended : CM 05-01-18

File : T:\Projects Cmiles\Land Projects\Espl-01W-R-07\dwg\EsplanadeOverall.dwg

MATCHLINE E

COMMERCIAL OFFICE / RETAIL

Sidewalk bands with 12"x6" pavers, manor square, charcoal, smooth finish to match pattern in boulevard

Boulevard with 12"x6" pavers, manor square, charcoal, smooth finish (refer to plan enlargement)

PROPERTY LINE

PROPERTY LINE

PROPERTY LINE

MATCHLINE F

Bike rack (refer to plan enlargement)

48"x48" metal tree grates (refer to detail)

Bike rack (refer to plan enlargement)

Street Trees
Species as per City of North Vancouver Parks Department

Granite band with alternating flame finish black granite and flame finish fox island granite (refer to plan enlargement)

2.7m Parking

1.6m Bike Lane

3.5m Drive Aisle

Esplanade

3.4m Drive Aisle

3.4m Drive Aisle

3.5m Drive Aisle

1.5m Bike Lane

2.7m Parking

Native + near native drought tolerant shrubs + groundcovers (Species as indicated by the City of North Vancouver Parks Department)

Bike rack (refer to plan enlargement)

Trash receptical (refer to detail)

Broom finish concrete sidewalk (no trowled edges)

Steel bollards (refer to detail)

Broom finished concrete border with curb let-downs

12" x6" manor square paver in border, charcoal

Metal bench (refer to detail)

12"x6" paver bands, manor square, natural grey, smooth finish

12"x6" paver bands, manor square natural grey, smooth finish (closest to midblock crossing)

PROPERTY LINE

PROPERTY LINE

PROPERTY LINE

Broom finish concrete sidewalk (no trowled edges)
Control Joints to match edge of 4' granite strips

Bike rack (refer to plan enlargement)

Granite band with alternating flame finish black granite and flame finish fox island granite (refer to plan enlargement)

LOW DENSITY RETAIL

Esplanade Landscape Improvement Plan

Design Gideline Prototypical : NOT FOR CONSTRUCTION

Scale: 1:250

Project North

Amended : CM 05-01-18
File : T:\Projects Cmiles\Land Projects\Espl-01W-R-07\dwg\EsplanadeOverall.dwg

MIXED USE DEVELOPMENT

FUTURE RESIDENTIAL TOWERS

MATCHLINE F

PROPERTY LINE

Lonsdale Av

Existing median

Broom finish concrete sidewalk (no trowled edges)

Bike rack (refer to plan enlargement)

12"x6" manor square pavers, natural grey, smooth finish (closest to corner only)

Native + near native drought tolerant shrubs + groundcovers (Species as indicated by the City of North Vancouver Parks Department)

Trash receptical (refer to detail)

Boulevard paving to match Lower Lonsdale paving scheme

Existing broom finish concrete sidewalk

12"x6" manor square pavers, natural grey, smooth finish

Metal bench (refer to detail)

12"x12" manor square pavers, natural grey, smooth finish

Broom finished concrete border with curb let-downs

Steel bollards (refer to detail)

NEW PROPERTY LINE

2.7m Parking

1.6m Bike Lane

3.5m Drive Aisle

3.4m Drive Aisle

Street Trees
Species as per City of North Vancouver Parks Department

3.4m Drive Aisle

3.5m Drive Aisle

1.5m Bike Lane

2.7m Parking

Esplanade

48"x48" metal tree grates (refer to detail)

Sidewalk bands with 12"x6" pavers, manor square, charcoal, smooth finish to match pattern in boulevard

Granite band with alternating flame finish black granite and flame finish fox island granite (refer to plan enlargement)

LOW DENSITY RETAIL

PROPERTY LINE

PROPOSED FOOT OF LONSDALE STREET UPGRADE

PROPERTY LINE

12"x6" manor square pavers, natural grey, smooth finish (closest to corner only)

6"x9" granite squares to continue 4' alternating light/dark granite pattern.

12" x12" manor square paver in seating area, natural grey, smooth finish

Boulevard paving to match Lower Lonsdale paving scheme

FUTURE VERSATILE DEVELOPMENT

Esplanade Landscape Improvement Plan

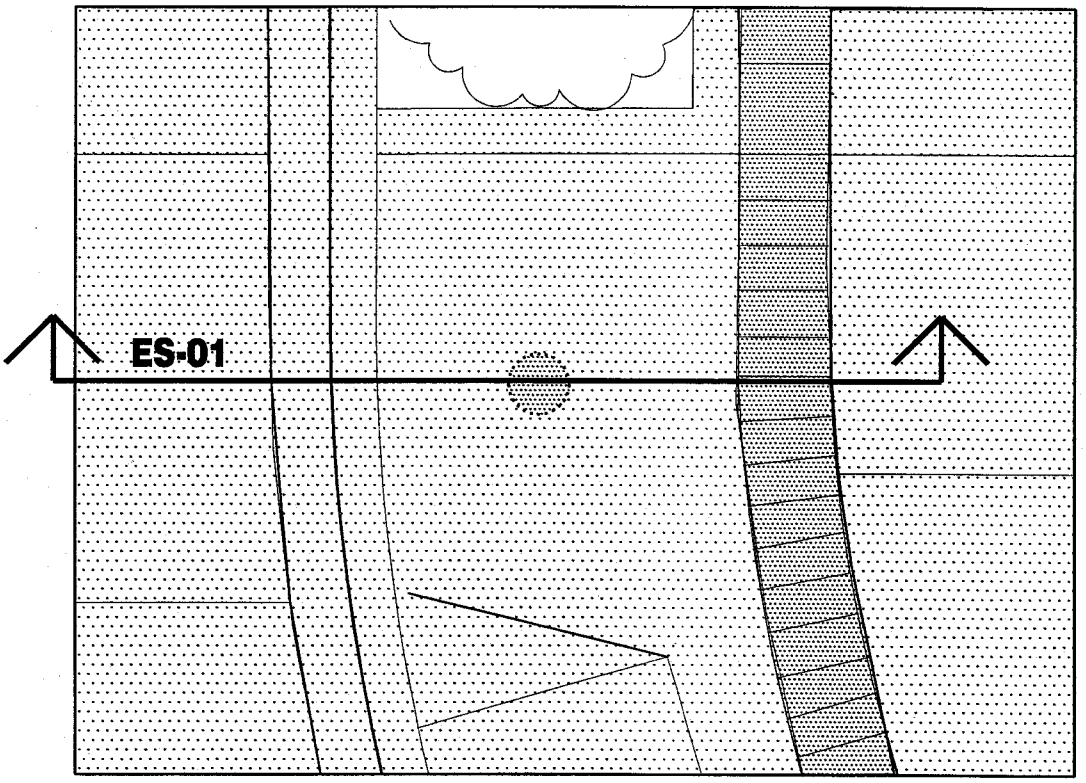
Design Gideline Prototypical : NOT FOR CONSTRUCTION

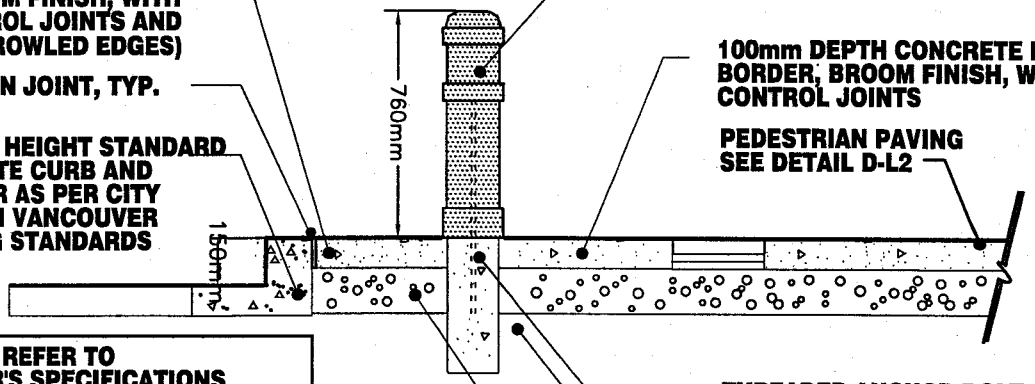
Scale: 1:250

Project North

Amended : CM 05-01-18

File : T:\Projects Cmiles\Land Projects\Espl-01W-R-07\dwg\EsplanadeOverall.dwg





100mm DEPTH CONCRETE PAVING BORDER, BROOM FINISH, WITH SAW CUT CONTROL JOINTS AND (NO TROWLED EDGES)

EXPANSION JOINT, TYP.

150mm HEIGHT STANDARD CONCRETE CURB AND GUTTER AS PER CITY OF NORTH VANCOUVER ENGINEERING STANDARDS

FAIRWEATHER B-1 STEEL BOLLARD, (200mm DIAMETER X 760mm HT) POWDER COAT FINISH, BLACK

100mm DEPTH CONCRETE PAVING BORDER, BROOM FINISH, WITH CONTROL JOINTS

PEDESTRIAN PAVING SEE DETAIL D-L2

THREADED ANCHOR BOLT

450mm DEPTH QUICK SET CONCRETE FOOTING

150mm DEPTH GRAVEL BASE COURSE, 19mm CLEAR, COMPACT TO 95% MPD.

FOR BOLLARDS, REFER TO MANUFACTURER'S SPECIFICATIONS FOR INSTALLATION AND ANCHORING METHOD. CONTACT:
MARK SUTTLE AGENCIES LTD.
1-5550 EAST HASTINGS ST
BURNABY, BC V5B 1R3
PHONE 604-293-1569
FAX 604-298-1536

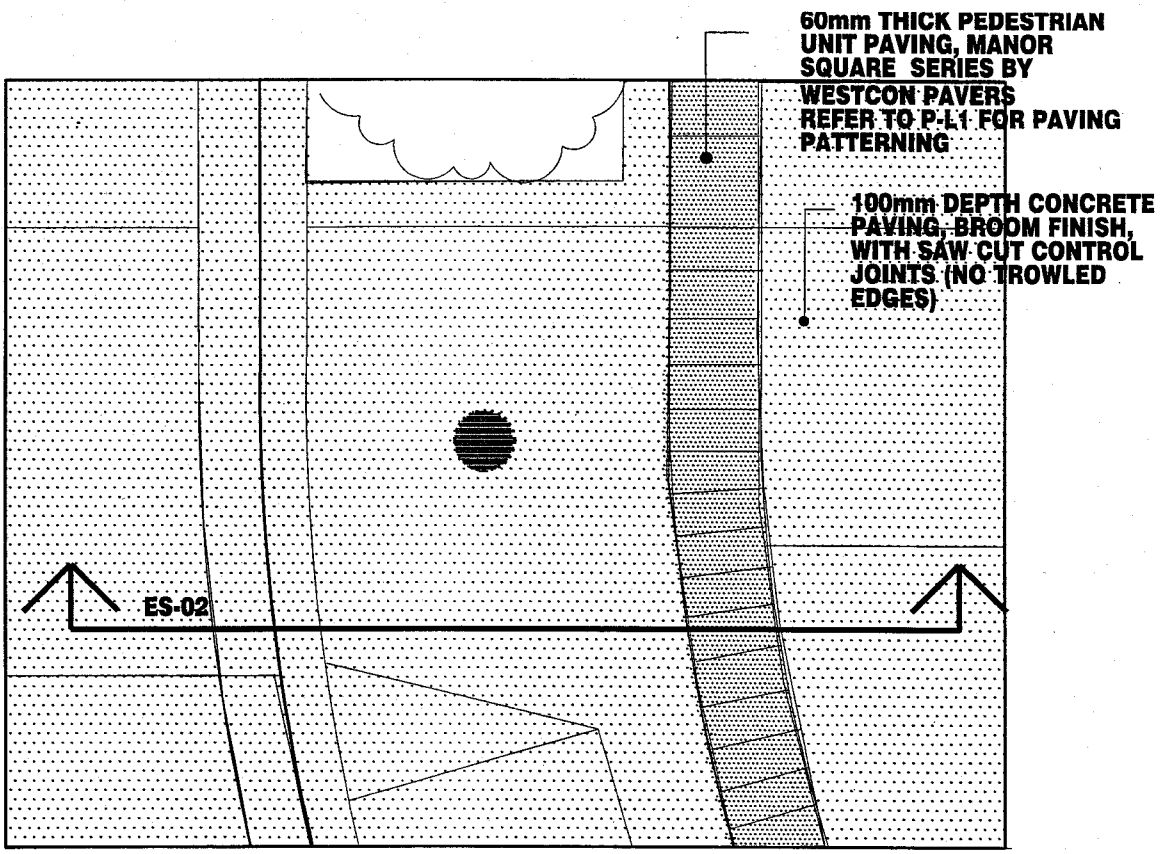
NOTES:
1) ALL PAVING SURFACE FINISHES SHALL MEET FLUSH UNLESS SPECIFICALLY NOTED OTHERWISE
2) ALL FASTENERS TO BE HOT DIPPED GALVANIZED
3) ENSURE POSITIVE DRAINAGE FOR ALL PLANTING AND PAVED AREAS

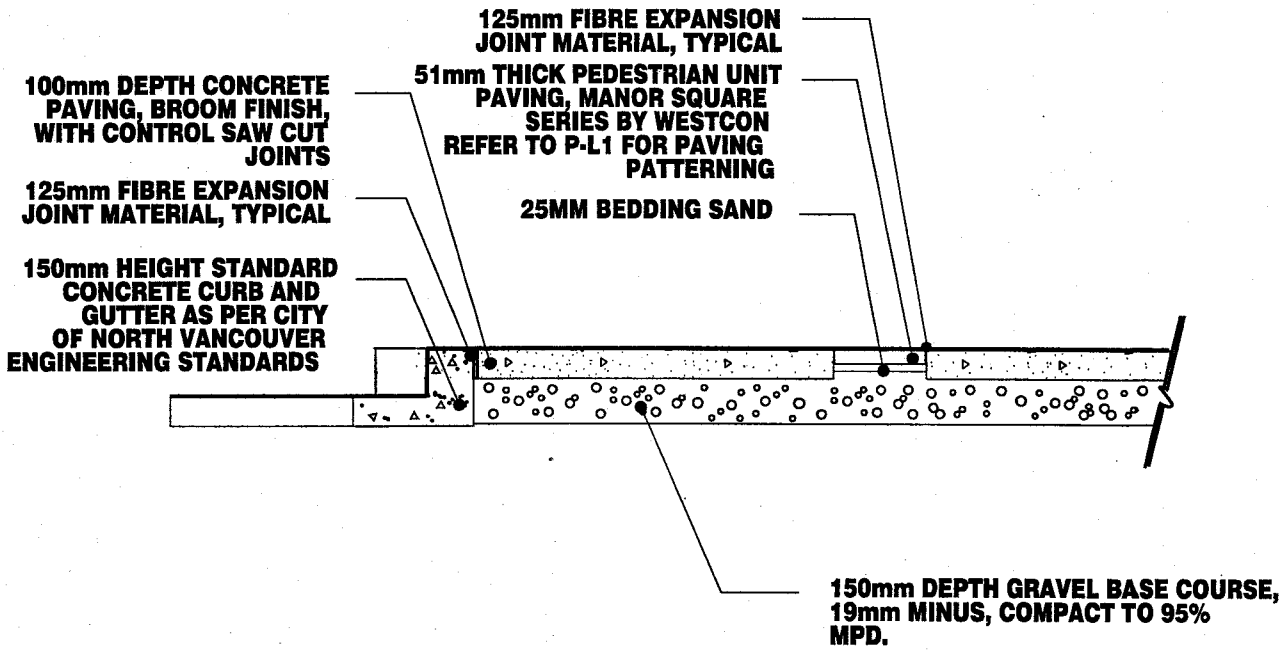
City of North Vancouver
Parks + Environment

drawing title

Typical Bollard & Curb - Esplanade Streetsacpe Standards

drawn	H/D location		drawing no.
A.Vasilevich			ES-01
checked: –	scale: N.T.S.	date: 26 Jan 2005	





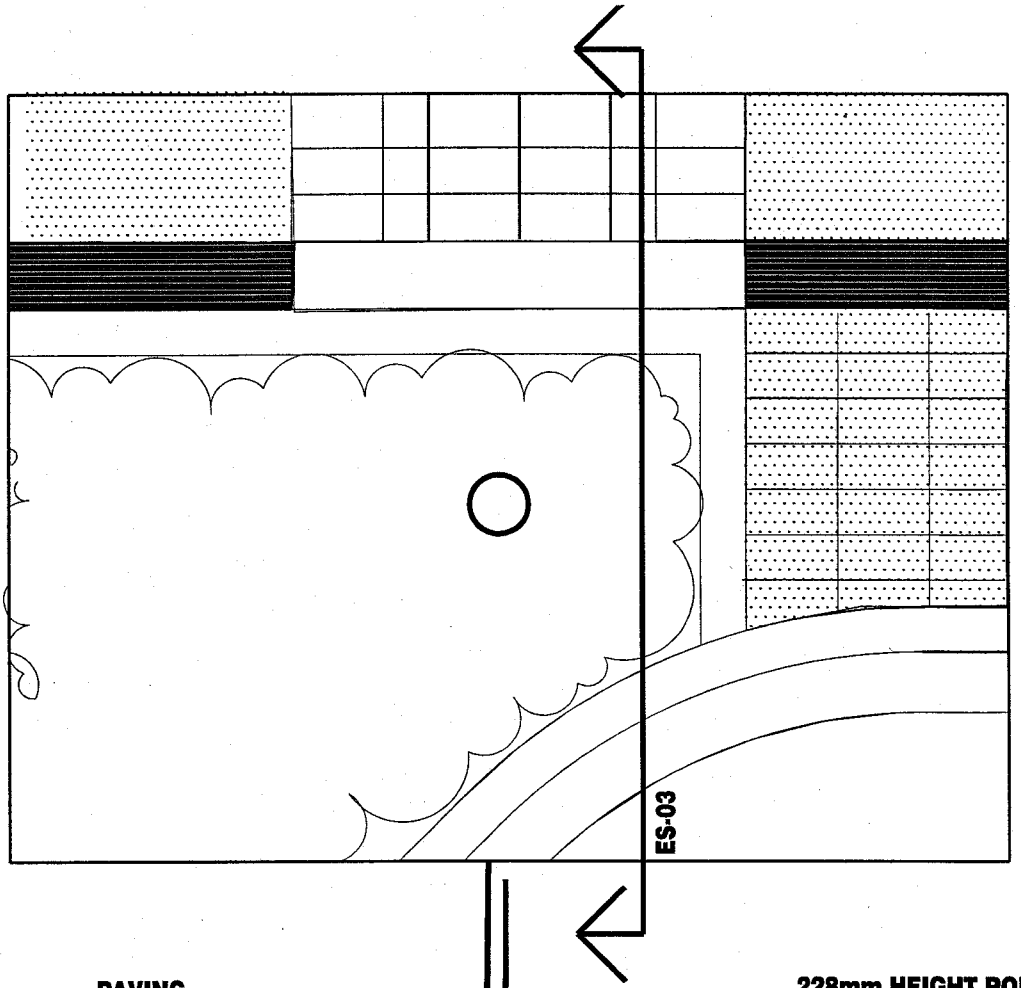
NOTE: ALL PAVING SURFACE FINISHES SHALL MEET FLUSH UNLESS SPECIFICALLY NOTED OTHERWISE

City of North Vancouver
Parks + Environment

drawing title

Paving Detail @ Bumpout - Esplanade Streetsacpe Standards

drawn	H/D location		drawing no.
A.Vasilevich			ES-02
checked: –	scale: N.T.S.	date: 26 Jan 2005	



PAVING

228mm HEIGHT POURED IN PLACE CONCRETE BORDER WITH TWO X 10M CONTINUOUS REBAR 7.5mm APART AS SHOWN

PEDESTRIAN PAVING AS SPECIFIED

150mm HEIGHT STANDARD CONCRETE CURB AND GUTTER PER CITY OF NORTH VANCOUVER ENGINEERING STANDARDS

SCARIFY ALL SIDES AND BOTTOM OF TREE PIT

PLANTING SOIL MIX AS SPECIFIED BY CITY OF NORTH VANCOUVER PARKS ON SUBGRADE OR FILL

TREE + SHRUBS AS PER CITY OF NORTH VANCOUVER PLANTING PLAN: TRIM DOWN TOP 1/3 OF BURLAP ON ROOT BALL

COMPACT PLANTING SOIL UNDER NEW TREES

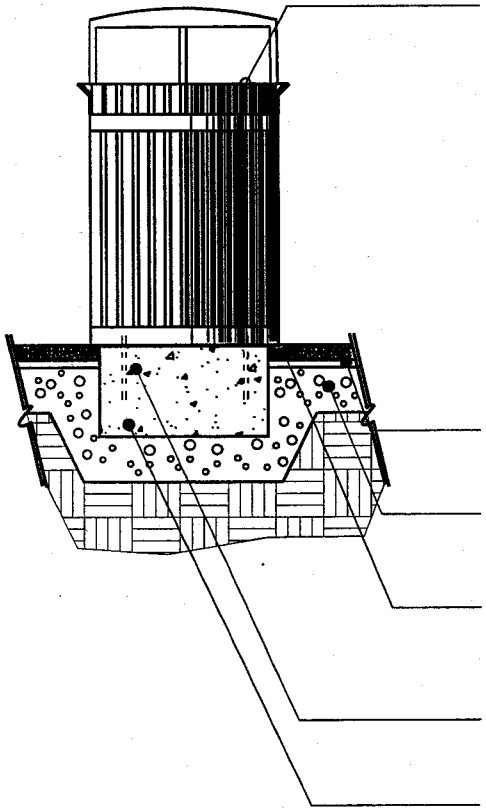
NOTES:
1) ALL PLANT MATERIAL TO BE FIRST CLASS REPRESENTATIVES OF THEIR SPECIES OR VARIETY.
2) ALL PLANT MATERIAL TO BE FULLY MAINTAINED UNTIL FINAL ACCEPTANCE TO MEET LANDSCAPE ARCHITECTS APPROVAL.
3) ENSURE POSITIVE DRAINAGE FOR ALL PLANTED AREAS.
4) TEST DRAINAGE OF TREE PITS, REPORT IF WATER HELD LONGER THAN 24 HRS.

City of North Vancouver
Parks + Environment

drawing title

Planter w/ Street Tree - Esplanade Streetsacpe Standards

drawn	H/D location		drawing no.
A.Vasilevich			ES-03
checked: –	scale: N.T.S.	date: 26 Jan 2005	



METAL SIDE-DOOR OPENING LITTER RECEPTACLE VICTOR STANLEY SERIES S-42 WITH SIDE OPENING DOOR AND S-2 SPUN STEEL DOME COLOUR BLACK INSTALL AS PER MANUFACTURER'S SPECIFICATIONS

25mm BEDDING SAND

150mm DEPTH GRAVEL BASE COURSE, 19mm MINUS, COMPACT TO 95% MPD.

51mm THICK PEDESTRIAN UNIT PAVING, MANOR SQUARE SERIES BY WESTCON REFER TO P-L1 FOR PAVING PATTERNING

STAINLESS STEEL HARDWARE, BOLTED INTO CONCRETE FOOTING AS PER MANUFACTURER'S SPECIFICATIONS

558mm SQUARE X 381mm HIGH CONCRETE FOOTING, LOCATION TO MATCH PAVING PATTERN

INSTALLATION AND ANCHORING METHOD SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.

CONTACT: HABITAT SYSTEMS INC.
3762 NAPIER ST.
BURNABY, BC V5C 3E5
TEL: 604-294-4224
FAX:604-294-4002

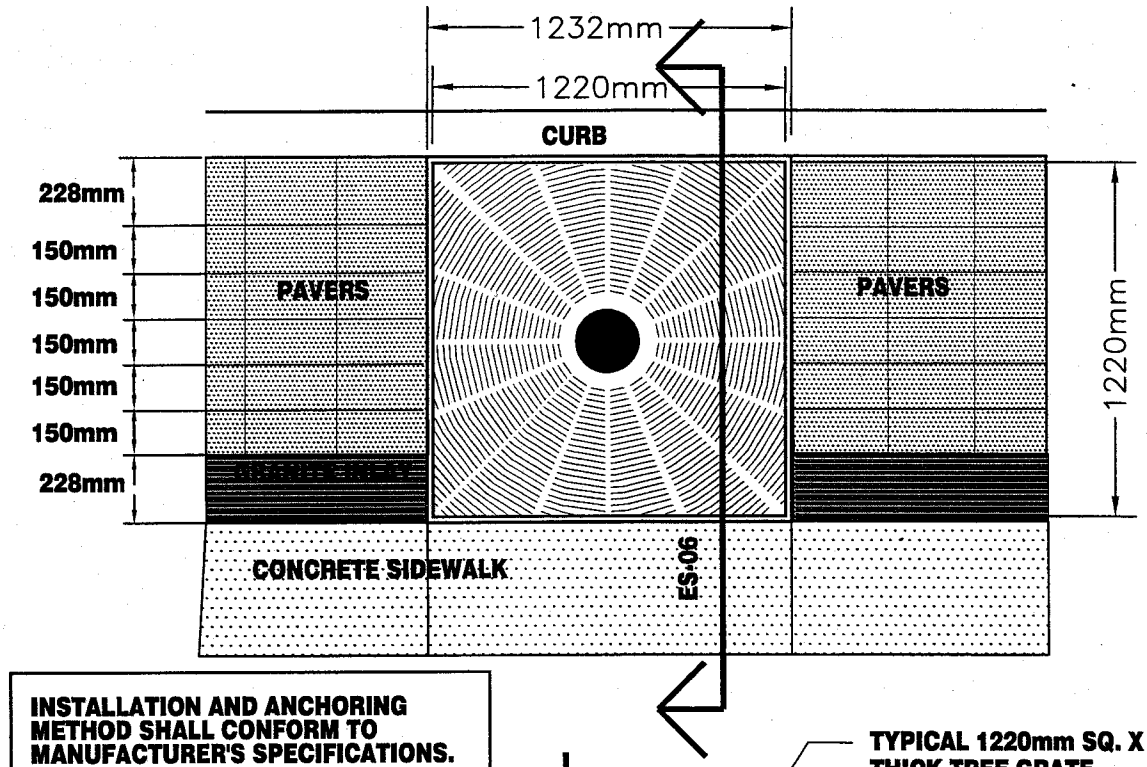
NOTES:
1) ALL PAVING SURFACE FINISHES SHALL MEET FLUSH UNLESS SPECIFICALLY NOTED OTHERWISE
2) ALL FASTENERS TO BE HOT DIPPED GALVANIZED

City of North Vancouver
Parks + Environment

drawing title

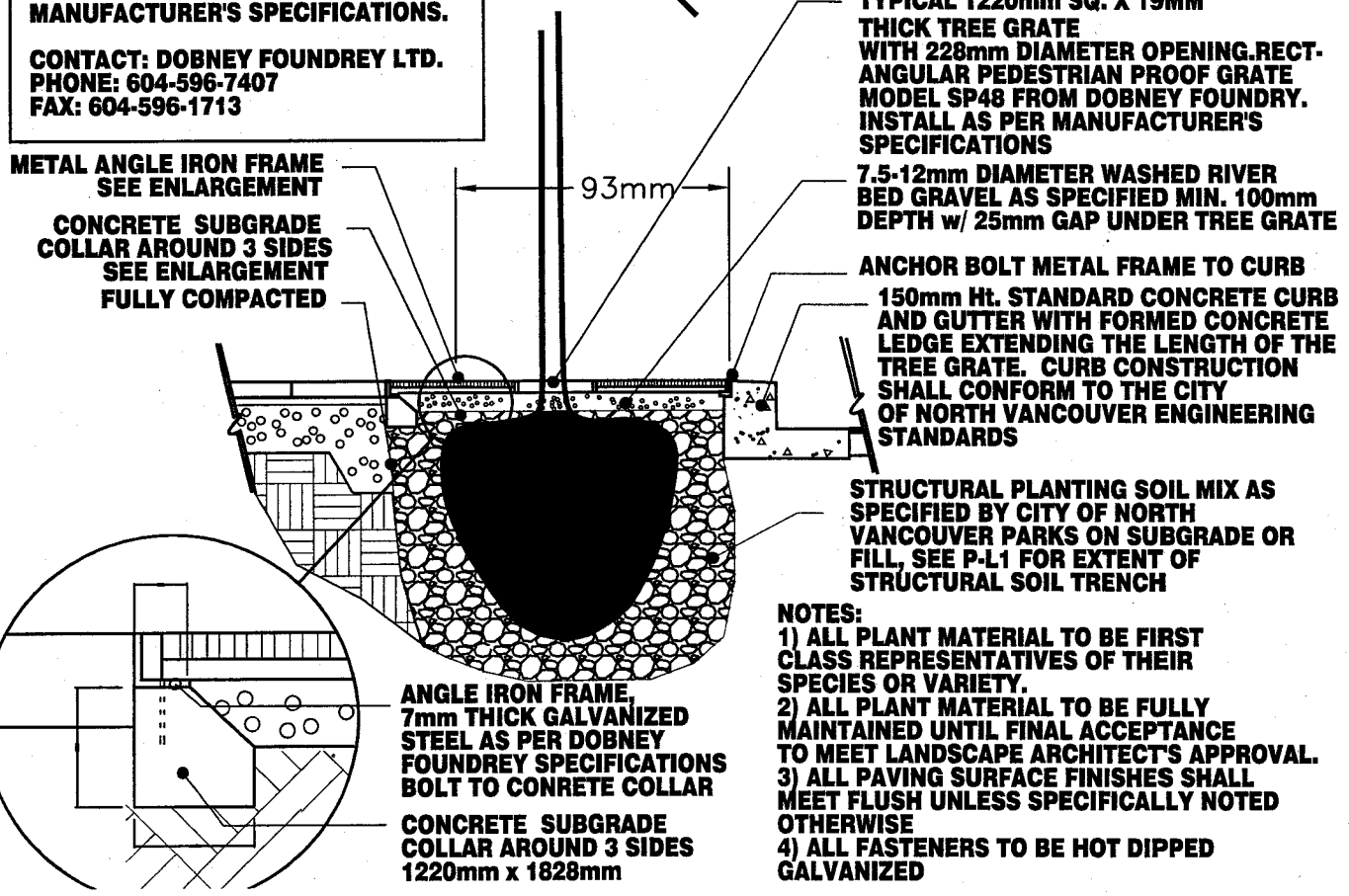
Garbage Recepticale - Esplanade Streetsacpe Standards

drawn	H/D location		drawing no.
A.Vasilevich			ES-05
checked: –	scale: N.T.S.	date: 26 Jan 2005	



INSTALLATION AND ANCHORING METHOD SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.

CONTACT: DOBNEY FOUNDREY LTD.
PHONE: 604-596-7407
FAX: 604-596-1713



METAL ANGLE IRON FRAME SEE ENLARGEMENT

CONCRETE SUBGRADE COLLAR AROUND 3 SIDES SEE ENLARGEMENT FULLY COMPACTED

TYPICAL 1220mm SQ. X 19MM THICK TREE GRATE WITH 228mm DIAMETER OPENING.RECT-ANGULAR PEDESTRIAN PROOF GRATE MODEL SP48 FROM DOBNEY FOUNDRY. INSTALL AS PER MANUFACTURER'S SPECIFICATIONS

7.5-12mm DIAMETER WASHED RIVER BED GRAVEL AS SPECIFIED MIN. 100mm DEPTH w/ 25mm GAP UNDER TREE GRATE

ANCHOR BOLT METAL FRAME TO CURB

150mm Ht. STANDARD CONCRETE CURB AND GUTTER WITH FORMED CONCRETE LEDGE EXTENDING THE LENGTH OF THE TREE GRATE. CURB CONSTRUCTION SHALL CONFORM TO THE CITY OF NORTH VANCOUVER ENGINEERING STANDARDS

STRUCTURAL PLANTING SOIL MIX AS SPECIFIED BY CITY OF NORTH VANCOUVER PARKS ON SUBGRADE OR FILL, SEE P-L1 FOR EXTENT OF STRUCTURAL SOIL TRENCH

ANGLE IRON FRAME, 7mm THICK GALVANIZED STEEL AS PER DOBNEY FOUNDREY SPECIFICATIONS BOLT TO CONRETE COLLAR

CONCRETE SUBGRADE COLLAR AROUND 3 SIDES 1220mm x 1828mm

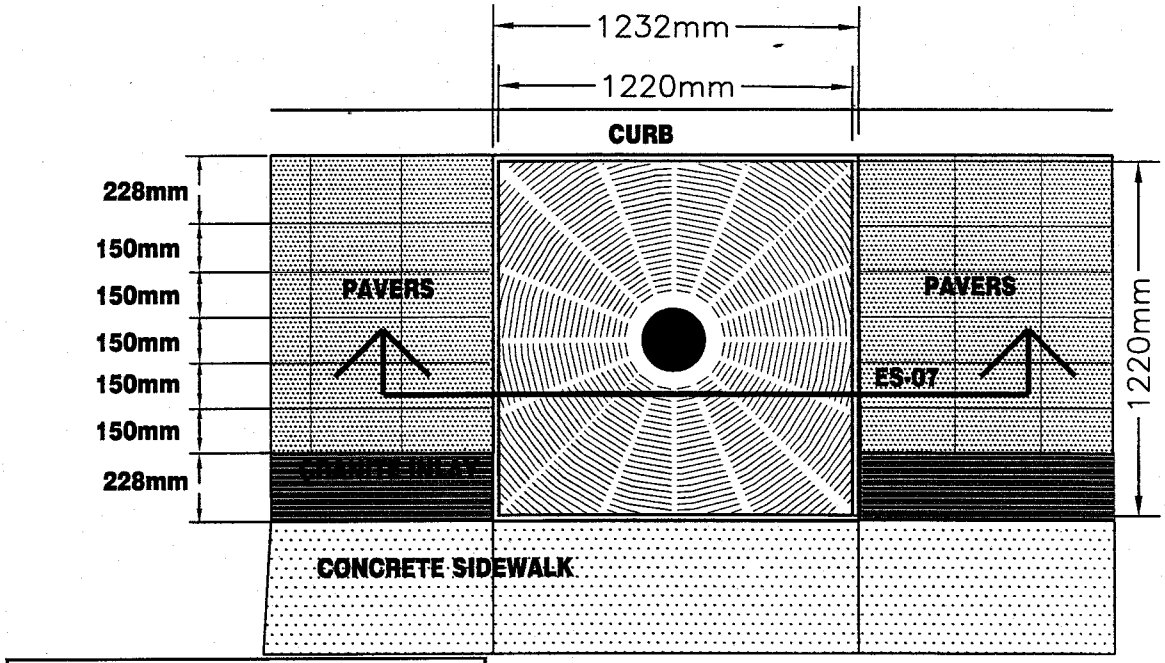
NOTES:
1) ALL PLANT MATERIAL TO BE FIRST CLASS REPRESENTATIVES OF THEIR SPECIES OR VARIETY.
2) ALL PLANT MATERIAL TO BE FULLY MAINTAINED UNTIL FINAL ACCEPTANCE TO MEET LANDSCAPE ARCHITECT'S APPROVAL.
3) ALL PAVING SURFACE FINISHES SHALL MEET FLUSH UNLESS SPECIFICALLY NOTED OTHERWISE
4) ALL FASTENERS TO BE HOT DIPPED GALVANIZED

City of North Vancouver
Parks + Environment

drawing title

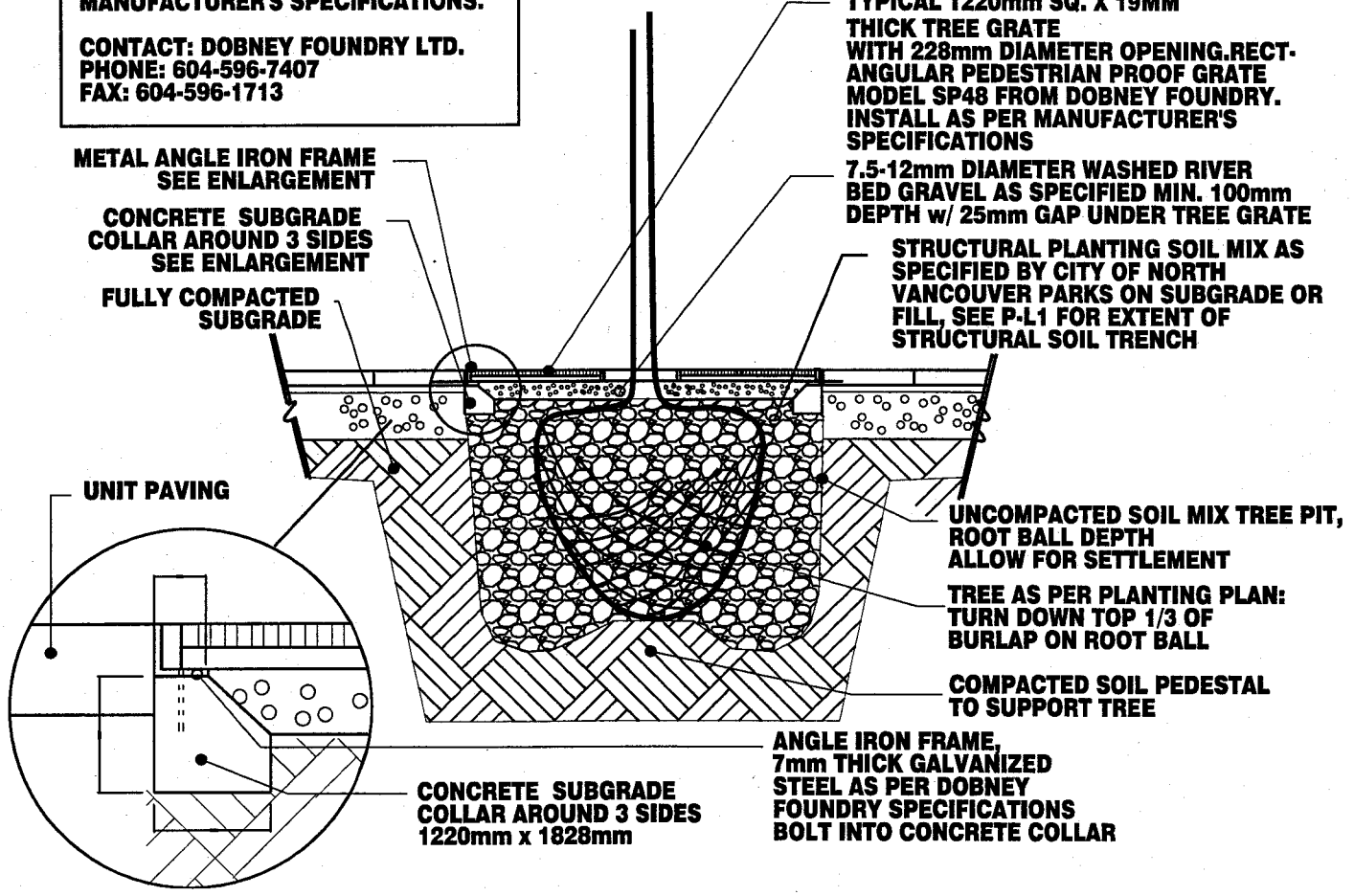
Street Tree Planting with Tree Gate & Structual Soil Esplanade Streetsacpe Standards

drawn	H/D location		drawing no.
A.Vasilevich			ES-06
checked: _	scale: N.T.S.	date: 26 Jan 2005	



INSTALLATION AND ANCHORING METHOD SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.

CONTACT: DOBNEY FOUNDRY LTD.
PHONE: 604-596-7407
FAX: 604-596-1713

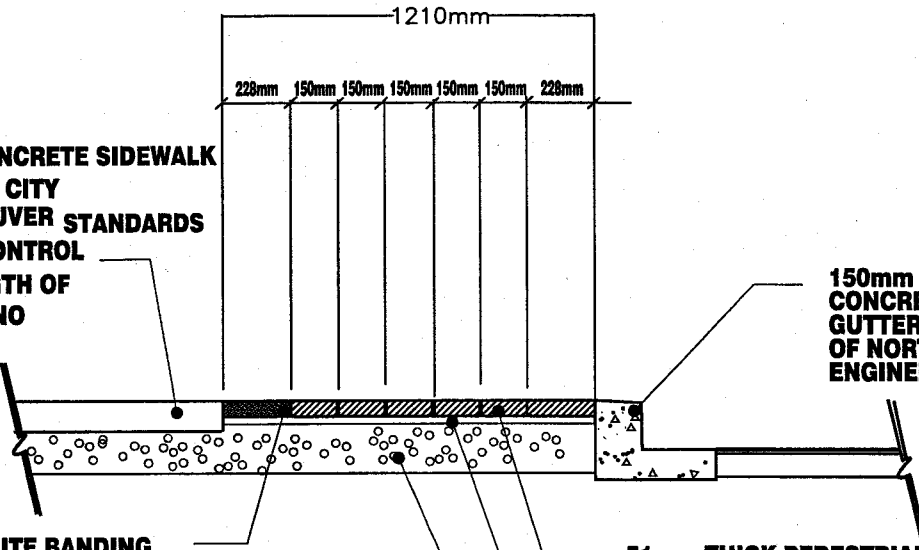


City of North Vancouver
Parks + Environment

drawing title

Street Tree Planting with Tree Gate & Structual Soil Esplanade Streetsacpe Standards

drawn	H/D location		drawing no.
A.Vasilevich			ES-07
checked: –	scale: N.T.S.	date: 26 Jan 2005	



BROOM FINISH CONCRETE SIDEWALK 100mm THICK PER CITY OF NORTH VANCOUVER STANDARDS

ALIGN SAW CUT CONTROL JOINTS WITH LENGTH OF GRANITE SLABS (NO TROWLED EDGES)

150mm HEIGHT STANDARD CONCRETE CURB AND GUTTER PER CITY OF NORTH VANCOUVER ENGINEERING STANDARDS

GRANITE BANDING 0.229m (9") x 1.22m (48") X 0.051m (2 3/8") DEPTH WITH SAWCUT EDGES ALTERNATING STRIPS OF FLAME FINISH QS84B BLACK GRANITE AND FLAME FINISH QS14 FOX ISLAND GRANITE SURFACE (TYP.)

51mm THICK PEDESTRIAN UNIT PAVING, MANOR SQUARE SERIES BY WESTCON REFER TO P-L1 FOR PAVING PATTERNING

25mm BEDDING SAND

150mm DEPTH GRAVEL BASE COURSE, 19mm MINUS, COMPACT TO 95% MPD.

INSTALLATION SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.

PAVERS CONTACT: WESTCON PAVERS
19675 98TH AVENUE
LANGLEY, BC V1M 2X5
PHONE: 604-888-0555
FAX: 604-888-0014

GRANITE CONTACT:
QUADRA STONE PHONE: 604-266-5341

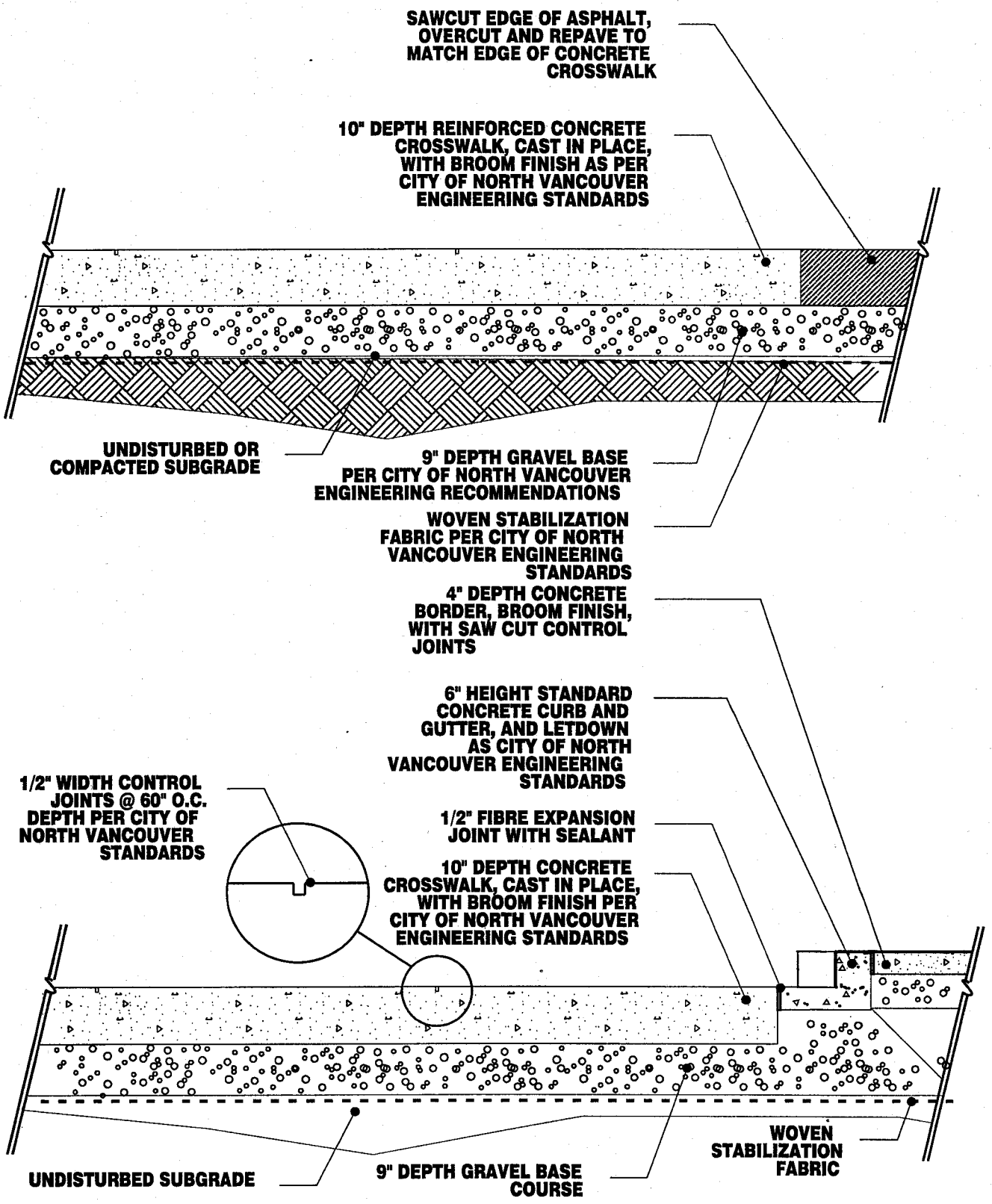
NOTE: ALL PAVING SURFACE FINISHES SHALL MEET FLUSH UNLESS SPECIFICALLY NOTED OTHERWISE

City of North Vancouver
Parks + Environment

drawing title

Sidewalk Section - Esplanade Streetsacpe Standards

drawn	H/D location	drawing no.
A.Vasilevich		ES-08
checked: –	scale: N.T.S.	date: 26 Jan 2005

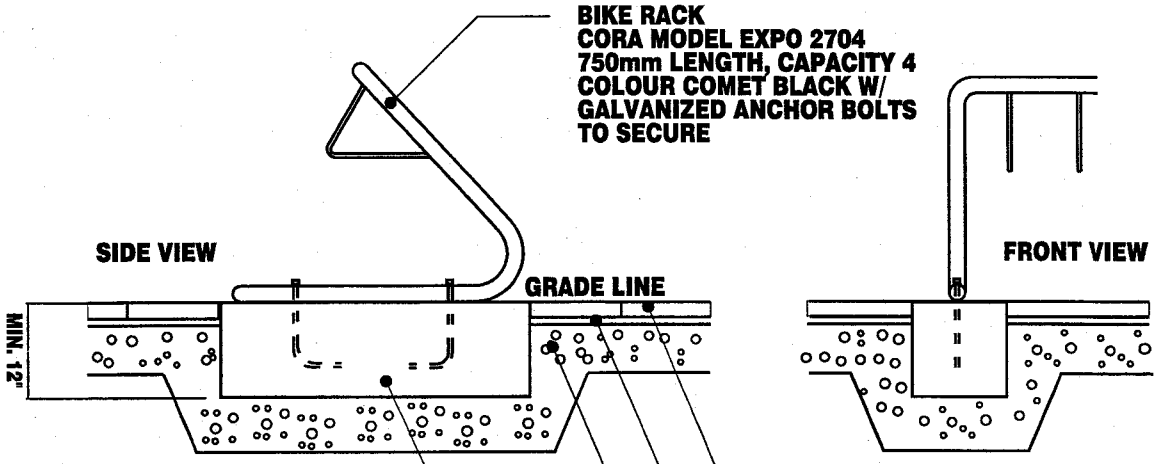


City of North Vancouver
Parks + Environment

drawing title

Pedestrian Crossing - Esplanade Streetsacpe Standards

drawn	H/D location		drawing no.
A.Vasilevich			ES-09
checked	scale	date	
–	N.T.S.	26 Jan 2005	



INSTALLATION AND ANCHORING METHOD SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.

CONTACT: CORA BIKE RACK LTD.
PO BOX 48200, BENTALL CENTRE
VANCOUVER, BC V7X 1N8
(604)437-4415

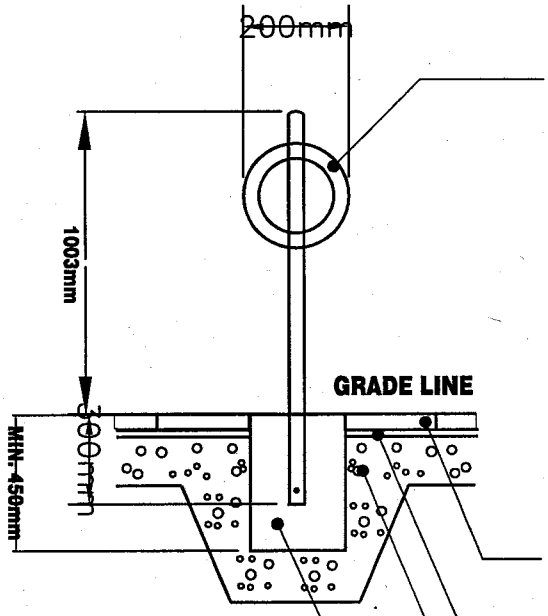
NOTES:
1) ALL PAVING SURFACE FINISHES SHALL MEET FLUSH UNLESS SPECIFICALLY NOTED OTHERWISE
2) ALL FASTENERS TO BE HOT DIPPED GALVANIZED

City of North Vancouver
Parks + Environment

drawing title

Bike Rack - Esplanade Streetsacpe Standards

drawn	H/D location	drawing no.
A.Vasilevich		ES-10
checked: –	scale: N.T.S.	date: 26 Jan 2005



BIKE RACK
MODEL E12-BRO
COLOUR BLACK W/
CONCRETE FOOTING
TO SECURE, INSTALL
AS PER MANUFACTURER'S
SPECIFICATIONS

51mm THICK PEDESTRIAN UNIT PAVING, MANOR SQUARE SERIES BY WESTCON
REFER TO P-L1 FOR PAVING PATTERNING

25mm BEDDING SAND

150mm DEPTH GRAVEL BASE COURSE, 19mm MINUS, COMPACT TO 95% MPD.

MIN. 300mm WIDE X MIN. 450mm HIGH CONCRETE FOOTING, LOCATION TO MATCH PAVING PATTERN

INSTALLATION AND ANCHORING METHOD SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.

CONTACT: FRANCES ANDREW
19154-95A AVENUE
SURREY, BC
PHONE: 604-888-3712
FAX: 604-888-2754

NOTES:
1) ALL PAVING SURFACE FINISHES SHALL MEET FLUSH UNLESS SPECIFICALLY NOTED OTHERWISE
2) ALL FASTENERS TO BE HOT DIPPED GALVANIZED

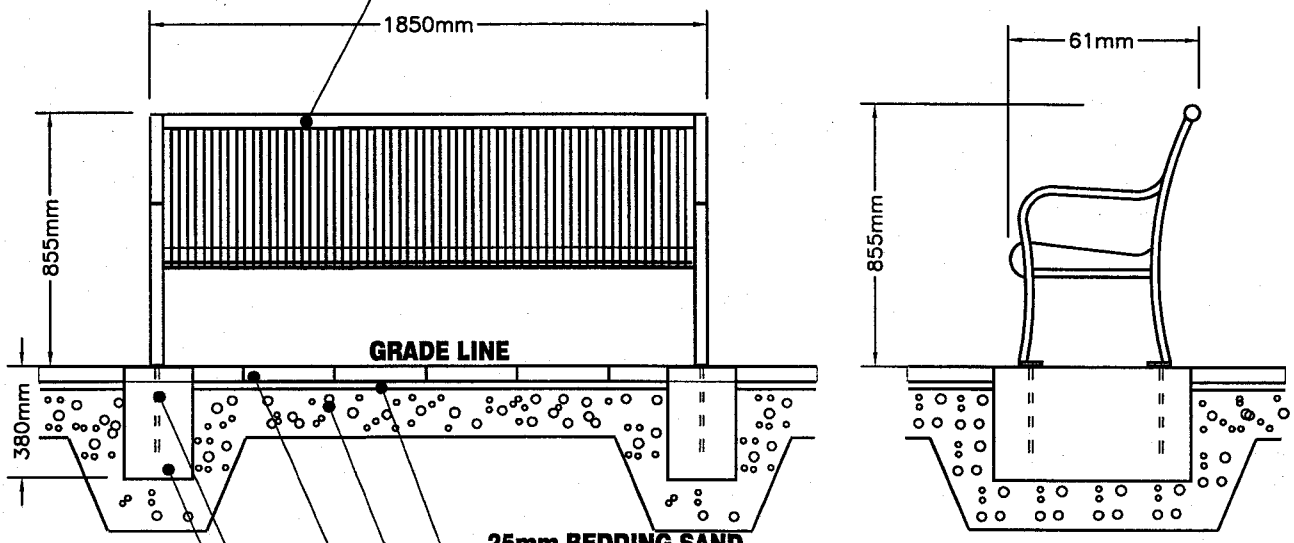
City of North Vancouver
Parks + Environment

drawing title

Alternate Bike Rack - Esplanade Streetsacpe Standards

drawn	H/D location	drawing no.
A.Vasilevich		ES-11
checked: –	scale: N.T.S.	date: 26 Jan 2005

METAL BENCH
SERIES RB-28 VICTOR STANLEY - BLACK
INSTALL AS PER MANUFACTURER'S SPECIFICATIONS



25mm BEDDING SAND

150mm DEPTH GRAVEL BASE COURSE, 19mm MINUS, COMPACT TO 95% MPD.

51mm THICK PEDESTRIAN UNIT PAVING, MANOR SQUARE SERIES BY WESTCON REFER TO P-L1 FOR PAVING PATTERNING

STAINLESS STEEL HARDWARE, BOLTED INTO CONCRETE FOOTING AS PER MANUFACTURER'S SPECIFICATIONS

228mm SQUARE X 380mm HIGH CONCRETE FOOTING, LOCATION TO MATCH PAVING PATTERN

INSTALLATION AND ANCHORING METHOD SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS.

CONTACT: HABITAT SYSTEMS
3762 NAPIER STREET
BURNABY, BC
PHONE: 604-294-4224
FAX: 604-294-4002

NOTES:
1) ALL PAVING SURFACE FINISHES SHALL MEET FLUSH UNLESS SPECIFICALLY NOTED OTHERWISE
2) ALL FASTENERS TO BE HOT DIPPED GALVANIZED
3) SET BENCH LEVEL OR PARALLEL TO PAVING

City of North Vancouver
Parks + Environment

drawing title

Bench - Esplanade Streetsacpe Standards

drawn	H/D location		drawing no.
A.Vasilevich			ES-12
checked: –	scale: N.T.S.	date: 26 Jan 2005	

Esplanade

Lighting Supplier

Wes Oliver
Lighting Sales Manager
BC Region

WESCO Distribution - Canada, Inc.
6000 Lougheed Highway
Burnaby BC V5B 4V6
Bus (604) 299-5566
Fax (604) 299-5540
Cel (604) 760-7540
woliver@wescodist.com
www.wesco.ca

Manufacturer

A E (Al) Embley

MAC'S II AGENCIES LTD.
The shortest distance between two points.

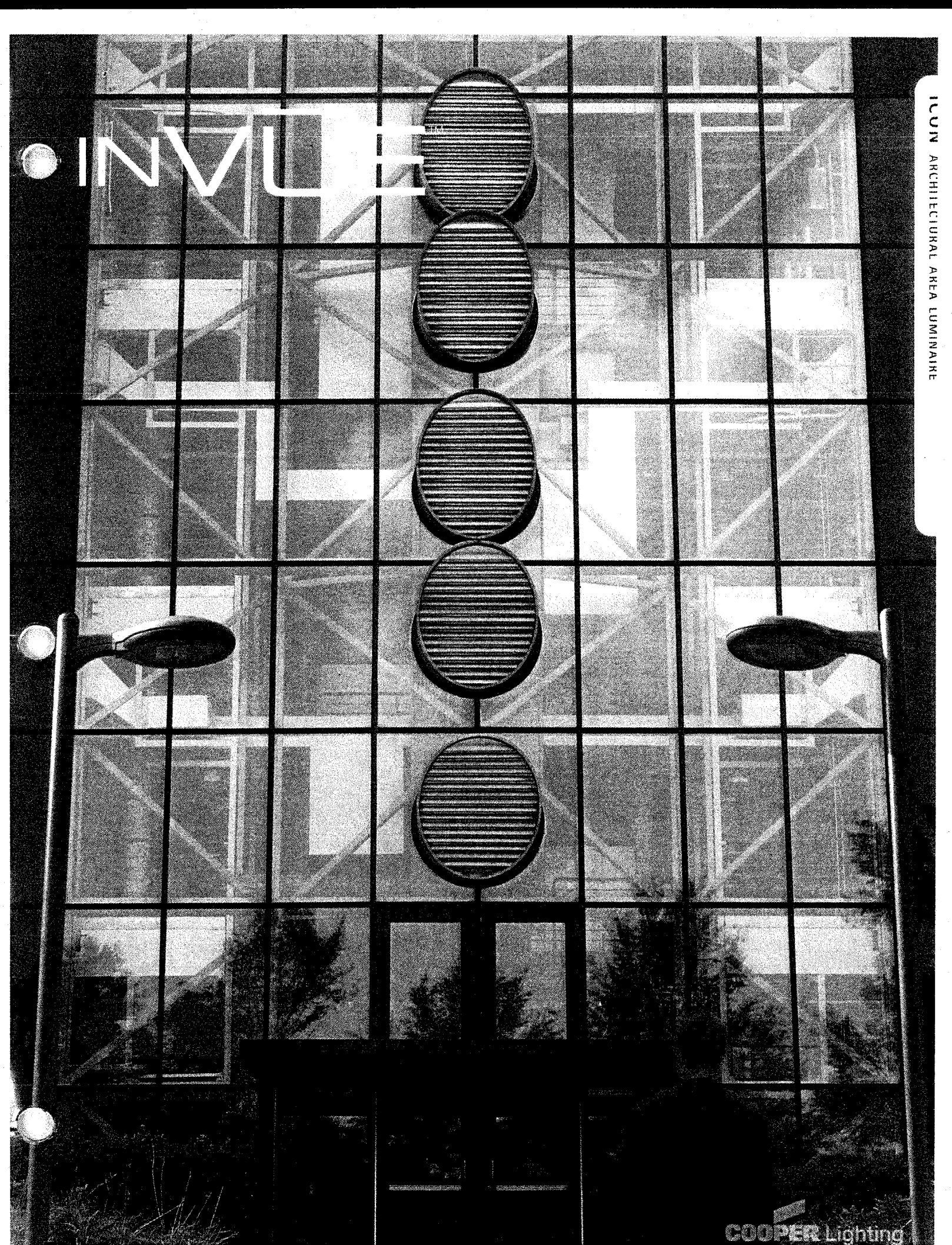
Tel: (604) 942-6696 ~ Fax: (604) 942-4059
Toll Free: 1-877-SII-MACS (6227)
1592 Kebet Way, Port Coquitlam, BC V3C 5M5
E-mail: aembley@macsii.com ~ www.macsii.com

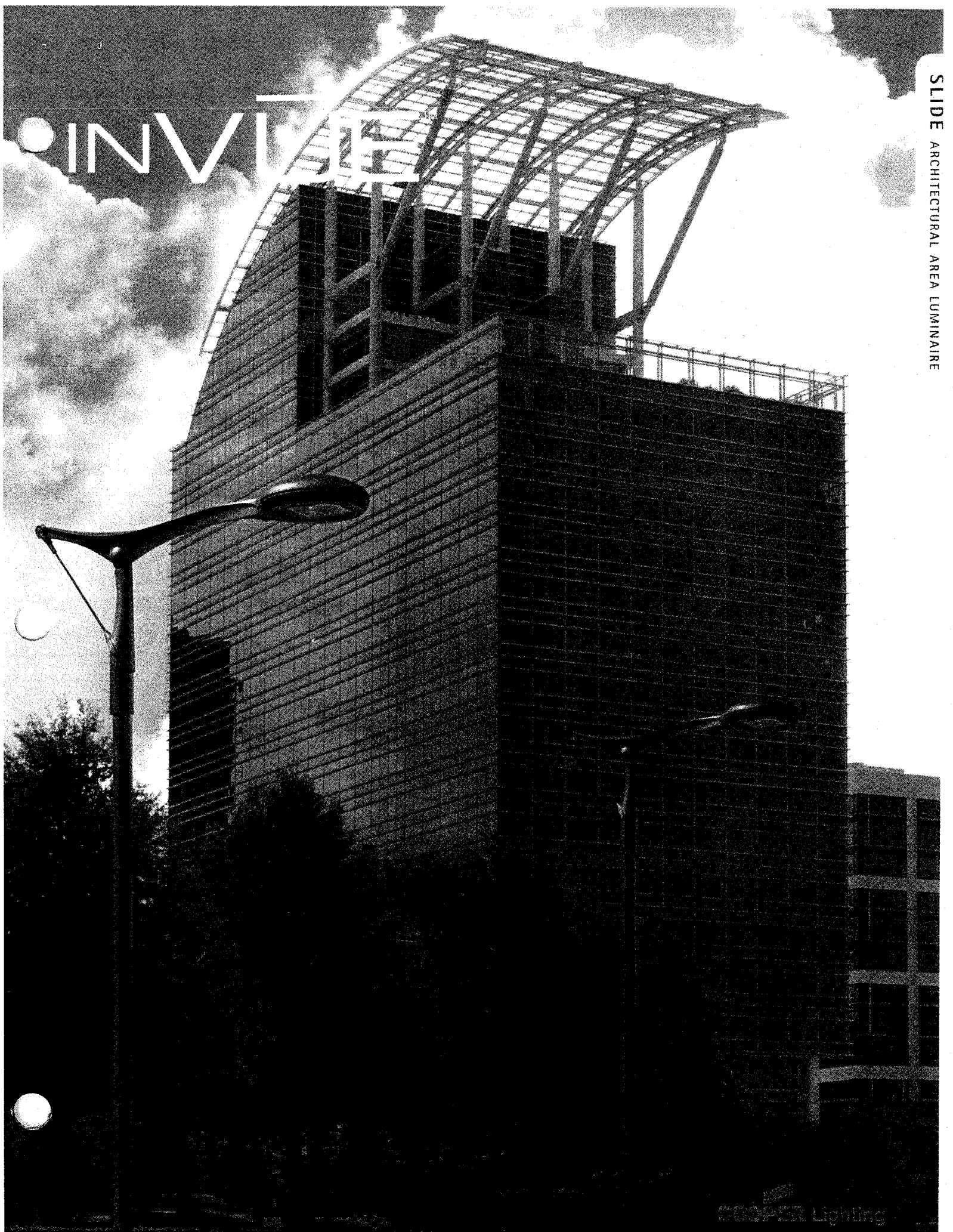
Pole Supplier

West Coast Engineering Group

Kim Watt

7984 River Road, Delta, BC, Canada V4G 1E3
tel: (604) 946-1256 email: kwatt@wceng.com
fax: (604) 946-1203 cell: (604) 551-9909


INVUE
ICON ARCHITECTURAL AREA LUMINAIRE
COOPER Lighting


INVITE
SLIDE ARCHITECTURAL AREA LUMINAIRE
Lighting

INVUE

DESCRIPTION

SLIDE's elegant cantilever arm assembly articulates a lighting assembly in suspended balance. The extended cast aluminum arm and rear suspension detail in conjunction with the flowing lines from pole to luminaire provide a dramatic form for entryways or other high visibility applications where excitement in design is desired.

Catalog # SDS-150-MH-120-25-BK	Type A
Project ESPLANADE CORRIDOR	
Comments	
Prepared by AL EMBLEY	Date JULY 6, 2004

SPECIFICATION FEATURES

A···Housing

Heavy wall, die-cast aluminum housing maintains a nominal .125 wall thickness for superior strength and precise tolerance control.

B···Door

Heavy wall, die-cast aluminum door maintains a nominal .125 thickness. Continuous silicone gasketing provides IP65 rated ingress protection throughout housing. Toolless entry to housing provided via two (2) push release recessed latches, finished to match luminaire. Captive hinging is fully concealed.

C···Lens

Impact-resistant 1/8" tempered clear or optional frosted flat glass for concealment of lamp brightness.

D···Optical Systems

Choice of five (5) high efficiency segmented optical systems constructed of premium 95% reflective anodized aluminum sheet. Optical segments are rigidly mounted inside a heavy gauge aluminum housing for superior protection. All segment faces are clean of rivet heads, tabs, or other means of attachment which may cause streaking in the light distribution. All reflector modules feature toolless removal, quick disconnect wiring plugs, and are toolless field rotatable in 90° increments. Optics feature medium-base lampholders for HID lamp sources.

E··Arm

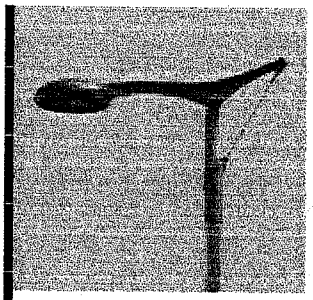
Arm manufactured of heavy wall, cast aluminum. Fits 4" O.D. tenon or slipfits over 4" round straight pole. SLIDE is secured via four (4) stainless steel hex head fasteners. Consult INVUE poles brochure for a complete listing of pole mounting options.

F···Electrical Tray

Ballast and related electrical components are mounted to a reinforced one piece toolless release power tray. Electrical quick disconnects allow tray to be completely removed from housing providing ample hand and tool room for attachment of luminaire during installation.

G···Finish

Housing and arm finished in a 5 stage premium TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum, and graphite metallic. RAL and custom color matches available. Consult your INVUE Lighting Systems Representative for more information.



SDS SLIDE

42-175W

Metal Halide
High Pressure Sodium
Compact Fluorescent

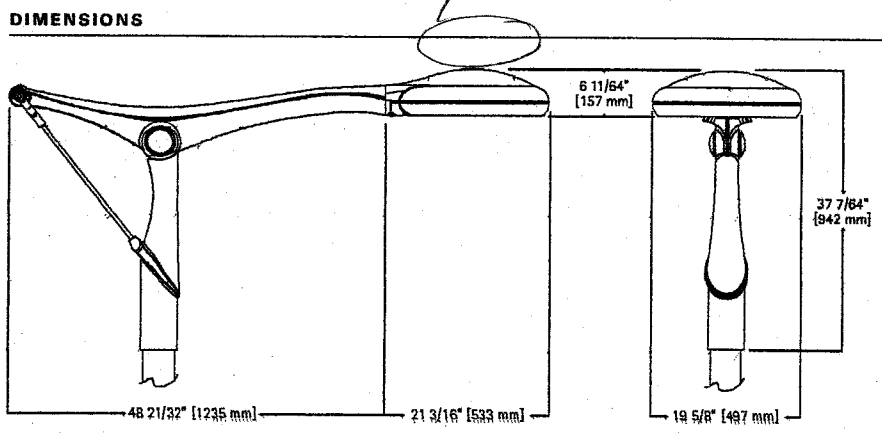
ARCHITECTURAL AREA LUMINAIRE

DARK SKY COMPLIANT FCO Full Cutoff

Wattage Table	SDS
Metal Halide	70, 100, 175W
High Pressure Sodium	70, 100, 150W
Compact Fluorescent	42, 57W

Bird control required (adhere not bolts)

DIMENSIONS



Certifications

IP65 Rated	U.L. 1598	2G Vibration Tested	FCO Full Cutoff
CSA Listed	25°C Ambient	ISO 9001	

EPA (effected projected area)
2.97

SHIPPING DATA (approx.)
Net Weight (lbs.): 88

COOPER Lighting
www.cooperlighting.com

Consult your representative for additional options and finishes.

AVU031924

ORDERING INFORMATION

SAMPLE NUMBER: SDS-175-MH-MT-3S-BK-L

SDS	150	MH	120	2S	BK	L	

Product Family
SDS=SLIDE Site Small [1]

Lamp Wattage [2]
HID
70=70W
100=100W
150=150W
175=175W
Compact Fluorescent
42=42W [3]
57=57W [3,4]

Lamp Type
MH=Metal Halide
HPS=High Pressure Sodium
CF=Compact Fluorescent [5]

Voltage [6]
120=120V
208=208V
240=240V
277=277V
347=347V
480=480V
DT=Dual-Tap wired 277V [7]
MT=Multi-Tap wired 277V [7]
TT=Triple-Tap wired 347V [7]

Distribution
2S=Type II
3S=Type III
4S=Type IV
5S=Type V
SL=Forward Throw Spill Light Eliminator

Colors (add as suffix/must specify) [8]
BK=Black
AP=Grey
BZ=Bronze
WH=White
DP=Dark Platinum
GM=Graphite Metallic

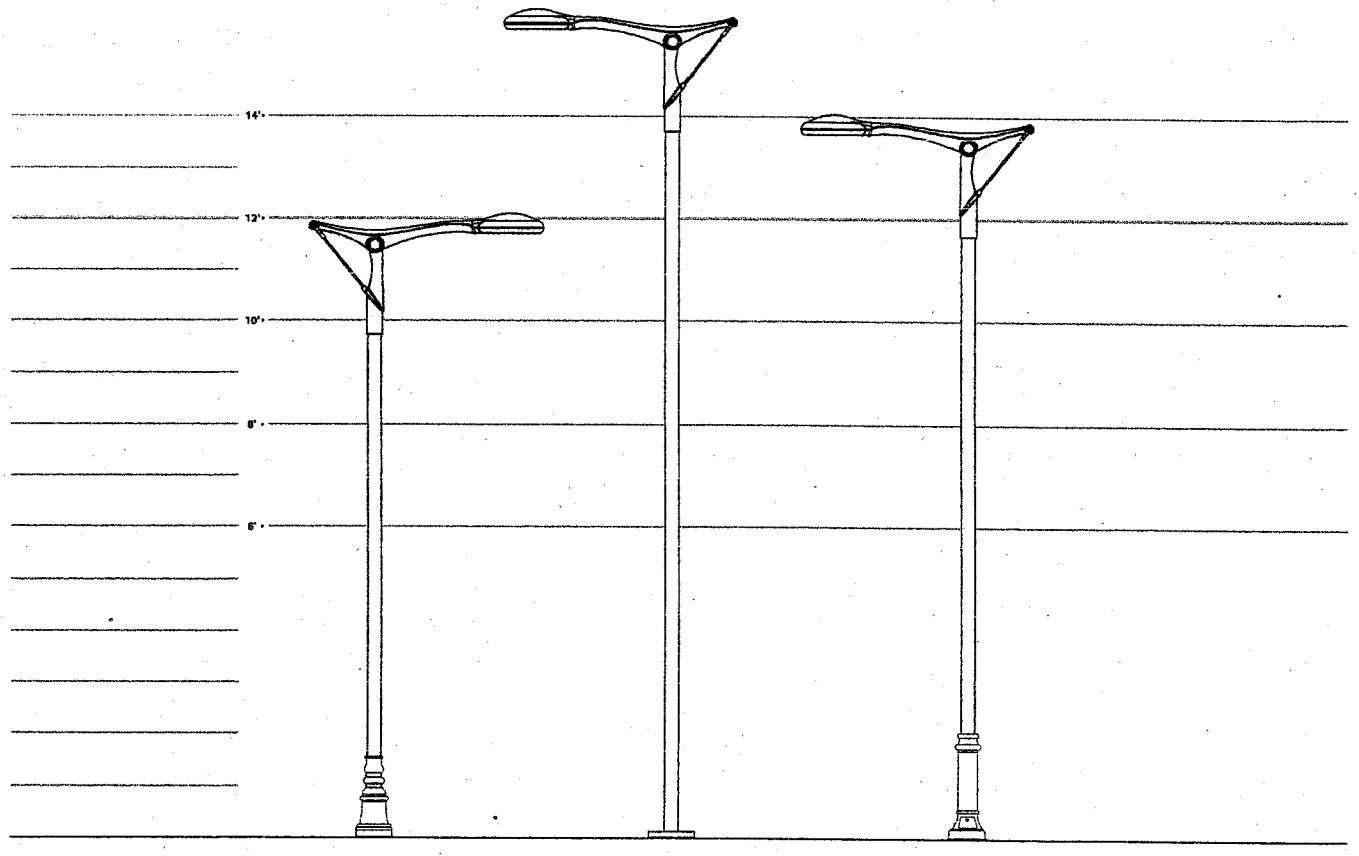
Options (add as suffix)
F=Single Fuse (120, 277, or 347V) Specify Voltage
FF=Double Fuse (208, 240 or 480V) Specify Voltage
Q=Quartz Restrike [9]
EM=Quartz Restrike with Delay (Also Strikes at Cold Start) [9]
EM/SC=Quartz Emergency Separate Circuit [9]
42CF/EM=Emergency Battery Backup [10]
R=NEMA Twistlock Photocell Receptacle
PC=Button Type Photocontrol (Specify Voltage)
HS=House Side Shield [11]
VS=Polycarbonate Vandal Shield
FR=Frosted Flat Glass Lens
L=Lamp Included

Accessories (order separately/add color suffix)
OA/RA1016=NEMA Photocontrol—Multi-Tap
OA/RA1027=NEMA Photocontrol—480V
OA/RA1201=NEMA Photocontrol—Multi-Tap (347V)

NOTE: 1 Fixture includes decorative arm assembly. 2 All HID lamps are medium-base. 3 Compact Fluorescent lamp only. Available in Type 3S, 4S and 5S distributions only. 4 Nominal M.O.L. lamp length of 57W CFL not to exceed 7". 5 Compact Fluorescent ballasts contain internal fusing. No supplemental fusing is necessary. CF ballasts are 120 through 277V. 6 Products also available in non-US voltages and 50Hz for international markets. Consult factory for availability and ordering information. 7 Dual-Tap is 120/277V wired 277V. Multi-Tap is 120/208/240/277V wired 277V. Triple-Tap ballast is 120/277/347V wired 347V. 8 Custom and RAL color matching available upon request. Consult your InVue Lighting Systems Representative for further information. 9 Quartz options not available with SL optic. 10 Battery backup provides 90 minutes of supplemental light at 60% of initial rated lamp lumens. Type 3S, 4S, 5S optics only. Must specify 42W Compact Fluorescent lamp. 11 House side shield not available on 5S and SL optics.

Bringing luminaires and poles together

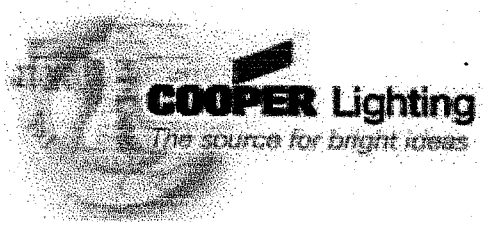
INVUE offers a full line of decorative and standard poles that can bring luminaire and pole together as an integrated, flowing system from the ground up. Consult the INVUE Poles brochure for ordering information and product specifications.



SHOWN ON:
[AMR]
Catalog Number: AMR10XXSFXX
10' Straight Shaft
4" Shaft Diameter

SHOWN ON:
[ARX]
Catalog Number: ARX4A14AXXXX
14' Straight Shaft
4" Shaft Diameter

SHOWN ON:
[BWR]
Catalog Number: BWR12XXSFXX
12' Straight Shaft
4" Shaft Diameter



Photometric Toolbox 32

IES ROAD REPORT
PHOTOMETRIC FILENAME : SDS15M2S.IES "ROADWAY SIDE LUMINAIRE"

DESCRIPTIVE INFORMATION (From Photometric File)

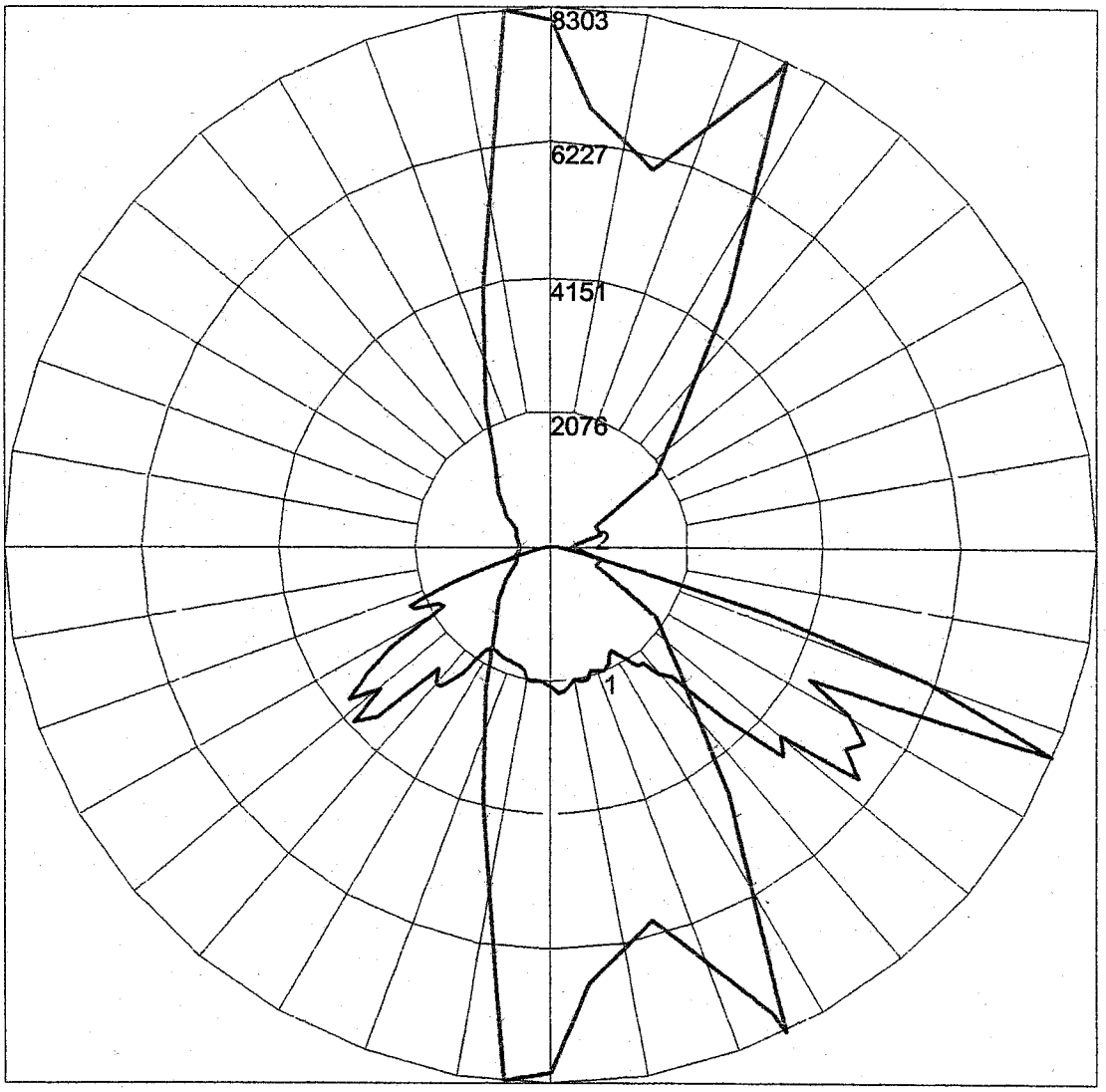
IESNA:LM-63-1995
[DATE]09/05/03
[TEST]ITL53933
[MANUFAC]COOPER LIGHTING
[LUMCAT]SDS-150-MH-XX-2S
[LUMINAIRE]SMALL ARCHITECTURAL AREA LUMINAIRE - TYPE II DISTRIBUTION
[LAMP]150 WATT MH CERAMIC CLEAR ED-17
[_REFLECTOR]PREMIUM SEGMENTED REFLECTOR
[_REFRACTOR]CLEAR FLAT GLASS
[_SOCKETPOS]HORIZONTAL
[_LAMPLUMENS]14000

CHARACTERISTICS

IES Classification	Type II
Longitudinal Classification	Short
Cutoff Classification	Full Cutoff
Total Rated Lamp Lumens	14000
Maximum Candela	8302.53
Maximum Candela Angle	64.5H 67V
Maximum Candela At 90 Degrees Vertical	0 (0.00% Lamp Lms)
Maximum Candela At 80 Degrees Vertical	74.11 (0.53% Lamp Lms)
Downward Total Efficiency	71.2%

IES ROAD REPORT
PHOTOMETRIC FILENAME : SDS15M2S.IES

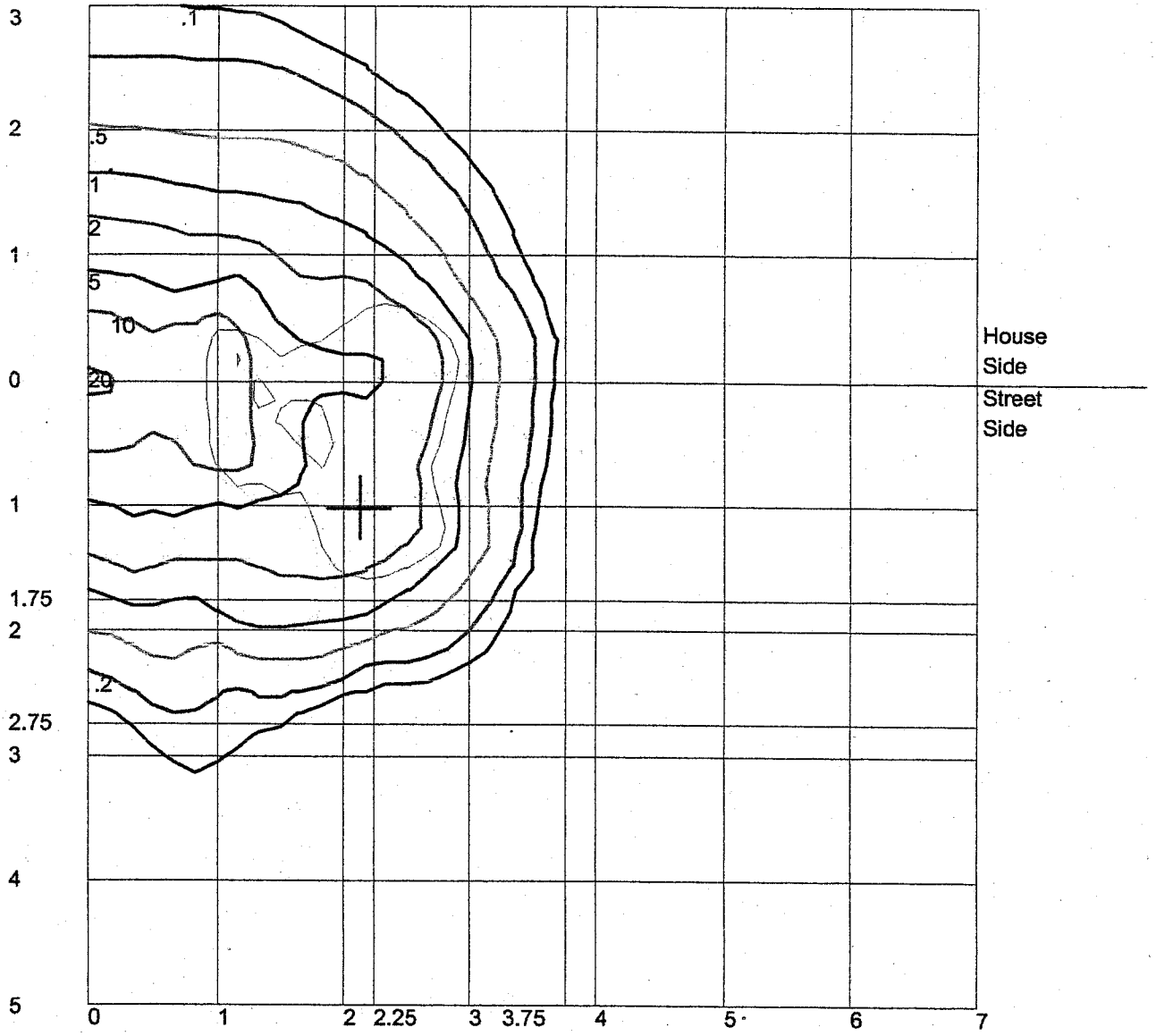
POLAR GRAPH



Maximum Candela = 8302.53 Located At Horizontal Angle = 64.5, Vertical Angle = 67
1 - Vertical Plane Through Horizontal Angles (64.5 - 244.5) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (67) (Through Max. Cd.)

IES ROAD REPORT
PHOTOMETRIC FILENAME : SDS15M2S.IES

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



Distance In Units Of Mounting Height
Values Based On 10 Foot Mounting Height
1/2 Maximum Candela Trace Shown As Dashed Curve
(+) = Maximum Candela Point

INVUE

DESCRIPTION

ICON's gentle curves and sleek profile create a shape that is beyond common. Two (2) unique arm choices combined with structural element options and multiple housing sizes provide no limitations in bridging to the architectural application.

Catalog #	Type
ICS-70-MH-120-55-BK-L-VA1006BK	B
Project: ESPLANADE CORRIDOR	
Comments:	
Prepared by: AL EMBLEY	Date: July 6, 2004

SPECIFICATION FEATURES

A···Housing

Heavy wall, die-cast aluminum housing maintains a nominal .125 wall thickness for precise tolerance control and repeatability in manufacturing.

B···Door

Heavy wall, die-cast aluminum door maintains a nominal .125 wall thickness. Continuous silicone gasketing provides an IP65 fixture rating. Toolless entry to housing is provided via two (2) recess mounted button style latches. Captive hinging is fully concealed.

C···Lens

Impact-resistant 1/8" thick tempered clear or optional frosted flat glass for concealment of lamp image.

D···Optical Systems

Choice of five (5) high efficiency segmented optical systems constructed of premium 95% reflective anodized aluminum sheet. Optical segments are rigidly mounted inside a thick gauge aluminum housing for superior protection. All segment faces are clean of rivet heads, tabs, or other means of attachment which may cause streaking in the light distribution. All reflector modules feature toolless removal, quick disconnect wiring plugs, and are toolless field rotatable in 90° increments. Medium housing (ICM) optics feature mogul-base lampholders for HID lamp sources while small housing (ICS) optics feature medium-base lampholders.

E···Upsweep Arm

Manufactured of heavy wall cast aluminum. Internal bolts guides provided for positioning arm to housing and pole.

F···Linear Arm

Manufactured of heavy wall extruded aluminum. Arm features internal bolt guides for positioning arm to housing and pole.

G···Suspension Mount

Die-cast aluminum cleat factory mounted and finished in luminaire color. Stainless steel structural rod measures 1/2" in diameter and is provided in luminaire finish or optional natural finish. Product functions in conjunction with linear arm. INVUE poles provided pre-drilled for suspension mount applications. See INVUE pole brochure for complete selection of matching poles.

H···Suspension Wall Mount

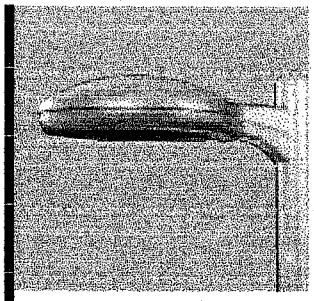
Die-cast cleat factory mounted to luminaire and finished in luminaire color. Stainless steel structural rod measures 1/2" in diameter and is provided in luminaire finish or optional natural finish. Wall bracket works in conjunction with linear arm.

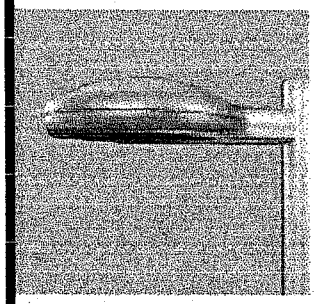
I··Electrical Tray

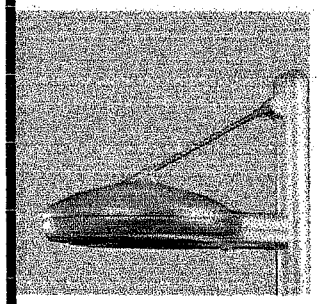
Ballast and related electrical components are mounted to a reinforced one piece toolless release power tray. Electrical quick disconnects allow tray to be completely removed from housing providing ample hand and tool room for attachment of luminaire during installation.

J··Finish

Housing and arm finished in a 5 stage premium TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum, and graphite metallic. RAL and custom color matches available. Consult your INVUE Lighting Systems Representative for more information.

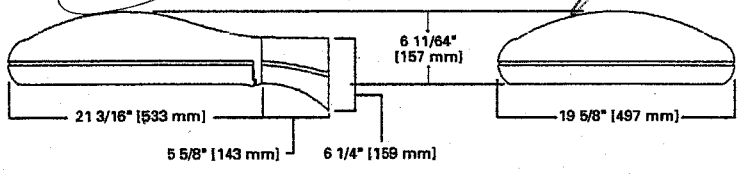


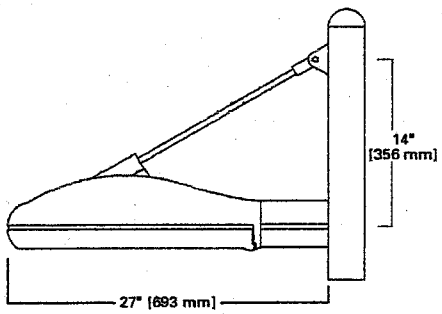




DIMENSIONS

Bird Control device required (not bolted)





Wattage Table

	ICS
Metal Halide	70, 100, 150, 175W
High Pressure Sodium	70, 100, 150W
Compact Fluorescent	42, 57W

Certifications

IP65 Rated	U.L. 1598 Listed	2G Vibration Tested	FCO Full Cutoff
CSA Listed	25°C Ambient	ISO 9001	

ICS ICON SITE SMALL

42-175W

Metal Halide
High Pressure Sodium
Compact Fluorescent

ARCHITECTURAL AREA LUMINAIRE

DARK SKY COMPLIANT FCO Full Cutoff

SHIPPING DATA (approx.)
Net Weight (lbs.): 37
Volume (cu. ft): 3.00

COOPER Lighting
www.cooperlighting.com

Consult your representative for additional options and finishes.

AVU031933

ORDERING INFORMATION

SAMPLE NUMBER: ICS-175-MH-MT-3S-BK-PRCPS-L

ICS - 70 - MH - 120 - 5S - BK - [ ] - L VA1006-BK

Product Family [1]
ICS=ICON Site Small

Lamp Wattage [2]
HID
70=70W
100=100W
150=150W
175=175W
Compact Fluorescent
42=42W [3]
57=57W [3,4]

Lamp Type
MH=Metal Halide
HPS=High Pressure Sodium
CF=Compact Fluorescent [5]

Voltage [6]
120=120V
208=208V
240=240V
277=277V
347=347V
480=480V
DT=Dual-Tap wired 277V [7]
MT=Multi-Tap wired 277V [7]
TT=Triple-Tap wired 347V [7]

Distribution
2S=Type II
3S=Type III
4S=Type IV
5S=Type V
SL=Forward Throw Spill Light Eliminator

Colors (add as suffix/must specify) [8]
BK=Black
AP=Grey
BZ=Bronze
WH=White
DP=Dark Platinum
GM=Graphite Metallic

Structural Options (add as suffix)
Pole Mount
PRCPS=Strut Rod and Clevis Set for Square Poles (Painted to match fixture, does not include arm) [9]
PRCSS=Stainless Steel Strut Rod and Clevis Set for Square Poles (Clevis' painted to match fixture, does not include arm) [9]
PRCPR=Strut Rod and Clevis Set for Round Poles (Painted to match fixture, does not include arm) [10]
PRCSR=Stainless Steel Strut Rod and Clevis Set for Round Poles (Clevis' painted to match fixture, does not include arm) [10]
Wall Mount
WRCP=Strut Rod and Clevis Set (Painted to match fixture, does not include arm) [11]
WRCS=Stainless Steel Strut Rod and Clevis Set (Clevis' painted to match fixture, does not include arm) [11]

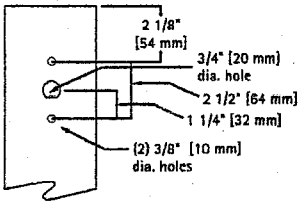
Options (add as suffix)
F=Single Fuse (120, 277, or 347V) Specify Voltage
FF=Double Fuse (208, 240 or 480V) Specify Voltage
Q=Quartz Restrike [12]
EM=Quartz Restrike with Delay (Also Strikes at Cold Start) [12]
EM/SC=Quartz Emergency Separate Circuit [12]
42CF/EM=Emergency Battery Backup [13]
R=NEMA Twistlock Photocell Receptacle [14]
PC=Button Type Photocontrol (Specify Voltage)
HS=House Side Shield [15]
VS=Polycarbonate Vandal Shield
FR=Frosted Flat Glass Lens
L=Lamp Included

Accessories (order separately/replace XX with color suffix)
VA1001-XX=Wall Mount Kit with Upsweep Arm [16]
VA1002-XX=Wall Mount Kit with Linear Arm [16]
VA1005-XX=Upsweep Arm for Square Pole
VA1006-XX=Upsweep Arm for Round Pole
VA1008-XX=Linear Arm for Square Pole
VA1009-XX=Linear Arm for Round Pole
OA/RA1016=NEMA Photocontrol—Multi-Tap
OA/RA1027=NEMA Photocontrol—480V
OA/RA1201=NEMA Photocontrol—Multi-Tap (347V)
VA1017-XX=Mast Arm Adapter Kit
VA1019-XX=Single Arm Tenon Adapter for 2 3/8" O.D. Tenon
VA1020-XX=2 @180° Tenon Adapter for 2 3/8" O.D. Tenon
VA1021-XX=3 @120° Tenon Adapter for 2 3/8" O.D. Tenon
VA1022-XX=4 @ 90° Tenon Adapter for 2 3/8" O.D. Tenon
VA1023-XX=2 @ 90° Tenon Adapter for 2 3/8" O.D. Tenon
VA1024-XX=3 @ 90° Tenon Adapter for 2 3/8" O.D. Tenon
VA1025-XX=2 @120° Tenon Adapter for 2 3/8" O.D. Tenon
VA1026-XX=Single Arm Tenon Adapter for 3 1/2" O.D. Tenon
VA1027-XX=2 @180° Tenon Adapter for 3 1/2" O.D. Tenon
VA1028-XX=3 @120° Tenon Adapter for 3 1/2" O.D. Tenon
VA1029-XX=4 @ 90° Tenon Adapter for 3 1/2" O.D. Tenon
VA1030-XX=2 @ 90° Tenon Adapter for 3 1/2" O.D. Tenon
VA1031-XX=3 @ 90° Tenon Adapter for 3 1/2" O.D. Tenon
VA1032-XX=2 @120° Tenon Adapter for 3 1/2" O.D. Tenon

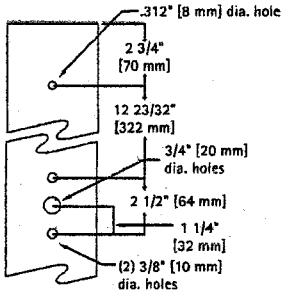
NOTE: 1 Arm not included. See accessories.
2 All HID lamps are medium-base.
3 Compact Fluorescent lamp only. Available in Type 3S, 4S and 5S distributions only.
4 Nominal M.O.L. lamp length of 57W CFL not to exceed 7".
5 Compact Fluorescent ballasts contain internal fusing. No supplemental fusing is necessary. CF ballasts are 120 through 277V.
6 Products also available in non-US voltages and 50Hz for international markets. Consult factory for availability and ordering information.
7 Dual-Tap is 120/277V wired 277V. Multi-Tap is 120/208/240/277V wired 277V. Triple-Tap ballast is 120/277/347V wired 347V.
8 Custom and RAL color matching available upon request. Consult your InVue Lighting Systems Representative for more information.
9 Square pole mount structural options do not include arm assembly (See Accessories) Compatible with VA1008 linear only.
10 Round pole mount structural options do not include arm assembly (See Accessories) Compatible with VA1009 linear arm only.
11 Wall mount structural options do not include arm assembly (See Accessories) Compatible with VA1008 linear arm only.
12 Quartz options not available with SL optic.
13 Battery backup provides 90 minutes of supplemental light at 60% of initial rated lamp lumens. Type 3S, 4S, 5S optics only. Must specify 42W Compact Fluorescent lamp.
14 NEMA photocell receptacle not available in conjunction with structural options.
15 House side shield not available on 5S and SL optics.
16 For use in down lighting applications only.

DRILLING PATTERNS

(TYPE "A")



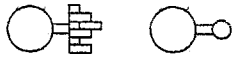
(TYPE "J")
Suspension Mount



MOUNTING VARIATIONS

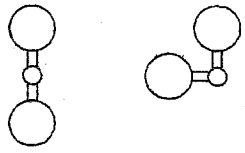
Wall Mount

Arm Mount Single
E.P.A
ICS .69



Arm Mount 2 @ 180°
E.P.A
ICS 1.38

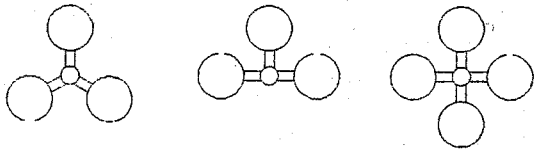
Arm Mount 2 @ 90°
E.P.A
ICS 1.38

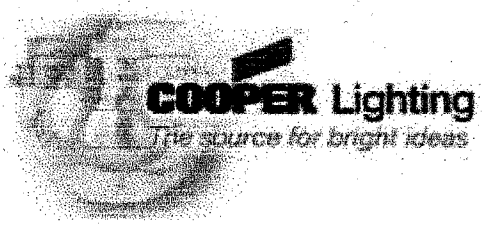


Arm Mount 3 @ 120°
E.P.A
ICS 1.84

Arm Mount 3 @ 90°
E.P.A
ICS 1.84

Arm Mount 4 @ 90°
E.P.A
ICS 2.07





Photometric Toolbox 32

IES ROAD REPORT
PHOTOMETRIC FILENAME : ICS70M5S.IES "PEDESTRIAN SIDE LUMINAIRE"

DESCRIPTIVE INFORMATION (From Photometric File)

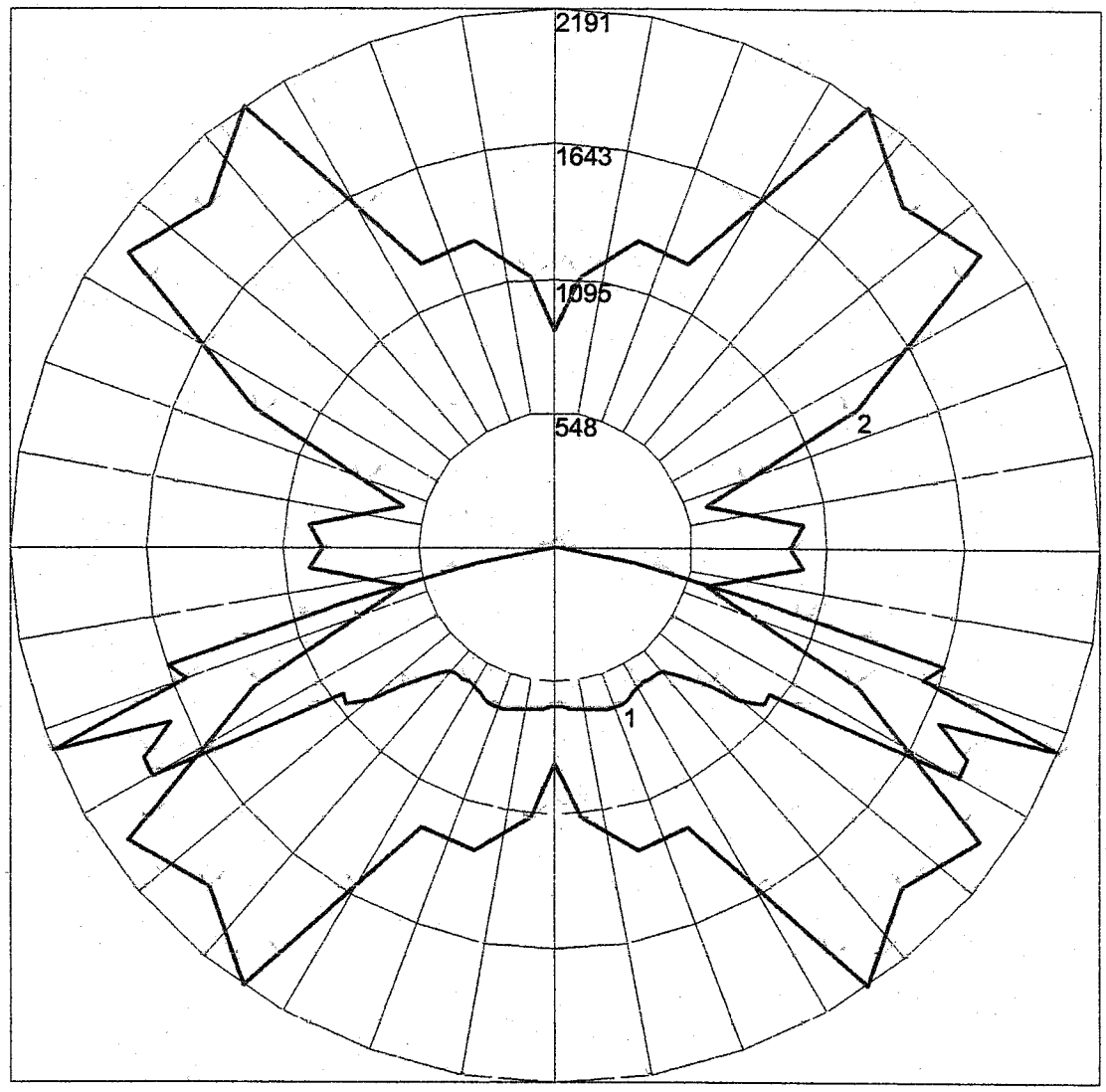
IESNA:LM-63-1995
[DATE]01/14/03
[TEST]ITL53276
[MANUFAC]COOPER LIGHTING
[LUMCAT]ICS-70-MH-XX-5S
[LUMINAIRE]SMALL ARCHITECTURAL AREA LUMINAIRE - TYPE V DISTRIBUTION
[LAMP]70-WATT CERAMIC MH CLEAR ED-17
[_REFLECTOR]PREMIUM SEGMENTED REFLECTOR
[_REFRACTOR]CLEAR FLAT GLASS
[_SOCKETPOS]HORIZONTAL
[_LAMPLUMENS]6200

CHARACTERISTICS

IES Classification	Type IV
Longitudinal Classification	Short
Cutoff Classification	Full Cutoff
Total Rated Lamp Lumens	6200
Maximum Candela	2190.73
Maximum Candela Angle	55H 67.5V
Maximum Candela At 90 Degrees Vertical	0 (0.00% Lamp Lms)
Maximum Candela At 80 Degrees Vertical	90.52 (1.46% Lamp Lms)
Downward Total Efficiency	75.2%

IES ROAD REPORT
PHOTOMETRIC FILENAME : ICS70M5S.IES

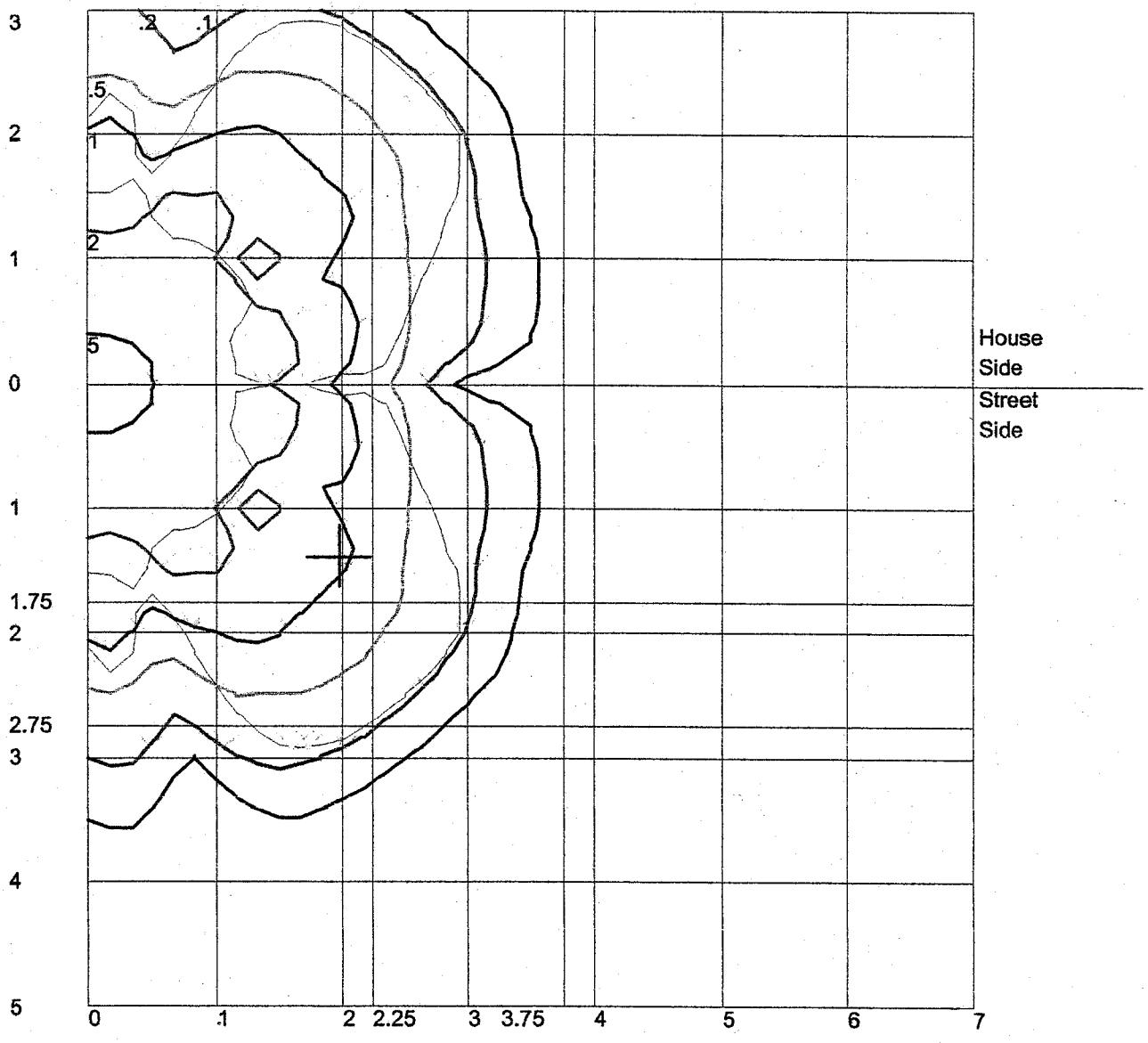
POLAR GRAPH



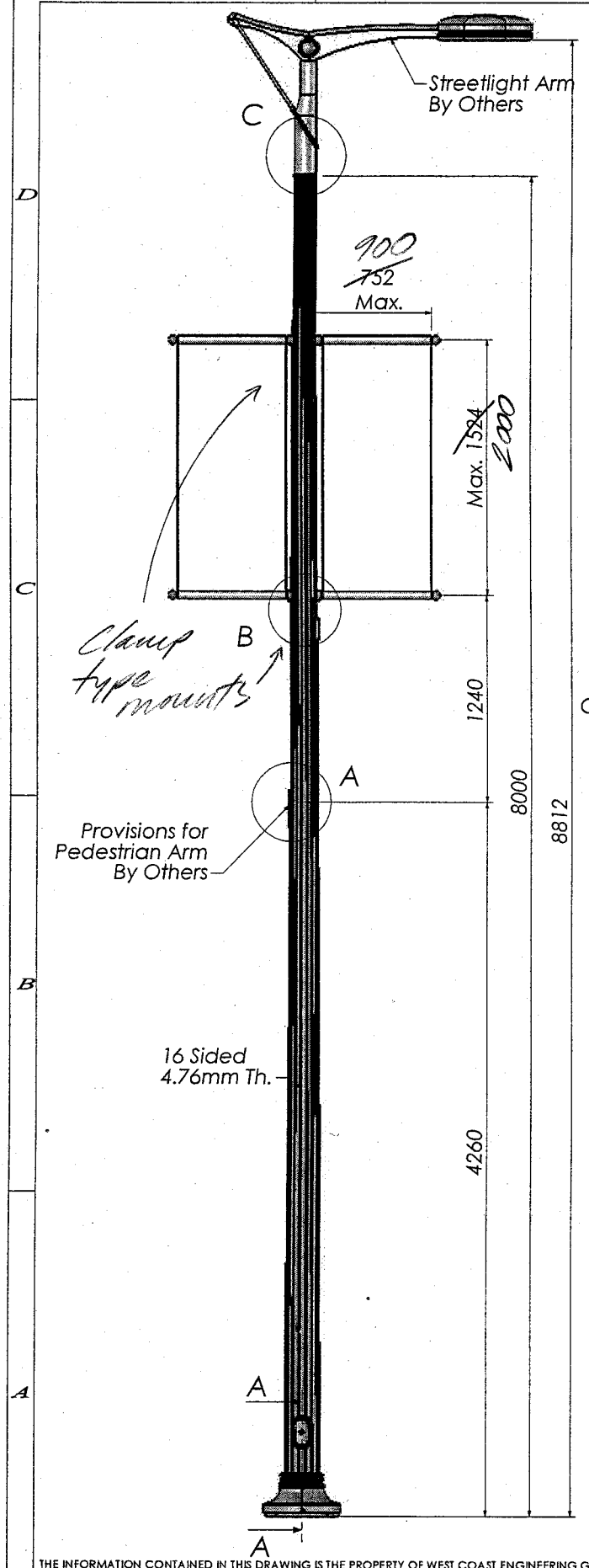
Maximum Candela = 2190.73 Located At Horizontal Angle = 55, Vertical Angle = 67.5
1 - Vertical Plane Through Horizontal Angles (55 - 235) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (67.5) (Through Max. Cd.)

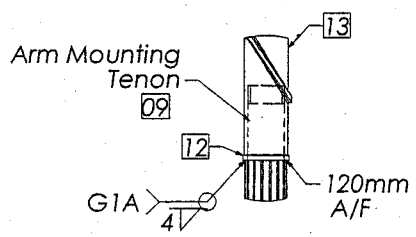
IES ROAD REPORT
PHOTOMETRIC FILENAME : ICS70M5S.IES

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE

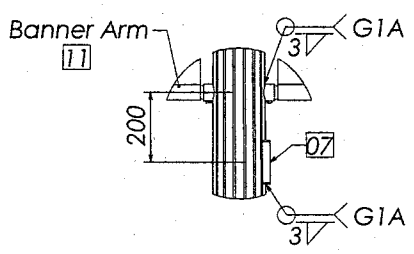


Distance in Units Of Mounting Height
Values Based On 10 Foot Mounting Height
1/2 Maximum Candela Trace Shown As Dashed Curve
(+) = Maximum Candela Point

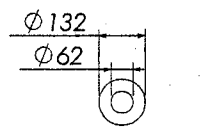




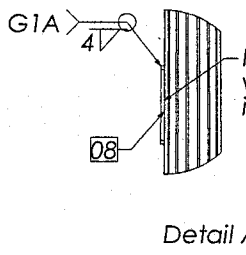
Detail C



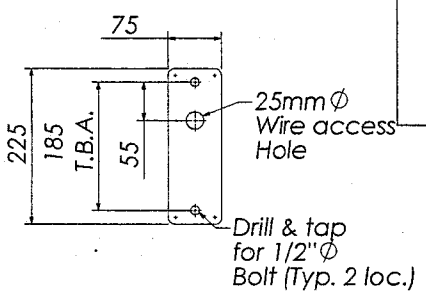
Detail B

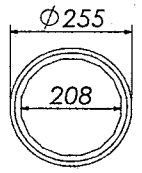


Top Plate
12.7mm Th.



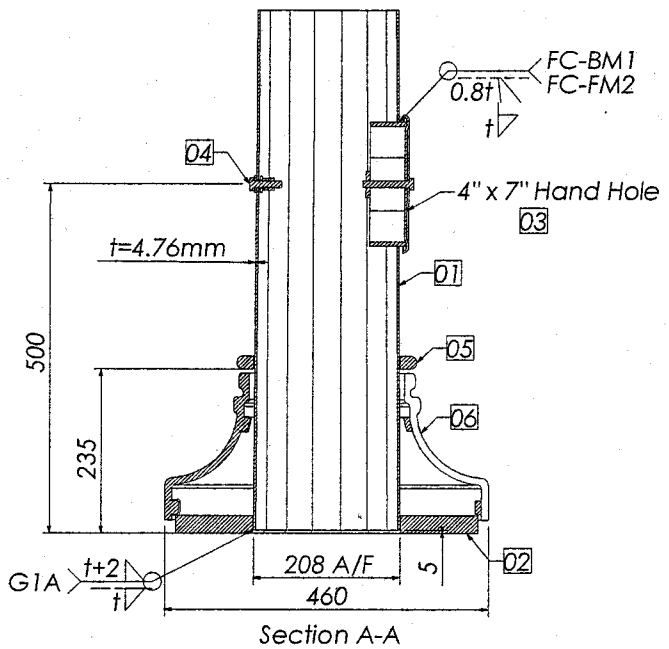
Detail A



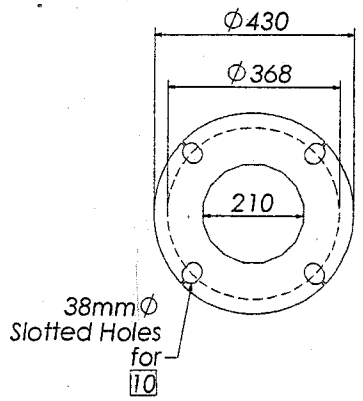


05
Transition Ring
19mm Th.

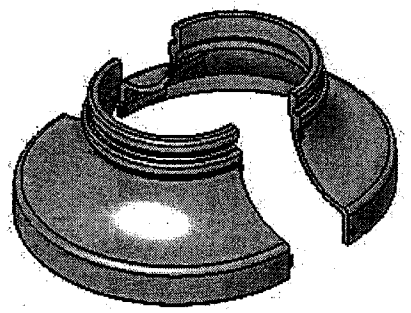
08
Flange Plate
9.5mm Th.



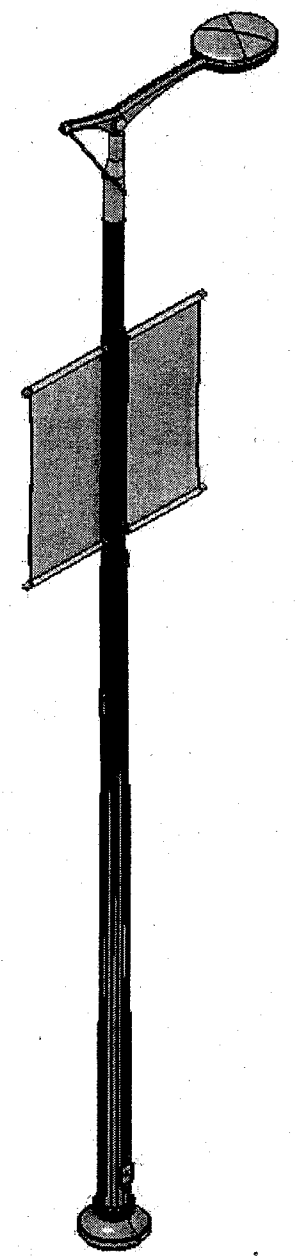
Section A-A



02
Base Plate
25.4mm Th.



06
Dorchester
Decorative Base



Decorative Pole
Isometric View

Item #	Qty.	Description	Material
1	1	16 Sided Shaft, 4.76mm Th.	G40.21-300W
2	1	Base Plate	G40.21-300W
3	1	Hand Hole Ring c/w Cover	G40.21-300W
4	1	Grounding Bolt, 3/8" Dia., x 1 1/2" Lg.	G40.21-300W
5	1	Transition Ring	G40.21-300W
6	1	Decorative Base	Al
7	1	Duplex Receptacle Box	G40.21-300W
8	1	Flange Plate	G40.21-300W
9	1	Tenon, 4" O.D. x 250mm Lg.	A53 Gr.B
10	4	Anchor Bolt, 1 1/4" Dia., x 36" Lg., c/w 1 Washer & 1 Nut (Existing)	Gr.-4100
11	2	Banner Arms	A53 Gr.B
12	1	Top Plate	G40.21-300W
13	1	Fixture Arm (Supplied by others)	-

Design Criteria:

Design Standards:
- *CAN/CSA S6-00 – Canadian Highway Bridge Design Code.*

Notes:

1. *All welding per CSA W59 1989.*
2. *All steel including fasteners shall be hot dip galvanized after fabrication. Galvanizing shall conform to CSA G164M 1992.*
3. *All steel including fasteners shall be powder coated. Color to be textured semi gloss black.*
4. *Torque bolts & nuts using the "Turn-of-nut" tightening method. Bring all bolts and nuts in the joint to a "Snug-tight" condition. "Snug-tight" is the tightness attained by a few impacts of an impact wrench or the full effort of a man using a spud wrench. When all bolts in the joint are "Snug-tight", each bolt shall be tightened additionally by rotating the bolt or nut 1/3 turn+/- 30°*

REV. #	REV. DESCRIPTION	REV. DATE	BY
0	Initial Release	24 Jan. 2004	IG

DESIGNED: TED BROCKMAN
DRAWN: JOAN GIOSAN
APPROVED: TED BROCKMAN
DATE:

PROFESSIONAL ENGINEER SEAL

Contact:
Kim Watt
kwatt@wceng.com

West Coast Engineering Group Ltd.

7984 River Road
Delta, B.C. Canada V4G 1E3
Ph.(604)946-1256 Fx.(604)946-1203
www.wceng.com

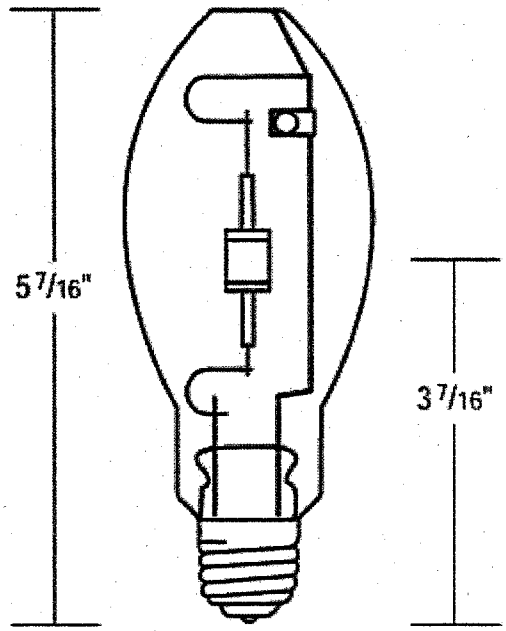
PROJECT: City of North Vancouver
Esplanade and Lonsdale

SCALE: NTS
QTY: 1
JOB #: Pending
SHEET: 1 OF 1
DWG. #: Large - Dorchester
REV. 0

PHILIPS

MasterColor® Metal Halide 150W ED-17 4K (Clear)

Featuring ALTO® Lamp Technology

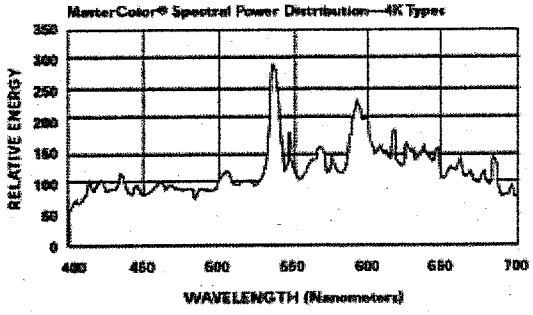


Ordering Information

Ordering Code	MHC150/U/M/4K
ANSI Designation	M142/M102/E
Product Number	377200
Description	MasterColor Met
Package Quantity	12

Physical Characteristics

Bulb Size	ED-17
Bulb Finish	Clear
Base	Medium-Screw
Max. Overall Length (MOL)	5 7/16" (138mm
Light Center Length (LCL)	3 7/16" (87mm)
Arc Length	0.79" (20mm)
Arc Tube Material	Poly Crystalline
Max. Permissible Bulb Temp.	400°C (752°F)
Max. Permissible Base Temp.	190°C (374°F)
Max. Bulb to Base Eccentricity	3°
Max. Arc Tube to Base Eccentricity	3°



Operating Characteristics (Photometric)

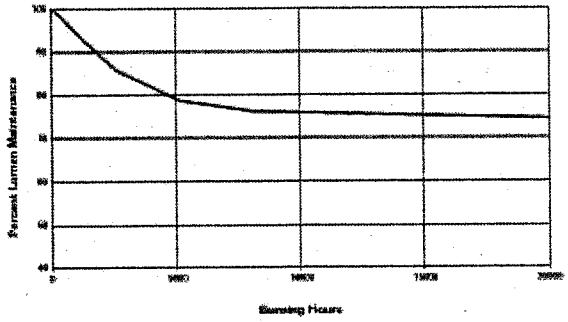
Rated Initial Lumens[1]	13,000
Mean Lumens, Approx.[2]	9750
Rated Average Life, Hours	20,000
Correlated Color Temp. (CCT)[3]	4000K
CIE Chromaticity Approx.[3]	x-.372, y-.367
Color Rendering Index (CRI)	92
Efficacy (lpw)	87

Operating Position

Universal—Enclosed Luminaires Only

Note: Electronic ballasts are preferred for optimum performance, energy efficiency and circuit loading.

Average Lumen Maintenance Curve, MHC150/U/M/4K
Clear and Coated



MasterColor® Metal Halide 150 Watt ED-17 4K (Clear) Lamp Featuring AL Technology

Electrical Data (Subject to change without notice)

Lamp Watts (Nominal)	150
Lamp Operating Voltage (rms) (Nominal)[2]	95
Initial Lamp Voltage Range (rms)[3]	85-105
Lamp Operating Current (Amps) (rms) (Nominal)	1.5
Lamp Current Crest Factor (Maximum)	1.8
Warm-up Time to 80% of Output	2 Minutes
Re-strike Time for Hot Lamp	4-8 Minutes
Ballast Type	ANSI M142/M102/E
Ballast Open Circuit Voltage (Minimum)	382 RMS, 540 Peak
Pulse Peak Volts	3300 Min., 4000 Max.
Pulse Width @ 90% Peak	2 Micro Second Minimum
Pulse Repetition Rate (Minimum)	2 per Half Cycle
Minimum Operating Temperature	-30°C

1. Measured at 100 hrs of life in vertical position.
2. Measured at rated lamp watts on a linear reactor. LPW does not include ballast losses.
3. Measured with the lamp operating at rated watts.

RECOMMENDED WARNINGS, CAUTIONS & OPERATING INSTRUCTION

"**WARNING:** These lamps can cause serious skin burn and eye inflammation from short wave ultraviolet

LAMP OPERATING INSTRUCTIONS:

1. RELAMP FIXTURES AT OR BEFORE T RATED LIFE. Allowing lamps to oper

radiation if outer envelope of the lamp is broken or punctured. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Certain lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available." This lamp complies with FDA radiation performance standard 21 CFR subchapter J. (USA:21CFR 1040.30 Canada: SOR/DORS/80-381).

If the outer bulb is broken or punctured, turn off at once and replace the lamp to avoid possible injury from hazardous short wave ultraviolet radiation. Do not scratch the outer bulb or subject it to pressure as this could cause the outer bulb to crack or shatter. A partial vacuum in the outer bulb may cause glass to fly if the envelope is struck.

WARNING: The arc-tube of metal halide lamps are designed to operate under high pressure and at temperatures up to 1000ºC and can unexpectedly rupture due to internal or external factors such as a ballast failure or misapplication. If the arc-tube ruptures for any reason, the outer bulb may break and pieces of extremely hot glass might be discharged into the surrounding environment. If such a rupture were to happen, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

Certain lamps that will retain all the glass particles should inner arc-tube rupture occur are commercially available from Philips Lighting Company.

RELAMP FIXTURES AT OR BEFORE THE END OF RATED LIFE.
Allowing lamps to operate until they fail is not advised and may increase the possibility of inner arc tube rupture.

This lamp contains an arc tube with a filling gas containing Kr-85 and is distributed by Philips Lighting Company, a division of Philips Electronics North America Corporation, Somerset, New Jersey 08875-6800.

CAUTION: TO REDUCE THE RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE RESULTING FROM AN ARC-TUBE RUPTURE THE FOLLOWING LAMP OPERATING INSTRUCTIONS MUST BE FOLLOWED.

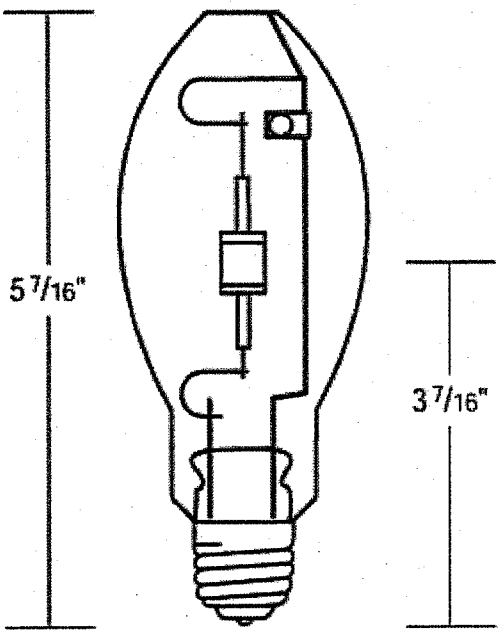
fail is not advised and may increase possibility of inner arc tube rupture.
2. Use only in an enclosed fixture capa withstanding particles of glass havir temperatures up to 1000ºC.
3. Before lamp installation/replacemen off and allow lamp and fixture to co electrical shock and potential burn h
4. Use only auxiliary equipment meetir and/or ANSI standards. Use within \ recommended by ballast manufactu
   A. Operate lamp only within spec operation.
   B. For total supply load refer to t manufacturers electrical data.
5. Periodically inspect the outer envelo any lamps that show scratches, crac damage.
6. If a lamp bulb support is used, be su insulate the support electrically to a decomposition of the bulb glass.
7. Protect lamp base, socket and wirin moisture, corrosive atmospheres an excessive heat.
8. Time should be allowed for lamps to color when turned on for the first tir require several hours of operation, \ than one start. Lamp color is also su change under conditions of excess v shock, and color appearance may va individual lamps.
9. Lamps may require 4 to 8 minutes t there is a power interruption.
10. Take care in handling and disposing an arc tube is broken, avoid skin co any of the contents or fragments.

PHILIPS

MasterColor® Metal Halide 70W ED-17 4K (Clear)

Featuring ALTO® Lamp Technology

email this link

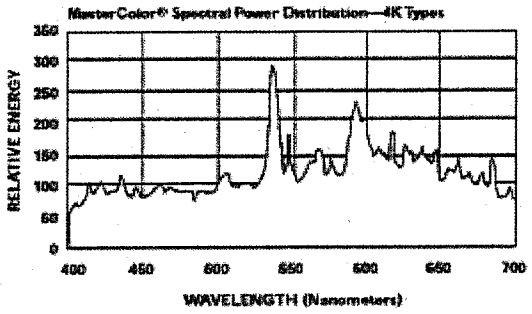


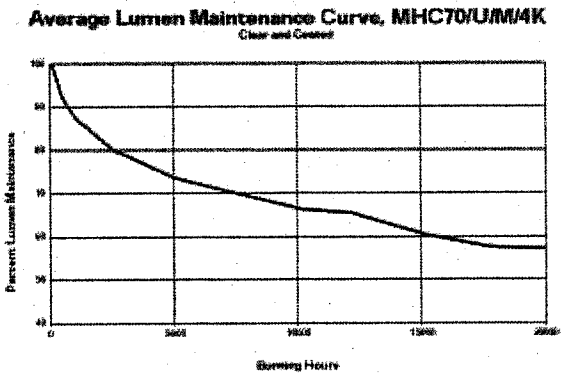
Ordering Information

Ordering Code	MHC70/U/M/4K/
ANSI Designation	M143/M98/E
Product Number	281295
Description	MasterColor Met
Package Quantity	12

Physical Characteristics

Bulb Size	ED-17
Bulb Finish	Clear
Base	Medium-Screw
Max. Overall Length (MOL)	5 7/16" (138mm
Light Center Length (LCL)	3 7/16" (87mm)
Arc Length	0.354" (9mm)
Arc Tube Material	Poly Crystalline
Max. Permissible Bulb Temp.	400°C (752°F)
Max. Permissible Base Temp.	190°C (374°F)
Max. Bulb to Base Eccentricity	3°
Max. Arc Tube to Base Eccentricity	3°





Operating Characteristics (Photometric)

Rated Initial Lumens[1]	5900
Mean Lumens, Approx.[2]	4130
Rated Average Life, Hours	20,000
Correlated Color Temp. (CCT)[2]	4000K
CIE Chromaticity Approx.[2]	x-.380, y-.375
Color Rendering Index (CRI)	92
Efficacy (lpw)	84

Operating Position

Universal—Enclosed Luminaires Only

Note: Electronic ballasts are preferred for optimum performance, energy efficiency and circuit loading.

MasterColor® Metal Halide 70 Watt ED-17 4K (Clear) Lamp Featuring ALT(Technology

Electrical Data (Subject to change without notice)

Lamp Watts (Nominal)	70
Lamp Operating Voltage (rms) (Nominal)[2]	100
Initial Lamp Voltage Range (rms)[3]	92-120
Lamp Operating Current (Amps) (rms) (Nominal)	0.8
Lamp Current Crest Factor (Maximum)	1.8
Warm-up Time to 80% of Output	2 Minutes
Re-strike Time for Hot Lamp	4-8 Minutes
Ballast Type	ANSI M143/M98/E
Ballast Open Circuit Voltage (Minimum)	235 RMS Min.
Pulse Peak Volts	3000 Min., 4000 Max.
Pulse Width @ 90% Peak	2 Micro Second Minimum
Pulse Repetition Rate (Minimum)	2 per Half Cycle
Minimum Operating Temperature	-30°C

1. Measured at 100 hrs of life in vertical position.
2. Measured at rated lamp watts on a linear reactor. LPW does not include ballast losses.
3. Measured with the lamp operating at rated watts.

RECOMMENDED WARNINGS, CAUTIONS & OPERATING INSTRUCTION

"**WARNING:** These lamps can cause serious skin burn and eye inflammation from short wave ultraviolet

LAMP OPERATING INSTRUCTIONS:

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radiation if outer envelope of the lamp is broken or punctured. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Certain lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available." This lamp complies with FDA radiation performance standard 21 CFR subchapter J. (USA:21CFR 1040.30 Canada: SOR/DORS/80-381).

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WARNING: The arc-tube of metal halide lamps are designed to operate under high pressure and at temperatures up to 1000ºC and can unexpectedly rupture due to internal or external factors such as a ballast failure or misapplication. If the arc-tube ruptures for any reason, the outer bulb may break and pieces of extremely hot glass might be discharged into the surrounding environment. If such a rupture were to happen, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

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