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Item No. 13.1.1
Harbour East – Marine Drive Community Council
October 14, 2021
November 4, 2021

TO: Chair and Members of Harbour East Marine Drive Community Council

SUBMITTED BY: ***-Original Signed-***

Kelly Denty, Executive Director of Planning and Development

DATE: September 21, 2021

SUBJECT: **Case 22867: Stage 2 Development Agreement for 16 Kings Wharf Place, Dartmouth (Lot E)**

ORIGIN

Application by The Anchorage at Dartmouth Cove Property Development Incorporated.

LEGISLATIVE AUTHORITY

Halifax Regional Municipality Charter (HRM Charter), Part VIII, Planning & Development.

RECOMMENDATION

It is recommended that Harbour East Marine Drive Community Council:

1. Give notice of motion to consider the proposed Stage 2 Development Agreement, as set out in Attachment A, for a 27-storey, mixed use building at 16 Kings Wharf Place, Dartmouth;

2. Approve the proposed Stage 2 Development Agreement, which shall be substantially of the same form as set out in Attachment A; and

3. Require the agreement be signed by the property owner within 240 days, or any extension thereof granted by Council on request of the property owner, from the date of final approval by Council and any other bodies as necessary, including applicable appeal periods, whichever is later; otherwise this approval will be void and obligations arising hereunder shall be at an end.

BACKGROUND

The Anchorage at Dartmouth Cove Property Development Incorporated is applying to enter into a Stage 2 Development Agreement to permit a 27-storey mixed-use building at 16 Kings Wharf Place in Dartmouth.

Subject Site	16 Kings Wharf Place, Dartmouth
Location	Southeast corner of where Kings Wharf Place and the CN Rail Line intersect – Downtown Dartmouth
Regional Plan Designation	HARB (Harbour)
Community Plan Designation (Map 1)	D (Downtown) – Regional Centre Municipal Planning Strategy
Zoning (Map 2)	D (Downtown) – Regional Centre Land Use By-law
Size of Site	6,000 m^2 (64,583 ft^2)
Street Frontage	Kings Wharf Place: 98 m (322 ft)
Current Land Use(s)	Vacant, temporary surface parking
Surrounding Use(s)	CN Rail line, Ferry Terminal Park, multiple unit dwellings, retail, offices, Trans Canada multi use trail, Halifax Harbour.

History

Development of the larger Kings Wharf site has been regulated by a series of development agreements since Harbour East Community Council first approved a Stage 1 development agreement in 2008. The 2008 Stage 1 development agreement permitted:

- 12 buildings ranging in height from 5 to 32 storeys;
- 2 new public streets;
- approximately 1,500 residential units;
- a 200-room hotel;
- up to 230,000 square feet of office and commercial space;
- public and private parks and boardwalks; and
- a marina.

Under the 2008 Stage 1 development agreement and subsequent Stage 2 development agreements, four multiple unit dwellings with commercial uses and a public street (Kings Wharf Place) have been constructed on the Kings Wharf site. The 4 multi-unit dwellings are occupied with 354 dwellings and commercial space.

Existing Stage 1 Development Agreement

Harbour East Marine Drive Community Council discharged the 2008 Stage 1 development agreement and approved a new Stage 1 development agreement on February 6, 2020. The 2020 Stage 1 agreement applies to the Kings Wharf site south of Kings Wharf Place, excluding the lands containing the 4 existing buildings, but including the subject site. It permits:

- Up to 1,146 dwelling units (the number of units remaining of the original 1,500 after discounting those already constructed within the existing 4 buildings on the Kings Wharf development site);
- 27,421 square meters of commercial uses;
- Four new public streets;
- Two marinas; and
- Park and open space uses.

The 2020 Stage 1 development agreement (Attachment C) permits 16 new buildings on individual lots, ranging in height from 12 to 120 metres. The proposed Stage 2 agreement would apply only to Lot E at 16 Kings Wharf Place, Dartmouth.

Proposal Details
The applicant proposes to construct a 27-storey apartment building with first and second floor commercial uses and an internal courtyard on Lot E of the Kings Wharf development agreement area, in accordance with the existing Stage 1 development agreement. The major aspects of the proposal are as follows:

- 27-storey mixed use building;
- Internal courtyard with public and resident amenity space;
- Public art to be installed prior to the completion of the full phase of development; and
- Ground floor, pedestrian oriented commercial uses facing Kings Wharf Place, Road A and the internal courtyard.

Enabling Policy and LUB Context
The subject site is located within the Regional Centre Plan Area. Policy 3.9 of the Regional Centre Secondary Planning Strategy Policy says:

> *The Land Use By-law shall establish the King's Wharf Special Area (KW) on Schedule 4 of the Land Use By-law. Development agreements or amendments to development agreements for King's Wharf that have been received by the Municipality on or before September 5, 2029, may be considered by Council in accordance with the policies in effect at the time Council provides notice of intention to adopt this Plan.*

Planning staff deemed this application complete on April 15, 2020, within the timeline required by Policy 3.9. The enabling policy for this application is Policy W-9 of the 2019 Downtown Dartmouth Secondary Planning Strategy (SMPS), which requires a two-stage development agreement for each building on the site. The Stage 1 development agreement addresses land uses, street and park placement, servicing, and other similar matters throughout the entire Stage 1 agreement area. The Stage 2 development agreement addresses detailed design considerations and enables development on a single lot subdivided from the larger Stage 1 development agreement area.

Because this site is controlled by an existing Stage 1 development agreement, by-right development under the Land Use By-law for the Regional Centre is not permitted.

COMMUNITY ENGAGEMENT

The community engagement process is consistent with the intent of the HRM Community Engagement Strategy. The level of community engagement was consultation, achieved through providing information and seeking comments through the HRM website, signage posted on the subject site, and fact sheets mailed to 601 residents and property owners within the notification area shown on Map 2. Between April 17, 2020, when the webpage was published, and August 10, 2021, the HRM case webpage received 1,110 page views. Staff received questions or feedback from 12 people.

Public comments received included the following topics:

- Concern regarding public safety if additional dwelling units are permitted prior to a grade-separated emergency vehicle access into the site being complete; and
- Concern regarding traffic on Kings Wharf Place relating to vehicles queueing to wait for passing trains.

Under the Downtown Dartmouth Secondary Planning Strategy, a Stage 2 development agreement is a non-substantive amendment of the Stage 1 development agreement. Therefore, this application does not require Harbour East Marine Drive Community Council to hold a public hearing.

The proposal will potentially impact local residents, business owners and property owners, CN Rail, and users of the Trans Canada multi-use trail.

DISCUSSION

Staff have reviewed the proposal and advise that it is reasonably consistent with the intent of the Regional MPS, the Downtown Dartmouth SPS, and the aforementioned Stage I Development Agreement. Attachment B provides an evaluation of the proposed Stage 2 development agreement in relation to the relevant MPS and SPS policies.

Proposed Development Agreement
Attachment A contains the proposed Stage 2 development agreement for the subject site and the conditions under which the development may occur. The proposed development agreement addresses the following matters:

- Maximum height: 82.5 metres plus some permitted overruns;
- Maximum streetwalls:
  - Kings Wharf Place: 22 metres and 16 metres;
  - Road A: 15 metres;
- Bicycle parking in accordance with the Land Use By-law for the Regional Centre;
- Landscaping, including rooftop landscaping;
- Both street frontages are pedestrian oriented commercial streets, with a pedestrian-focused list of permitted uses to animate the streetscape;
- Indoor and outdoor amenity space;
- Wind interventions; and
- Provisions requiring that the grade separated emergency vehicle access be operational prior to Occupancy Permit issuance.

Because the proposed Stage 2 development agreement is listed as a non-substantive amendment in Clause 6.1.1 (a) of the existing Stage 1 development agreement, no new non-substantive changes have been added to the list already provided in the 2020 Stage 1 development agreement.

The attached Stage 2 development agreement would permit a 27-storey mixed use building, subject to the controls identified above. Of the matters addressed by the proposed development agreement to satisfy the MPS and SPS criteria as shown in Attachment B and the provisions of the existing Stage 1 development agreement, the following have been identified for detailed discussion:

Wind
Clause 3.10 of the existing Stage 1 development agreement states:

> *3.10.1 Quantitative wind studies are required for any Stage II Agreement Application containing a high rise building. Studies shall be prepared and sealed by a qualified Professional Engineer with the results of the study informing mitigation of found impacts through building and site design.*
>
> *3. 10.2 Any required wind impact assessment must address:*
> *(a) existing wind conditions, including the effects of buildings and physical features on the lot and surrounding lots;*
> *(b) the impact of the development on wind conditions in the following areas:*
> *i. the public realm, including parks, plazas, other open spaces, sidewalks, other pedestrian areas, and building entrances,*
> *ii. outdoor amenity space, and*
> *iii. surrounding properties;*
> *(c) the expected level of comfort for activities such as sitting, standing, strolling, and walking;*
> *(d) pedestrian safety, where wind gusts might adversely affect a pedestrian's balance; and*
> *(e) the methodology and standards used in the assessment.*

The 2020 Stage 1 development agreement defines a "high rise" as any main building with a height of 22.0 metres or more. The proposed building would be taller than 22 metres and was therefore required to undergo a quantitative wind study. The quantitative wind study is provided in Attachment D, and a supplementary letter from the wind expert is found in Attachment E.

Windtech Consultants conduct a wind tunnel study of the proposed development and analyzed the expected wind environment on the site both pre and post-development and established 25 metres per second (m/s) as the maximum safe wind speed. Using data collected from the wind tunnel, Windtech determined where wind speeds were expected to exceed the maximum safe wind speed and recommended a series of interventions to mitigate wind speed and improve safety. The proposed development agreement shows these wind interventions in Schedule N of the agreement, and requires these interventions be installed on the proposed building prior to Occupancy Permit issuance.

There are several areas of the site where wind speeds currently exceed 25 m/s and would continue to exceed the maximum safe wind speed post-development, despite the required wind interventions. Most of these high-wind areas are along the Road A frontage. Where the primary focus of the wind studies was to ensure wind conditions are not worsened due to new development, mitigating the pre-existing impacts of wind on this ocean adjacent site was not required.

Traffic/grade separated emergency vehicle access

Clause 3.2.4 of the existing Stage 1 development agreement says:

> *3.2.4 No occupancy permit for any development on the Lands within phases 1 to 4 or sites 1 or 2 as per Schedule C will be granted until such time that the grade separate emergency vehicle access has been deemed complete and operational by the Development Engineer.*

Lot E, the subject site for this application, is located within Phase 1 on Schedule C of the existing Stage 1 development agreement. Therefore, no Occupancy Permit can be issued for a building on Lot E until the HRM Development Engineer deems the required grade separate emergency vehicle access complete and operational. Clause 3.2.4 (a) embeds this requirement in the proposed Stage 2 development agreement.

Under Clause 3.11.4 of the existing Stage 1 development agreement, the required grade-separated emergency vehicle access may not be used for public vehicle traffic and must remain open and accessible to pedestrians at all times. The Developer will own and maintain the grade-separated emergency access and must register a right-of-way easement in favour of HRM to allow pedestrian and emergency vehicle throughfare. Clause 3.2.4 (e) of the proposed Stage 2 development agreement requires that this easement be conveyed to HRM prior to Occupancy Permit issuance.

The required grade-separated emergency vehicle access would not be located on Lot E and is not shown on the site plans and drawings attached to the proposed Stage 2 development agreement. Clause 3.2.3 of the existing Stage 1 development agreement and Clause 3.2.3 (a) and (b) of the proposed Stage 2 DA require the design for the grade-separated emergency access to be provided to the Development Officer prior to Building Permit issuance. Council will have the opportunity to see the location and design of the grade-separated emergency vehicle access via a future Stage II planning application. Approval of this subsequent Stage II agreement will be required by Community Council prior to its construction. At the time of report writing, an application for this subsequent agreement has not yet been made.

Timeframes for signing of Agreements

The COVID-19 pandemic has resulted in difficulties in having legal agreements signed by multiple parties in short periods of time. To recognize this difficulty these unusual circumstances presents, staff are recommending extending the signing period for agreements following a Council approval and completion of the required appeal period. While normally agreements are required to be signed within 120 days, staff recommend doubling this time period to 240 days. This extension would have no impact on the development

rights held within the agreement, and the agreement could be executed in a shorter period of time if the situation permits.

Conclusion
Staff have reviewed the proposal in terms of all relevant policy criteria and advise that the proposal is reasonably consistent with the intent of the MPS and SMPS. The proposed Stage 2 development agreement would allow a 27-storey apartment building with some commercial uses to be constructed on Lot E, in accordance with the existing Stage 1 development agreement. Staff recommend that the Harbour East – Marine Drive Community Council approve the proposed Stage 2 development agreement.

FINANCIAL IMPLICATIONS

There are no budget implications. The applicant will be responsible for all costs, expenses, liabilities, and obligations imposed under or incurred in order to satisfy the terms of this proposed development agreement. The administration of the proposed development agreement can be carried out within the approved 2021-2022 operating budget for Planning and Development.

RISK CONSIDERATION

There are no significant risks associated with the recommendations contained within this report. This application may be considered under existing SPS policies. Community Council has the discretion to make decisions that are consistent with the SPS, and such decisions may be appealed to the N.S. Utility and Review Board. Information concerning risks and other implications of adopting the proposed Stage 2 Development Agreement are contained within the Discussion section of this report.

ENVIRONMENTAL IMPLICATIONS

No environmental implications are identified.

ALTERNATIVES

1. Harbour East Marine Drive Community Council may choose to approve the proposed Stage 2 development agreement subject to modifications. Such modifications may require further negotiation with the applicant and may require a supplementary report. A decision of Council to approve this development agreement is appealable to the N.S. Utility & Review Board as per Section 262 of the *HRM Charter*.

2. Harbour East Marine Drive Community Council may choose to refuse the proposed development agreement, and in doing so, must provide reasons why the proposed agreement does not reasonably carry out the intent of the MPS or SPS. A decision of Council to refuse the proposed development agreement is appealable to the N.S. Utility & Review Board as per Section 262 of the *HRM Charter*.

ATTACHMENTS

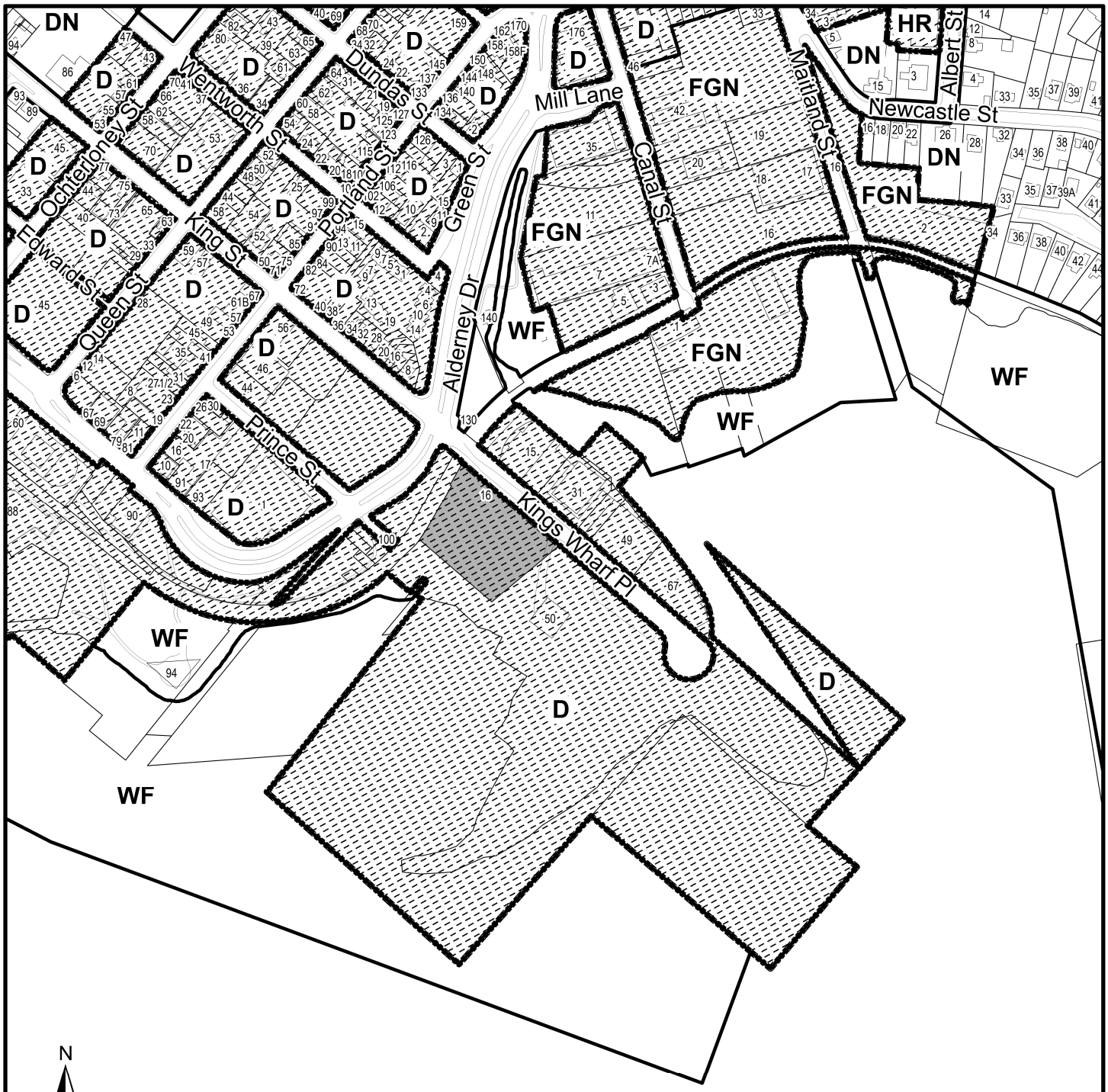
Map 1: Generalized Future Land Use
Map 2: Zoning and Notification Area
Map 3: Kings Wharf Stage 1 Development Agreement Area

Attachment A: Proposed Stage 2 Development Agreement

Attachment B:	Review of Relevant MPS and SMPS Policies
Attachment C:	Existing Stage 1 Development Agreement
Attachment D	Quantitative Wind Assessment
Attachment E	Supplementary Letter from Wind Expert

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

Report Prepared by: Jamy-Ellen Klenavic, Planner 2, 902.476.8361



Map 1 - Generalized Future Land Use

16 Kings Wharf Place,:Dartmouth

HALIFAX

Subject Property

Regional Centre Package A

Regional Centre Package A Bylaw Area,
Downtown Dartmouth Bylaw Area

Regional Centre Package A Designation

D	Downtown
HR	Higher-Order Residential
FGN	Future Growth Node

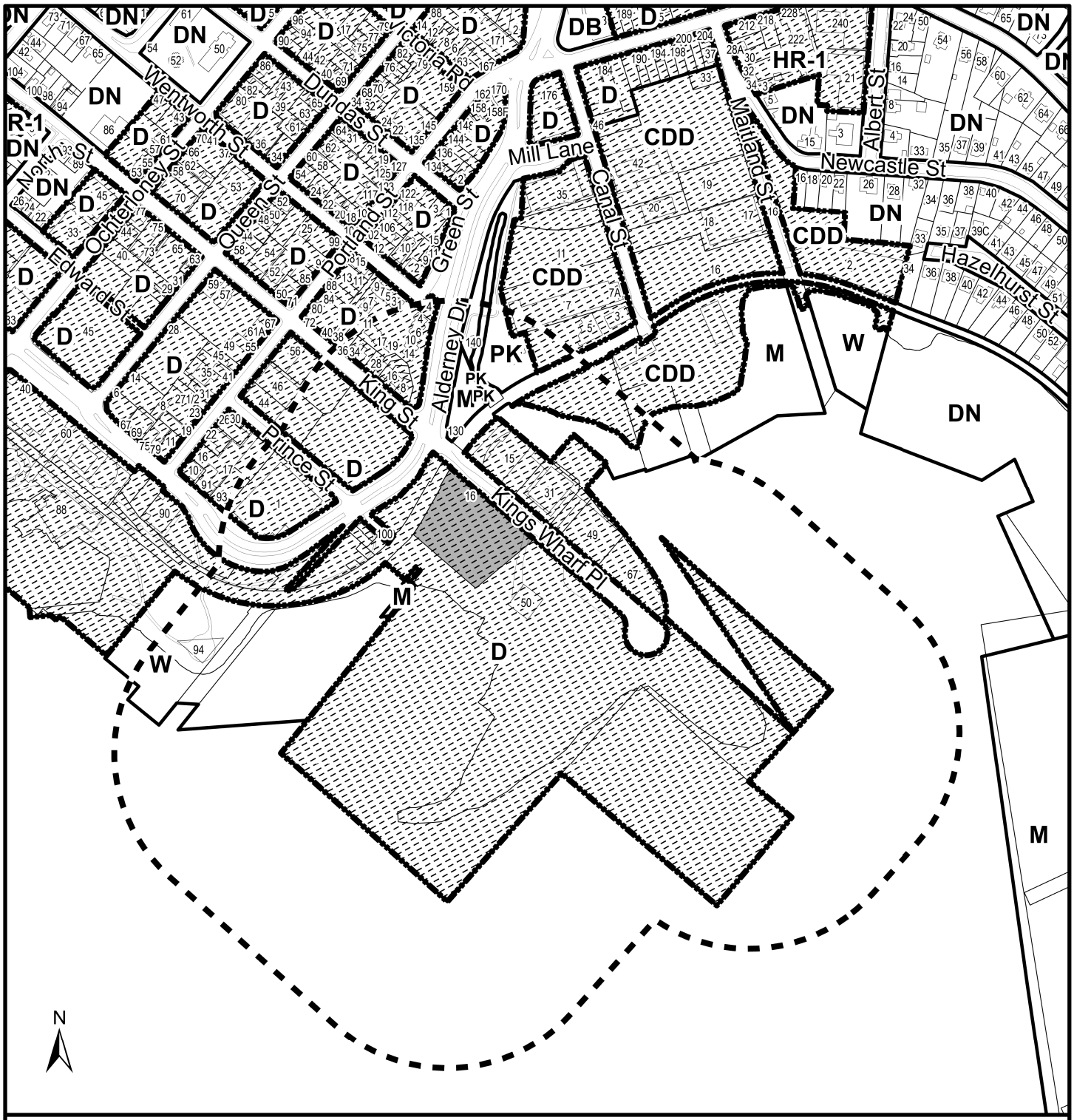
Downtown Dartmouth Designation

DB	Downtown Business District
DN	Downtown Neighbourhood
WF	Waterfront

0 40 80 120 160 m

This map is an unofficial reproduction of a portion of the Generalized Future Land Use Map for the plan area indicated.

The accuracy of any representation on this plan is not guaranteed.



Map 2 - Zoning and Location

16 Kings Wharf Place,:Dartmouth

Subject Property

Regional Centre Package A

Notification Area

Regional Centre Package A Bylaw Area,
Downtown Dartmouth Bylaw Area

Regional Centre Package A Zones

D	Downtown
HR-1	Higher-Order Residential 1
CDD	Comprehensive Development District

Downtown Dartmouth Zones

DB	Downtown Business District
DN	Downtown Neighbourhood
W	Waterfront
M	Marine Business
PK	Park and Open Space

HALIFAX

0 40 80 120 160 m

This map is an unofficial reproduction of a portion of the Zoning Map for the plan area indicated.

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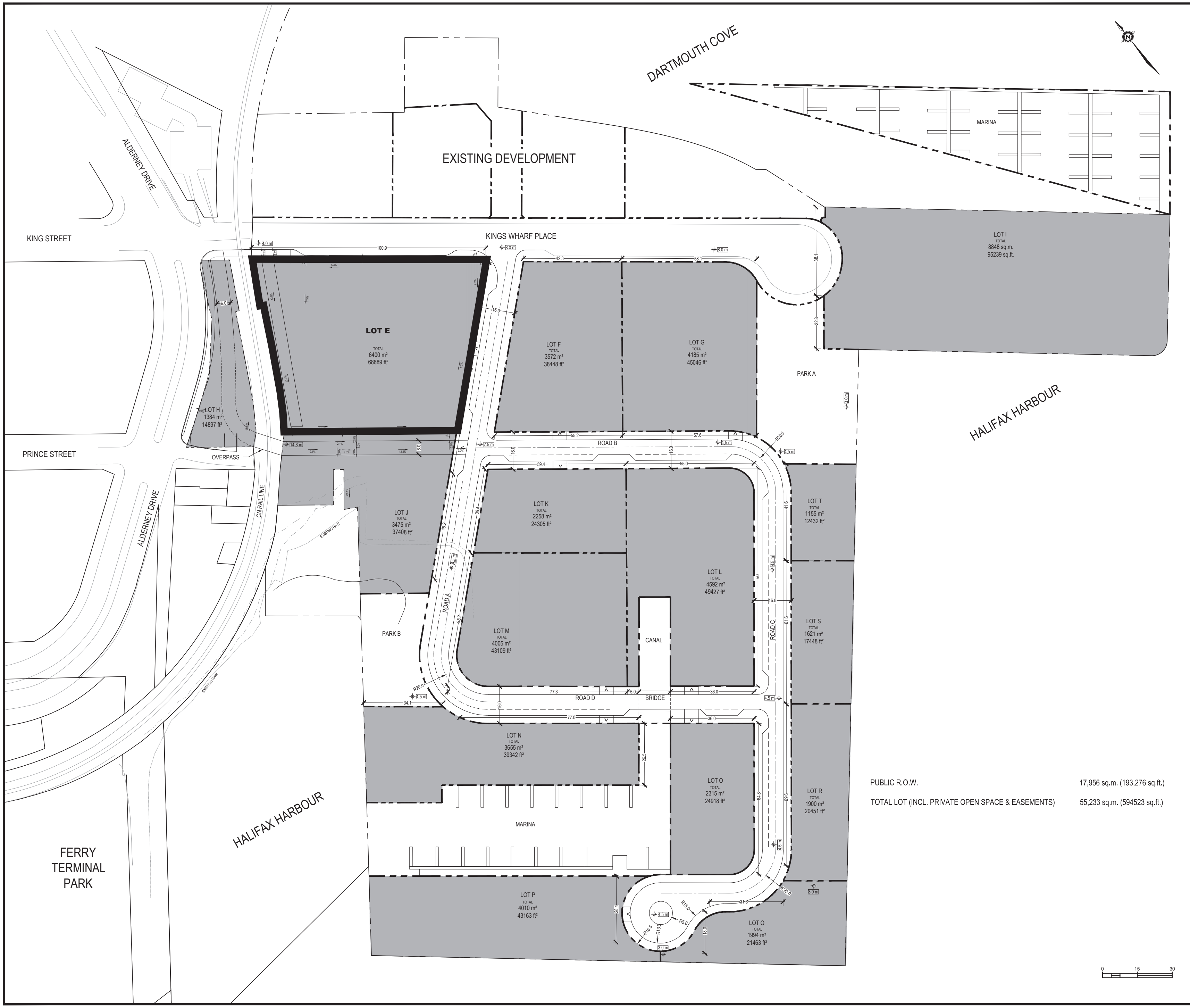

KEY PLAN
SCALE = NTS

Map 3 - Kings Wharf Stage 1 Development Agreement Area

Original Stage 1 Development Agreement Area

Approximate Area of Lot E

NO.	DESCRIPTION	DATE
6	ISSUED FOR DA AMENDMENT - REVISED	2019-03-29
5	ISSUED FOR DA AMENDMENT - REVISED	2018-10-01
4	ISSUED FOR DA AMENDMENT - REVISED	2018-08-27
3	ISSUED FOR DA AMENDMENT	2018-01-26
2	ISSUED FOR CLIENT REVIEW	2018-01-15
1	ISSUED FOR CLIENT REVIEW	2017-11-16

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Landscape Architecture | Engineering | Architecture

CLIENT
FARES & CO. DEVELOPMENT INC.
31 KING'S WHARF PLACE
KEELSON SALES CENTRE
DARTMOUTH, NS B2Y OC1

PROJECT
KING'S WHARF
DARTMOUTH, NS

SHEET DESCRIPTION

SCALE	DATE	SCHEDULE
AS NOTED	2019/03/29	B

DRAWN	CHECKED	PROJECT NO.
DS	RL	17-145

Attachment A: Proposed Stage 2 Development Agreement

THIS STAGE 2 AGREEMENT made this day of , 20 ,

BETWEEN:

[**Insert Name of Corporation/Business LTD.**] a body corporate, in the Province of Nova Scotia
(hereinafter called the "Developer")

OF THE FIRST PART

- and -

HALIFAX REGIONAL MUNICIPALITY, a municipal body corporate, in the Province of Nova Scotia
(hereinafter called the "Municipality")

OF THE SECOND PART

WHEREAS the Developer is the registered owner of certain lands located at 16 Kings Wharf Place, Dartmouth, and which said lands are more particularly described in Schedule A attached hereto and are hereinafter called the "Lands";

AND WHEREAS certain lands located on the former Marine Slips property in Dartmouth are more particularly described in Schedule B attached hereto and are hereinafter called the "Original Kings Wharf Development Site";

AND WHEREAS certain lands located on the former Marine Slips property in Dartmouth are more particularly described in Schedule C attached hereto and are hereinafter called the "Remaining Kings Wharf Development Site";

AND WHEREAS on August 7, 2008 the Harbour East Community Council approved an application to enter into a Stage I Development Agreement for the Original Kings Wharf Development Site (Case Number 00798), and which was registered at the Halifax County Land Registration Office on August 18, 2009 as Document Number 94067684 (hereinafter called the "Original Stage 1 Agreement");

AND WHEREAS on November 12, 2009 the Harbour East Community Council approved an application to amend the Original Stage 1 Agreement to revise the phasing plan for the Original Kings Wharf Development Site (Case Number 01335) and which was registered at the Halifax County Land Registration Office on January 15, 2010 as Document Number 95113008 (hereinafter called the "First Amendment to the Original Stage 1 Agreement");

AND WHEREAS on August 26, 2014 the Harbour East – Marine Drive Community Council approved an application to amend the Original Stage 1 Agreement to revise the phasing and mix of land uses on the Original Kings Wharf Development Site (Case Number 19241) and which was registered at the Halifax County Land Registration Office on December 16, 2014 as Document Number 106347819 (hereinafter called the "Second Amendment to the Original Stage 1 Agreement");

AND WHEREAS the Original Stage I Agreement, the First Amendment to the Original Stage 1 Agreement and the Second Amendment to the Original Stage 1 Agreement together comprise the First Stage 1 Agreement (hereinafter called "the First Stage 1 Agreement);

AND WHEREAS on December 3, 2009 the Harbour East Community Council approved an application to enter into a Stage 2 Development Agreement to enable development on Phase 1 of the

Original Kings Wharf Development Site (Case Number 01335), and which was registered at the Halifax County Land Registration Office on March 18, 2010 as Document Number 95534534 (hereinafter called the “First Stage 2 Agreement”);

AND WHEREAS on May 3, 2012 the Harbour East Community Council approved an application to discharge the First Stage 2 Agreement (Case Number 17735), and which was registered at the Halifax County Land Registration Office on June 21, 2012 as Document Number 100947408;

AND WHEREAS on May 3, 2012 the Harbour East Community Council approved an application to enter into a Stage 2 Development Agreement to reflect changes to the design and land use on Phase 1 of the Original Kings Wharf Development Site (Case Number 17735), and which was registered at the Halifax County Land Registration Office on June 21, 2012 as Document Number 100947523 (hereinafter called the “2012 Stage 2 Agreement”);

AND WHEREAS on August 26, 2014 the Harbour East – Marine Drive Community Council approved an application to amend the 2012 Stage 2 Agreement to allow changes to the permitted design, use and number of dwelling units in the approved building on Phase 1 of the Original Kings Wharf Development Site (Case Number 19241), and which was registered at the Halifax County Land Registration Office on December 16, 2014 as Document Number 106347835 (hereinafter called the “First Amendment to the 2012 Stage 2 Agreement”);

AND WHEREAS the 2012 Stage 2 Agreement and the First Amendment to the 2012 Stage 2 Agreement together comprise the Second Stage 2 Agreement (hereinafter called “the Second Stage 2 Agreement”);

AND WHEREAS on February 6, 2020 the Harbour East – Marine Drive Community Council approved an application to discharge the First Stage 1 Development Agreement and the Second Stage 2 Agreement (Case Number 21296), and which was registered at the Halifax County Land Registration Office on June 11, 2020 as Document Number 116469652, discharging the First Stage 1 Development Agreement and Second Stage 2 Agreement from the Lands;

AND WHEREAS on February 6, 2020 the Harbour East – Marine Drive Community Council approved an application to enter into a Stage 1 Development Agreement for a revised site design on the Remaining Kings Wharf Development Site (Case Number 21296), and which was registered in the Halifax County Land Registration Office on June 22, 2020 as Document Number 116518391 (hereinafter called the “Existing Stage 1 Agreement”), and which applies to the Lands;

AND WHEREAS the Developer has requested the Municipality enter into a Stage 2 Development Agreement to allow for a 27 storey mixed-use building on the Lands pursuant to the provisions of the *Halifax Regional Municipality Charter* and pursuant to Policy 3.9 of the Secondary Planning Strategy for the Regional Centre, Policies W-9 and W-9B of the 2019 Downtown Dartmouth Secondary Planning Strategy and Section 12 (14) of the 2019 Downtown Dartmouth Land Use By-law;

AND WHEREAS the Harbour East – Marine Drive Community Council approved this request at a meeting held on October 7, 2021, referenced as Case Number 22867;

THEREFORE, in consideration of the benefits accrued to each party from the covenants herein contained, the Parties agree as follows:

PART 1: GENERAL REQUIREMENTS AND ADMINISTRATION

1.1 Applicability of Agreement

1.1.1 The Developer agrees that the Lands shall be developed and used only in accordance with and subject to the terms and conditions of the Existing Stage 1 Development Agreement and this Stage 2 Development Agreement.

1.2 Applicability of Land Use By-law and Subdivision By-law

1.2.1 Except as otherwise provided for herein, the development, use and subdivision of the Lands shall comply with the requirements of the applicable Land Use By-law and the Regional Subdivision By-law, as amended from time to time.

1.2.2 Variances to the requirements of the applicable Land Use By-law shall not be permitted.

1.3 Applicability of Other By-laws, Statutes and Regulations

1.3.1 Further to Section 1.2, nothing in this Agreement shall exempt or be taken to exempt the Developer, lot owner or any other person from complying with the requirements of any by-law of the Municipality applicable to the Lands (other than the Land Use By-law to the extent varied by this Agreement), or any statute or regulation of the Provincial/Federal Government and the Developer or Lot Owner agree(s) to observe and comply with all such laws, by-laws and regulations, as may be amended from time to time, in connection with the development and use of the Lands.

1.3.2 The Developer shall be responsible for securing all applicable approvals associated with the on-site and off-site servicing systems required to accommodate the development, including but not limited to sanitary sewer system, water supply system, stormwater sewer and drainage system, and utilities. Such approvals shall be obtained in accordance with all applicable by-laws, standards, policies, and regulations of the Municipality and other approval agencies. All costs associated with the supply and installation of all servicing systems and utilities shall be the responsibility of the Developer. All design drawings and information shall be certified by a Professional Engineer or appropriate professional as required by this Agreement or other approval agencies.

1.4 Conflict

1.4.1 Where the provisions of this Agreement conflict with those of any by-law of the Municipality applicable to the Lands (other than the Land Use By-law to the extent varied by this Agreement) or any provincial or federal statute or regulation, the higher or more stringent requirements shall prevail.

1.4.2 Where the written text of this Agreement conflicts with information provided in the Schedules attached to this Agreement, the written text of this Agreement shall prevail.

1.5 Costs, Expenses, Liabilities and Obligations

1.5.1 The Developer shall be responsible for all costs, expenses, liabilities and obligations imposed under or incurred in order to satisfy the terms of this Agreement and all Federal, Provincial and Municipal laws, by-laws, regulations and codes applicable to the Lands.

1.6 Provisions Severable

1.6.1 The provisions of this Agreement are severable from one another and the invalidity or unenforceability of one provision shall not affect the validity or enforceability of any other provision.

1.7 Lands

1.7.1 The Developer hereby represents and warrants to the Municipality that the Developer is the owner of the Lands and that all owners of the Lands have entered into this Agreement.

PART 2: DEFINITIONS

2.1 Words Not Defined under this Agreement

2.1.1 All words unless otherwise specifically defined herein shall be as defined in the Existing Stage 1 Agreement, and if not defined therein the definition contained within the applicable Land Use By-law and Subdivision By-law shall apply, and if not defined within these documents their customary meaning shall apply.

2.2 Definitions Specific to this Agreement

2.2.1 The following words used in this Agreement shall be defined as follows:

(a) **Barrier Free:** means in accordance with the definition of Barrier Free contained within the *National Building Code of Canada*.

(b) **Building Height**: means the vertical difference between the average finished grade around the structure, and the structure's highest point excluding mechanical rooms, elevator shafts, stairwells and other non-occupiable spaces such as a church spire, lightning rod, flag pole, antenna, skylight, chimney, landscape vegetation, solar collector, roof top cupola, parapet, cornices, eaves, railings or guards, or other similar features, provided that the total of all such features, shall occupy in the aggregate less than 30 % of the area of the roof of the building on which they are located and no taller than 8 metres above the roof on which it sits.

(c) **Commercial Space**: means the use of a building for office uses, retail uses or service uses.

(d) **Floor Plate Area**: means the horizontal cross-section of a floor, between the floor and the next floor above, measured to the outside surface of the exterior walls and includes all mechanical equipment areas and all open areas inside a building that do not contain a floor, including atriums, elevator shafts, stairwells and similar areas.

(e) **Gross Floor Area**: means the gross horizontal area of all floors in all buildings, measured from the exterior faces of the exterior walls but excluding unenclosed balconies and any floor area below the ground floor that is not used for residential purposes.

(f) **Ground Floor**: means, for each streetline, the first floor level that:

i. Abuts the streetline; and
ii. Commences no lower than 1.0 metre below the streetline grade.

(g) **Hard Landscaping**: means an outdoor area covered by hard or impermeable material such as outdoor furniture, planters, decorative concrete, stonework, bricks, gravel, tiles, pavers, boardwalks, or wood decking.

(h) **High-rise**: means any main building with a building height of 22.0 metres or more.

(i) **Landscape Architect** means a full member, in good standing with the Canadian Society of Landscape Architects.

(j) **Mid-rise**: means any main building with a building height greater than 11.0 metres and less than 22.0 metres high.

(k) **Obnoxious Use**: includes any use that creates a nuisance or is offensive through the creation of noise, vibration, glare, electrical interference, fire, or explosion hazard, or the emission of gas, fumes, dust, smoke, oil, runoff, or objectionable smell, or the unsightly storage of goods, wares, merchandise, salvage, refuse matter, waste, or other material.

(l) **Personal Service**: means services for the needs of individuals or pets, such as grooming and haircutting, tailoring and shoe repair, tattooing, depots for collecting dry cleaning and laundry, laundromats, warming and cooling centres, foodbanks, soup kitchens, drop-in centres and the retail sale of products accessory to any service provided. Animal hospitals and funeral homes, excluding crematoriums, are considered personal service uses.

(m) **Public Realm**: means space which is belonging or open to, enjoyed and used by or maintained for the public generally.

(n) **Rooftop Greenhouse**: means a permanent structure located on a roof and constructed primarily of transparent materials, which is devoted to the protection and cultivation of medicinal, food producing, and ornamental plants such as vegetables, fruits, herbs, sprouts, and flowers.

(o) **Stepback**: means a specified horizontal recess from the top of a streetwall, which shall be unobstructed from the streetwall to the sky except as otherwise specified.

(p) **Streetline**: means any lot line dividing a lot from a street.

(q) **Streetline Grade**: means the elevation of a streetline at a midpoint of a streetwall. Separate streetline grades are determined for the midpoint of each streetwall segment that is greater than 8.0 metres wide, or a part thereof.

(r) **Streetline Setback**: means a yard extending across the full width of a lot between the streetline and the nearest wall of any main building on the lot.

(s) **Streetwall**: means the wall of a building or portion of a wall facing a streetline, or common shared private driveway, that is below the height of a specified stepback which does not include minor recesses for elements such as doorways or intrusions such as bay windows.

(t) **Streetwall Height**: means the vertical distance between the top of the streetwall and the streetline grade or common shared private driveway extending across the width of the streetwall.

(u) **Streetwall Setback**: means the distance between the streetwall and the streetline or common shared private driveway.

PART 3: USE OF LANDS, SUBDIVISION AND DEVELOPMENT PROVISIONS

3.1 Schedules

3.1.1 The Developer shall develop the Lands in a manner, which, in the opinion of the Development Officer, conforms with the following Schedules attached to this Agreement and filed in the Halifax Regional Municipality as Case Number 22867:

Schedule A	Legal Description of the Lands
Schedule B	Site Plan - Original Kings Wharf Development Site
Schedule C	Site Plan - Remaining Kings Wharf Development Site
Schedule D	Preliminary Landscaping Plan
Schedule E	Preliminary Lighting Plan
Schedule F	North East (Tower) Elevation and Preliminary Signage Plan
Schedule G	North West (Railway) Elevation and Preliminary Signage Plan
Schedule H	South East (Tower) Elevation and Preliminary Signage Plan
Schedule I	South West (Tower) Elevation and Preliminary Signage Plan
Schedule J	North East (Hotel) Elevation and Preliminary Signage Plan
Schedule K	North West (Courtyard - Hotel) Elevation and Preliminary Signage Plan
Schedule L	South East (Hotel) Elevation and Preliminary Signage Plan
Schedule M	South West (Hotel) Elevation and Preliminary Signage Plan
Schedule N	Required Wind Treatments

3.2 Requirements Prior to Approval

3.2.1 Prior to any site work or associated offsite work, the Developer shall have been issued a Grade Alteration Permit in accordance with By-law G-200 Respecting Grade Alteration and Stormwater Management Associated with Land Development, as amended from time to time, in accordance with Section 5.2.1 of this Agreement.

3.2.2 Prior to the issuance of a Development Permit for any development on the Lands, the Developer shall provide the following to the Development Officer:

(a) A cumulative residential unit and commercial floor space tracking chart for the Remaining Kings Wharf Development Site;

(b) A Detailed Landscaping Plan in accordance with Section 3.9 of this Agreement;

(c) A Detailed Lighting Plan in accordance with Section 3.8 of this Agreement;

(d) Written confirmation from a Professional Structural Engineer that all landscape areas designed to be installed upon any portion on any rooftop level of the building are able to support any required drainage or additional weight caused by the landscaped area, in accordance with Section 3.9.8 of this Agreement; and

(e) Written confirmation of a registered easement in favour of the Municipality over the right of way shown on Schedule D of this Agreement that permits public pedestrian and cyclist access.

3.2.3 Prior to the issuance of a Building Permit for any development on the Lands, the Developer shall provide to the following to the Development Officer:

(a) The design for the grade separated emergency access shown in Schedule B of the Existing Stage 1 Agreement. The design shall be signed and stamped by a Professional Engineer; and

(b) Written confirmation provided by CN Rail confirming that they have approved the location and design of the grade separated emergency access referenced in Section 3.2.3 (a) of this Agreement.

3.2.4 Prior to the issuance of the first Occupancy Permit for the Building on the Lands, the Developer shall provide the following to the Development Officer:

(a) Written confirmation from the Municipality's Development Engineer that the required grade separated emergency vehicle access is deemed complete and operational.

(b) Written confirmation from a Professional Engineer that all required wind interventions shown in Schedule N have been installed in a safe manner capable of withstanding any wind or other weather interactions expected on the Lands.

(c) Written confirmation from a Landscape Architect of compliance with the detailed Landscape Plan required pursuant to Section 3.9 of this Agreement, or the posting of security in accordance with Section 3.9.7 of this Agreement;

(d) Written confirmation from the Municipality's Development Engineer confirming compliance with Sections 3.10.2 and 4.2 of this Agreement; and

(e) Written confirmation of a registered easement in favour of the Municipality over the required grade separated emergency vehicle access that permits public pedestrian and emergency vehicle access.

3.2.5 Notwithstanding any other provision of this Agreement, the Developer shall not occupy or use the Lands for any of the uses permitted by this Agreement unless an Occupancy Permit has been issued by the Municipality. No Occupancy Permit shall be issued by the Municipality unless and until the Developer has complied with all applicable provisions of this Agreement and the Land Use By-law (except to the extent that the provisions of the Land Use By-law are varied by this Agreement) and with the terms and conditions of all permits, licenses, and approvals required to be obtained by the Developer pursuant to this Agreement.

3.3 General Description of Land Use

3.3.1 (a) The uses of the Lands permitted by this Agreement are the following:

(i) One 27-storey mixed-use building with residential and commercial uses, excluding adult entertainment uses, billboards, industrial uses, and obnoxious uses; and

(ii) Uses accessory to the foregoing.

(b) 20% of all dwelling units, rounded up to the nearest whole number of such units, shall be a minimum of 80 square metres in area.

(c) Notwithstanding subsection 3.3.1 (a), along a streetline that abuts Kings Wharf Place or Road A, only the following uses may be located on portions of the ground floor of a building which directly abuts the street:

(i) Retail Store;

(ii) Restaurant – full service;

(iii) Drinking Establishments;

(iv) Financial Institutions;

(v) Medical Clinics;

(vi) Personal Service;

(vii) Grocery Stores;

(viii) Hotels;

(ix) Cultural Uses;

(x) Schools, University or College;

(xi) Pedestrian entrances and lobbies for any other use permitted in the zone; and

(xii) Vehicle entry points for parking areas.

3.3.2 No permanent structures shall be permitted within the easement shown on Schedule D of this Agreement

3.3.3 Notwithstanding Section 3.3.2 of this Agreement, permanent structures that are owned by the Municipality shall be permitted in the easement.

3.4 Building Siting and Massing

3.4.1 The Developer agrees that the siting, location, design, form, exterior appearance and materials of the building on the Lands shall conform with Schedules D, F, G, H, I, J, K, L, M and N, subject to Sections 3.4 and 3.5 of this Agreement.

3.4.2 The maximum height of the building shall not exceed 82.5 metres.

Streetwalls

3.4.3 Maximum streetwall heights shall be as shown on Schedule F of the Existing Stage 1 Agreement.

3.4.4 For high-rise buildings, a minimum stepback of 3 metres is required at the height of the streetwall.

3.4.5 For mid-rise buildings, a minimum stepback of 1.5 metres is required at the height of the streetwall.

3.4.6 No streetwall stepback shall be required for up to 20% of the streetwall width along a streetline.

3.4.7 The maximum streetwall height and stepback may be exceeded by a clear uncoloured glass guard and railing system to allow for the safe use of podiums and roofs by the occupants of the building.

3.4.8 A streetwall shall extend the full width of a lot abutting the Kings Wharf Place or Road A streetline.

3.4.9 Notwithstanding the foregoing, subsection 3.4.8 shall not apply to breaks in the streetwall for outdoor open space or access to outdoor open space.

3.4.10 Above the streetwall height, any contiguous portion of the building shall not exceed a floor plate area of 915 square metres.

3.4.11 Above the streetwall height, the following shall apply:

(a) The depth of the high-rise portion of the building shall not exceed 35 metres; and

(b) The width of the high-rise portion of the building shall not exceed 35 metres.

Rooftop Features

3.4.11 Rooftop features shall be required to be setback from the roof edge a minimum of 3 metres, except for railings and guards.

3.4.12 Rooftop greenhouses shall be permitted to exceed the maximum building height by up to 7.5 metres and shall have a minimum setback of 3 metres from the roof edge.

3.5 Architectural Requirements

3.5.1 Exterior building materials shall not include stucco, plywood, vinyl, concrete blocks or darkly tinted or mirrored glass, excepting spandrel glass panels.

3.5.2 Soundproofing measures shall be provided in accordance with the National Building Code of Canada.

3.5.3 At least 60% of the building's total ground floor streetwalls directly abutting Kings Wharf Place and Road A, as shown on Schedule D, shall consist of clear glazing.

3.5.4 At least 50% of residential units located on the ground floor of the building on the Lands shall have direct, uninterrupted pedestrian access to the following:

(a) The internal courtyard on the Lands; or

(b) A public street.

3.5.5 Soft landscaping shall be provided on 50% of any area of flat roof that:

(a) Exceeds 100.0 contiguous square metres, or for the top of a mechanical room which is the highest roof on the building 150 square meters;

(b) has at least one linear dimension exceeding 5.0 metres; and

(c) Is not required or used for amenity space, architectural features, mechanical equipment, building maintenance, greenhouses or solar collectors.

3.5.6 The main entrances to the building shall be emphasized by detailing, changes in materials, and other architectural devices such as but not limited to lintels, pediments, pilasters, columns, porticos, overhangs, cornerboards, fascia boards or an acceptable equivalent approved by the Development Officer. At least one main door shall face Kings Wharf Place. Service entrances shall be integrated into the design of the building and shall not be a predominant feature.

3.5.7 The façades facing Kings Wharf Place and Road A shall be designed and detailed as primary façades. Architectural treatment shall be continued around all sides of the building as identified on the Schedules.

3.5.8 Large blank or unadorned walls shall not be permitted. The scale of large walls shall be tempered by the introduction of artwork, such as murals, textural plantings and trellises, and architectural detail to create shadow lines (implied windows, cornice lines, or offsets in the vertical plane) as identified on the Schedules.

3.5.9 Any exposed foundation in excess of 18 square metres shall be architecturally detailed, veneered with stone or brick or treated in an equivalent manner.

3.5.10 All vents, down spouts, flashing, electrical conduits, metres, service connections, and other functional elements shall be treated as integral parts of the design. Where appropriate these elements shall be painted to match the colour of the adjacent surface, except where used expressly as an accent.

3.5.11 The Building shall be designed such that the mechanical systems (HVAC, exhaust fans, etc.) are not visible from Kings Wharf Place, Road A, the internal courtyard or the ground floor of adjacent residential properties. Furthermore, no mechanical equipment or exhaust fans shall be located between the building and the adjacent residential properties unless screened as an integral part of the building design and noise reduction measures are implemented. This shall exclude individual residential mechanical systems.

3.5.12 Where possible windows shall be vertically proportioned and shall be framed with painted or stained wood, prefinished metal, or vinyl.

3.5.13 Fixed or retractable awnings are permitted at ground floor levels provided the awnings are designed as an integral part of the building façade and installed to withstand wind and other weather interactions expected on the Lands.

3.5.14 All roof mounted mechanical or telecommunication equipment shall be visually integrated into the roof design or screened from public view.

3.5.15 The building permitted by this Agreement is deemed to comply with the requirements of Schedule H of the Existing Stage 1 Agreement.

3.6 Parking

3.6.1 Underground vehicle parking shall be permitted on the Lands and shall not be required.

3.6.2 The location of the vehicle entrance to any underground parking structure on the Lands shall be as shown on Schedule F.

3.6.3 Bicycle parking shall be required in accordance with the Land Use By-law.

3.7 Amenity Space

3.7.1 Amenity space on the Lands shall be provided at a rate of 5.0 square metres per dwelling unit.

3.7.2 Except for amenity space associated with an individual dwelling unit, all amenity space required by Subsection 3.7.1 of this Agreement shall be Barrier Free and accessible to all building residents.

3.8 Outdoor Lighting

3.8.1 A detailed lighting plan shall be prepared by a qualified professional and provided to the Development Officer demonstrating compliance with this section and Schedule E of this Agreement.

3.8.2 Lighting shall be directed to driveways, parking areas, loading areas, building entrances, courtyards, open spaces and walkways, shall be sufficient to promote safety and security and shall be arranged so as to divert light away from streets, adjacent lots and buildings.

3.8.3 Buildings may be illuminated for visual effect provided such illumination is directed away from streets, adjacent lots and buildings, and does not flash, move or vary in intensity such that it creates a nuisance or hazard to public safety.

3.9 Landscaping

3.9.1 High-rise and mid-rise buildings with a flat roof shall be required to provide soft landscaping on 50% of any area of the flat roof that:

(a) Exceeds 100.0 contiguous square metres, or for the top of a mechanical room which is the highest roof on a building 150 square meters;

(b) Has at least one linear dimension exceeding 5.0 metres; and

(c) Is not required or used for amenity space, architectural features, mechanical equipment, building maintenance, greenhouses, or solar collectors.

3.9.2 Prior to the issuance of a Development Permit, the Developer shall provide the Development Officer with a Detailed Landscape Plan that complies with the provisions of this Section and generally conforms with the Preliminary Landscape Plan attached as Schedule D. The Detailed Landscape Plan shall be prepared by a Landscape Architect.

3.9.3 Planting details for at-grade and on-slab planting situations for each type of plant proposed shall be provided in the Detailed Landscape Plan, including a species list with quantities, sizes, and common and botanical names (species and variety).

3.9.4 The minimum acceptable sizes for plant material shall be as follows:

(a) Deciduous trees at grade – 60 mm calliper;

(b) Deciduous trees on slab – 45 mm calliper;

(c) Coniferous trees – 1.5 m in height; and

(d) Shrubs – 0.6 m in height or spread.

3.9.5 All plant material shall conform to the Canadian Nursery Landscape Association's Canadian Nursery Stock Standard (ninth edition) and all landscape construction on the site shall conform to the Canadian Landscape Standard.

3.9.6 Prior to issuance of the first Occupancy Permit the Developer shall submit to the Development Officer a letter prepared by a Landscape Architect certifying that all landscaping has been completed according to the terms of this Development Agreement.

3.9.7 Notwithstanding Section 3.9.6, where the weather and time of year do not allow the completion of the outstanding landscape works prior to the issuance of the Occupancy Permit, the Developer may supply a security deposit in the amount of 110 percent of the estimated cost to complete the landscaping. The cost estimate is to be prepared by a member in good standing of the Canadian Society of Landscape Architects. The security shall be in favour of the Municipality and shall be in the form of a certified cheque or automatically renewing, irrevocable letter of credit issued by a chartered bank. The security shall be returned to the Developer only upon completion of the work as described herein and illustrated on the Schedules, and as approved by the Development Officer. Should the Developer not complete the landscaping within twelve months of issuance of the Occupancy Permit, the Municipality may use the deposit to complete the landscaping as set out in this section of the Agreement. The Developer shall be responsible for all costs in this regard exceeding the deposit. The security deposit or unused portion of the security deposit shall be returned to the Developer upon completion of the work and its certification.

3.9.8 All landscape areas designed to be installed upon any portion of the building must be supported by documentation from a Structural Engineer indicating that the building design is able to support any required drainage or additional weight caused by the landscaped area.

3.10 Maintenance

3.10.1 The Developer shall maintain and keep in good repair all portions of the development on the Lands, including but not limited to, the exterior of the building, fencing, walkways, recreational amenities, the grade-separated emergency vehicle access, parking areas and driveways, and the maintenance of all landscaping including the replacement of damaged or dead plant stock, trimming and litter control, garbage removal and snow and ice control, salting of walkways and driveways.

3.10.2 All disturbed areas of the Lands shall be reinstated to original condition or better prior to the issuance of the first Occupancy Permit.

3.11 Signs

3.11.1 Sign requirements shall be in accordance with the Land Use By-law and HRM By-law S-801, A By-law Respecting Licensing Temporary Signs, except as otherwise provided herein.

3.11.2 The following signs shall not be permitted on the Lands:

(a) Signs which incorporate in any manner any flashing or moving illumination which varies in intensity or colour;

(b) Changeable copy signs;

(c) Window signs covering more than 40% of the window in which they are placed;

(d) Signs depicting the name or corporate logo of the Developer unless a sales office is located on the Lands; and

(e) Internally illuminated signs.

3.11.3 Signage on the Lands shall be generally in accordance with the Preliminary Signage Plans shown on the Elevations attached to this Agreement as Schedules F, G, H, I, J, K, L and M.

3.12 Temporary Construction Building

3.12.1 A building shall be permitted on the Lands for the purpose of housing equipment, materials and office related matters relating to the construction and sale of the development. The construction building shall be removed from the Lands prior to the issuance of the last Occupancy Permit.

3.13 Screening

3.13.1 Refuse containers located outside the building shall be fully screened from adjacent properties and from streets by means of opaque fencing or masonry walls with suitable landscaping.

3.13.2 Propane tanks and electrical transformers shall be located on the site in such a way to ensure minimal visual impact from Alderney Drive, Kings Wharf Place and Road A. These facilities shall be secured in accordance with the applicable approval agencies and screened by means of opaque fencing or masonry walls with suitable landscaping.

3.13.3 Any mechanical equipment shall be screened from view from Alderney Drive, Road A and Kings Wharf Place with a combination of fencing and landscaping or building elements.

3.14 Deliveries and Collections

3.14.1 Deliveries to the building, and the collection of refuse and recyclables, shall occur only between the hours of 7:00am and 10:00pm.

3.15 Public Art

3.15.1 The Developer shall install public art on the Lands in accordance with the requirements of the Existing Stage 1 Agreement.

PART 4: STREETS AND MUNICIPAL SERVICES

4.1 General Provisions

4.1.1 All design and construction of primary and secondary service systems shall satisfy the most current edition of the Municipal Design Guidelines and Halifax Water Design and Construction Specifications unless otherwise provided for in this Agreement and shall receive written approval from the Development Engineering prior to undertaking the work.

4.2 Off-Site Disturbance

4.2.1 Any disturbance to existing off-site infrastructure resulting from the development, including but not limited to, streets, sidewalks, curbs and gutters, street trees, landscaped areas and utilities, shall be the responsibility of the Developer, and shall be reinstated, removed, replaced or relocated by the Developer as directed by the Development Officer, in consultation with the Development Engineer.

4.3 Undergrounding Services

4.3.1 All secondary or primary (as applicable) electrical, telephone and cable service to and on the Lands shall be underground installation.

4.4 Solid Waste Facilities

4.4.1 The building shall include designated space for five stream commercial waste containers (1. Garbage, 2. Blue Bag Recyclables, 3. Paper, 4. Corrugated Cardboard, and 5. Organics) to accommodate source separation program in accordance with By-law S-600 as amended from time to time.

4.4.2 Refuse containers and waste compactors shall be confined to the loading areas of each building and shall be screened from public view where necessary by means of opaque fencing or masonry walls with suitable landscaping.

4.4.3 All refuse and recycling materials shall be contained within a building, or within suitable containers which are fully screened from view from any street or sidewalk. Further, consideration shall be given to locating of all refuse and recycling material to ensure minimal effect on abutting property owners by means of opaque fencing or masonry walls with suitable landscaping.

PART 5: ENVIRONMENTAL PROTECTION MEASURES

5.1 Private Storm Water Facilities

5.1.1 All private storm water facilities shall be maintained in good order in order to maintain full storage capacity by the owner of the lot on which they are situated.

5.2 Stormwater Management and Grade Alteration Plan

5.2.1 Prior to the commencement of any site work on the Lands, including earth movement or tree removal other than that required for preliminary survey purposes, or associated off-site works, the Developer shall have been issued a Grade Alteration Permit in accordance with By-law G-200 Respecting Grade Alteration and Stormwater Management Associated with Land Development, as amended from time to time.

5.3 Archaeological Monitoring and Protection

5.3.1 The Lands fall within the High Potential Zone for Archaeological Sites identified by the Province of Nova Scotia. The Developer shall contact the Coordinator of Special Places of the Nova Scotia Department of Communities, Culture and Heritage prior to any disturbance of the Lands and the Developer shall comply with the requirements set forth by the Province of Nova Scotia in this regard.

5.4 Sulphide Bearing Materials

5.4.1 The Developer agrees to comply with the legislation and regulations of the Province of Nova Scotia with regards to the handling, removal, and disposal of sulphide bearing materials, which may be found on the Lands.

PART 6: AMENDMENTS

6.1 Non-Substantive Amendments

6.1.1 All items within this Stage 2 Agreement are considered by both parties to be non-substantive and may be amended by resolution of Council, provided that all amendments are consistent with the Existing Stage 1 Agreement.

PART 7: REGISTRATION, EFFECT OF CONVEYANCES AND DISCHARGE

7.1 Registration

7.1.1 A copy of this Agreement and every amendment or discharge of this Agreement shall be recorded at the Land Registration Office and the Developer shall incur all costs in recording such documents.

7.2 Subsequent Owners

7.2.1 This Agreement shall be binding upon the parties hereto, their heirs, successors, assigns, mortgagees, lessees and all subsequent owners, and shall run with the Lands which are the subject of this Agreement until this Agreement is discharged by Council.

7.2.2 Upon the transfer of title to any lots, the subsequent owners thereof shall observe and perform the terms and conditions of this Agreement to the extent applicable to the lots.

7.3 Commencement of Development

7.3.1 In the event that development on the Lands has not commenced within three (3) years from the date of registration of this Agreement at the Land Registration Office, as indicated herein, the Lands shall conform with the provisions of the Land Use By-law.

7.3.2 For the purpose of this section, commencement of development shall mean installation of the footings and foundation for the proposed building.

7.4 Completion of Development

7.4.1 Upon the completion of the whole development, Council may review this Agreement, in whole or in part, and may:

(a) Retain the Agreement in its present form;

(b) Negotiate a new Agreement;

(c) Discharge this Agreement; or

(d) For those portions of the development which have been completed, discharge this Agreement and apply appropriate zoning pursuant to the Secondary Planning Strategy and Land Use By-law for the Regional Centre, as may be amended from time to time.

7.4.2 For the purpose of this section, completion of development shall mean issuance of an Occupancy Permit.

7.4.3 In the event that development on the Lands has not been completed within twenty (20) years from the date of registration of this Agreement at the Registry of Deeds or Land Registration Office, as indicated herein, the Lands shall conform with the provisions of the Land Use By-law.

7.5 Discharge of Agreement

7.5.1 If the Developer fails to complete the development after twenty (20) years from the date of registration of this Agreement at the Registry of Deeds or Land Registration Office Council may review this Agreement, in whole or in part, and may:

(a) Retain the Agreement in its present form;

(b) Negotiate a new Agreement; or

(c) Discharge this Agreement.

PART 8: ENFORCEMENT AND RIGHTS AND REMEDIES ON DEFAULT

8.1 Enforcement

8.1.1 The Developer agrees that any officer appointed by the Municipality to enforce this Agreement shall be granted access onto the Lands during all reasonable hours without obtaining consent of the Developer. The Developer further agrees that, upon receiving written notification from an officer of the Municipality to inspect the interior of any building located on the Lands, the Developer agrees to allow for such an inspection during any reasonable hour within twenty-four hours of receiving such a request.

8.2 Failure to Comply

8.2.1 If the Developer fails to observe or perform any condition of this Agreement after the Municipality has given the Developer 60 days written notice of the failure or default, then in each such case:

(a) The Municipality shall be entitled to apply to any court of competent jurisdiction for injunctive relief including an order prohibiting the Developer from continuing such default and the Developer hereby submits to the jurisdiction of such Court and waives any defence based upon the allegation that damages would be an adequate remedy;

(b) The Municipality may enter onto the Lands and perform any of the covenants contained in this Agreement or take such remedial action as is considered necessary to correct a breach of the Agreement, whereupon all reasonable expenses whether arising out of the entry onto the Lands or from the performance of the covenants or remedial action, shall be a first lien on the Lands and be shown on any tax certificate issued under the *Assessment Act*;

(c) The Municipality may by resolution discharge this Agreement whereupon this Agreement shall have no further force or effect and henceforth the development of the Lands shall conform with the provisions of the Land Use By-law; or

(d) In addition to the above remedies, the Municipality reserves the right to pursue any other remedy under the *Halifax Regional Municipality Charter* or Common Law in order to ensure compliance with this Agreement.

IN WITNESS WHEREAS the said parties to these presents have hereunto set their hands and affixed their seals the day and year first above written.

SIGNED, SEALED AND DELIVERED in the presence of:

(Insert Registered Owner Name)

Per:_____

Witness

HALIFAX REGIONAL MUNICIPALITY

SIGNED, DELIVERED AND ATTESTED to by the proper signing officers of Halifax Regional Municipality, duly authorized in that behalf, in the presence of:

Witness

Per:_____
MAYOR

Witness

Per:_____
MUNICIPAL CLERK

PROVINCE OF NOVA SCOTIA
COUNTY OF HALIFAX

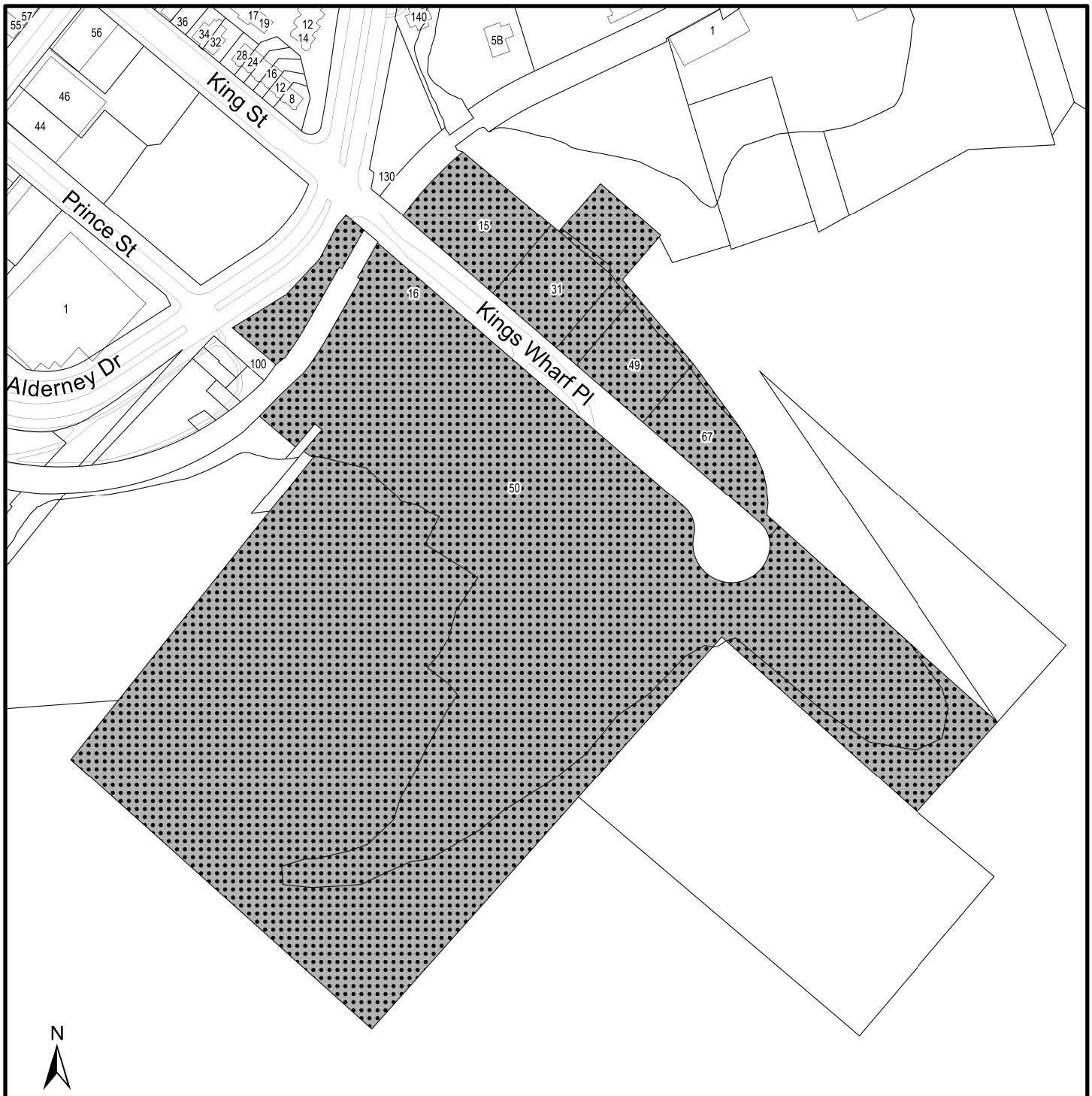
On this _____ day of _____, A.D. 20____, before me, the subscriber personally came and appeared _____ a subscribing witness to the foregoing indenture who having been by me duly sworn, made oath and said that _____, _____ of the parties thereto, signed, sealed and delivered the same in his/her presence.

_____
A Commissioner of the Supreme Court
of Nova Scotia

PROVINCE OF NOVA SCOTIA
COUNTY OF HALIFAX

On this _____ day of _____, A.D. 20___, before me, the subscriber personally came and appeared _____ the subscribing witness to the foregoing indenture who being by me sworn, made oath, and said that Mike Savage, Mayor and Iain MacLean, Clerk of the Halifax Regional Municipality, signed the same and affixed the seal of the said Municipality thereto in his/her presence.

_____
A Commissioner of the Supreme Court
of Nova Scotia



Schedule B - Original Kings Wharf Development Site

Kings Wharf,
Dartmouth

HALIFAX

0 20 40 60 80 100 m

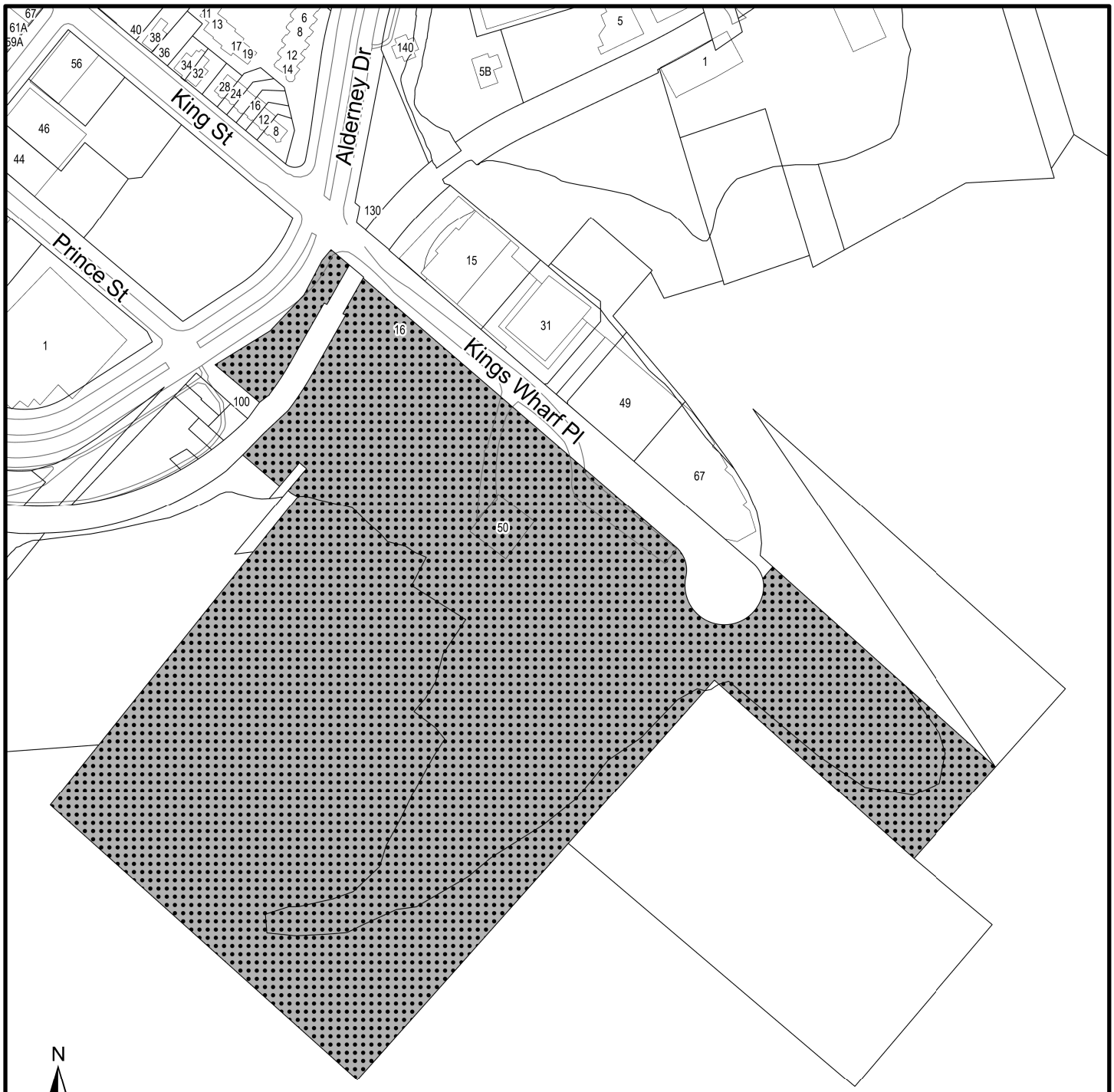
Original Development Site for Kings Wharf

This map is an unofficial reproduction of a portion of the plan area indicated.

The accuracy of any representation on this plan is not guaranteed.

Dartmouth
Land Use By-Law Area

15 July 2021 Case 22867 T:\work\planning\SER_Group\SER_CasesVariances\22867\Maps_Plans\ (HT)



Schedule C - Remaining Kings Wharf Development Site

Kings Wharf,
Dartmouth

HALIFAX

10 0 10 m

Remaining Development Site

This map is an unofficial reproduction of a portion of the plan area indicated.

The accuracy of any representation on this plan is not guaranteed.

Dartmouth
Land Use By-Law Area

15 July 2021 Case 22867 T:\work\planning\SER_Group\SER_CasesVariances\22867\Maps_Plans\ (HT)

SIDEWALK
NEW DRIVEWAY
EXISTING SIDEWALK
EXISTING PAVERS
KING'S WHARF PLACE
PLANTERS
SIDEWALK
PAVERS
PROPERTY LINE
NS POWER EQUIPMENT
HRM EQUIPMENT
CN EQUIPMENT
HRM EASEMENT
STEPS
RAMP
PAVERS
CONCRETE SIDEWALK
CLASS B BIKE RACKS - 6
CLASS B BIKE RACKS - 8
RAISED PLANTERS
COURTYARD
ROAD A
TREE & SHRUB PLANTING
BUILDING E
CONCRETE SIDEWALK
SHRUB PLANTING & SEATING WALL
PAVERS
CLASS B BIKE RACKS - 6
PARCEL ASE-E - 3.1M WIDE ACCESS AND SERVICE EASEMENT IN FAVOUR OF HRM
BUILDING E
TYPE 1 GRAVEL WALK
CN RAILLINE
RESIDENTIAL AMENITY TERRACE
PLAYGROUND
DOG RUN
ACTIVITY LAWN
1.5M HIGH POROUS SCREEN FENCE
TYPE 1 GRAVEL WALK

FIRST PEN STUDIO
LANDSCAPE ARCHITECTURE & DESIGN
1.902.523.1649 . WWW.FIRSTPEN.CA

CLIENT
FARES INC.

ISSUE 1	21-05-25
DA	
ISSUE 2	21-07-12
DA2	
ISSUE 3	21-08-12
DA2	
ISSUE 4	
ISSUE 5	

NOTES

STAMP
OLIVER BENCE

NORTH

SCALE
1:150

PROJECT NUMBER
FP21019

PROJECT
KING'S WHARF
BUILDING E

TITLE
SCHEDULE D
LANDSCAPE PLAN

DRAWING
LP1

KING'S WHARF PLACE

PARKING ENTRY ELEVATION +5.07M

BUILDING ENTRY ELEVATION +5.47M

106

BUILDING ENTRY ELEVATION +8.32M

HOTEL RETAIL
102
5540 ft²

ELEC. ROOM
101

VENT-ILATION

PARCEL ASE-E - 3.1M WIDE ACCESS AND SERVICE EASEMENT IN FAVOUR OF HRM

BUILDING E

COURTYARD

HOTEL LOBBY
100
1151 ft²

HOTEL RETAIL
103
951 ft²

HOTEL SUITE-TYPE X
109
447 ft²

HOTEL SUITE-TYPE X
108
444 ft²

HOTEL SUITE-TYPE X
107
447 ft²

HOTEL RETAIL
104

HOTEL RETAIL
105

HOTEL RETAIL
106

CORRIDOR

VEST.
100

ROAD A

PLAYGROUND

DOG RUN

AMENITY LAWN

LEGEND

- Light standard
- Street light standard
- Light bollard
- Recessed wall light

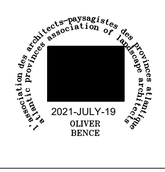
FIRST PEN STUDIO
LANDSCAPE ARCHITECTURE & DESIGN
1.902.523.1649 . WWW.FIRSTPEN.CA

CLIENT
FARES INC.

ISSUE 1 DA	21-05-25
ISSUE 2 DA2	21-07-12
ISSUE 3 BIGGER LIGHT SYMBOLS!	21-07-19
ISSUE 4	
ISSUE 5	

NOTES

STAMP



NORTH

SCALE
As shown

PROJECT NUMBER
FP21019

PROJECT
KING'S WHARF
BUILDING E

SCHEDULE E
LIGHTING PLAN

DRAWING
LP3

SIGNAGE LEGEND:

SN1	GENERAL SIGNAGE BAND LOCATION
SN2	GENERAL ENTRANCE SIGNAGE LOCATION
SN3	GENERAL BAND SIGNAGE LOCATION
SN4	GENERAL BAND SIGNAGE LOCATION
SN5	GENERAL BAND SIGNAGE LOCATION
SN6	GENERAL BAND SIGNAGE LOCATION
SN7	GENERAL ENTRANCE SIGNAGE LOCATION
SN8	GENERAL ENTRANCE SIGNAGE LOCATION

WINDOW WALL LEGEND:

COLOUR TYPE 1	MULLION TYPE A GLAZING TYPE A SPANDREL TYPE A
COLOUR TYPE 2	MULLION TYPE B GLAZING TYPE B SPANDREL TYPE B

NOTE:
RETAIL STOREFRONTS ARTICULATED IN MASONRY, WOOD, METAL AND / OR GLASS. SEE 3D IMAGERY FOR MATERIAL AND COLOUR REFERENCE.

ALLOWABLE EXTERIOR LIGHTING TYPES:

DECORATIVE WALL SCONCE LIGHTING

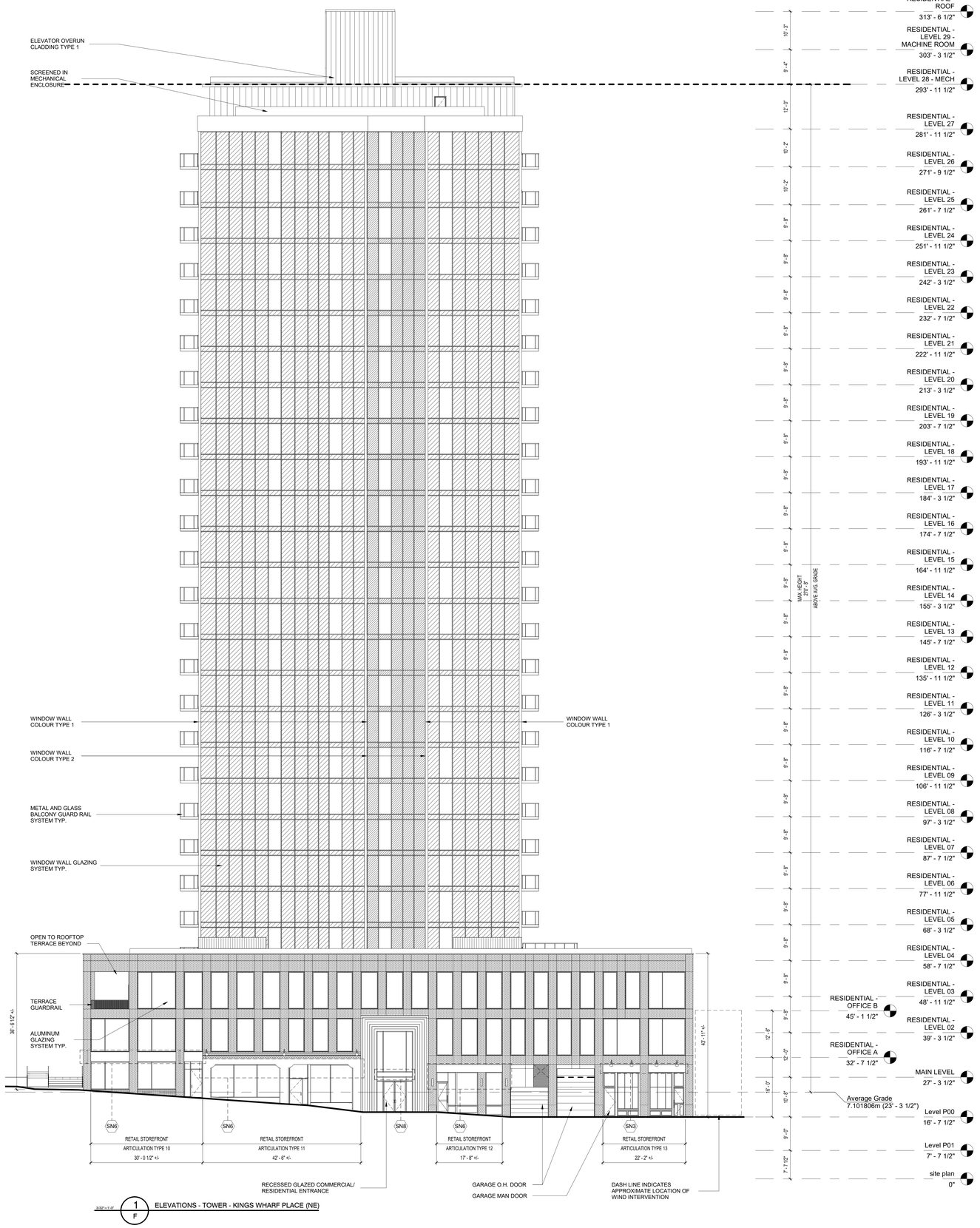
'GOOSENECK' TYPE PROJECTED LIGHTING

UP / DOWN BUILDING LIGHTING

LIGHTING FOR THE PURPOSE OF EXTERNALLY ILLUMINATING SIGNS

EXTERIOR LIGHTING NOTES:

ALL EXTERIOR LIGHTING TO CONFORM WITH LOCAL BYLAWS. LIGHTING



3/32" = 1'-0" 1/F ELEVATIONS - TOWER - KINGS WHARF PLACE (NE)

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No.	Date	Remarks
3	19 JLY 21	ISSUED FOR DEVELOPMENT AGREEMENT - REVISIONS
2	12 JLY 21	ISSUED FOR DEVELOPMENT AGREEMENT - REVISIONS
1	06 APR 21	ISSUED FOR DEVELOPMENT AGREEMENT

ISSUED/REVISIONS:

NORTH ARROW:

SEAL:

CLIENT:
FARES INC.

Contact: David Quilichini
Vice President
902.817.0700

PROJECT:
KINGS WHARF BUILDING E

50 Kings Wharf Place,
Dartmouth, NS, B2Y 0B4

TITLE:

SCHEDULE F:
NORTH EAST (TOWER)
ELEVATION
and
PRELIMINARY SIGNAGE
PLAN

DRAWN BY: Author
PROJECT #: Project Number
SCALE: 3/32" = 1'-0"
DRAWING #:

Schedule F

SIGNAGE LEGEND:

SN1	GENERAL SIGNAGE BAND LOCATION
SN2	GENERAL ENTRANCE SIGNAGE LOCATION
SN3	GENERAL BAND SIGNAGE LOCATION
SN4	GENERAL BAND SIGNAGE LOCATION
SN5	GENERAL BAND SIGNAGE LOCATION
SN6	GENERAL BAND SIGNAGE LOCATION
SN7	GENERAL ENTRANCE SIGNAGE LOCATION
SN8	GENERAL ENTRANCE SIGNAGE LOCATION

WINDOW WALL LEGEND:

COLOUR TYPE 1	MULLION TYPE A GLAZING TYPE A SPANDREL TYPE A
COLOUR TYPE 2	MULLION TYPE B GLAZING TYPE B SPANDREL TYPE B

NOTE:
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ALLOWABLE EXTERIOR LIGHTING TYPES:

DECORATIVE WALL SCONCE LIGHTING

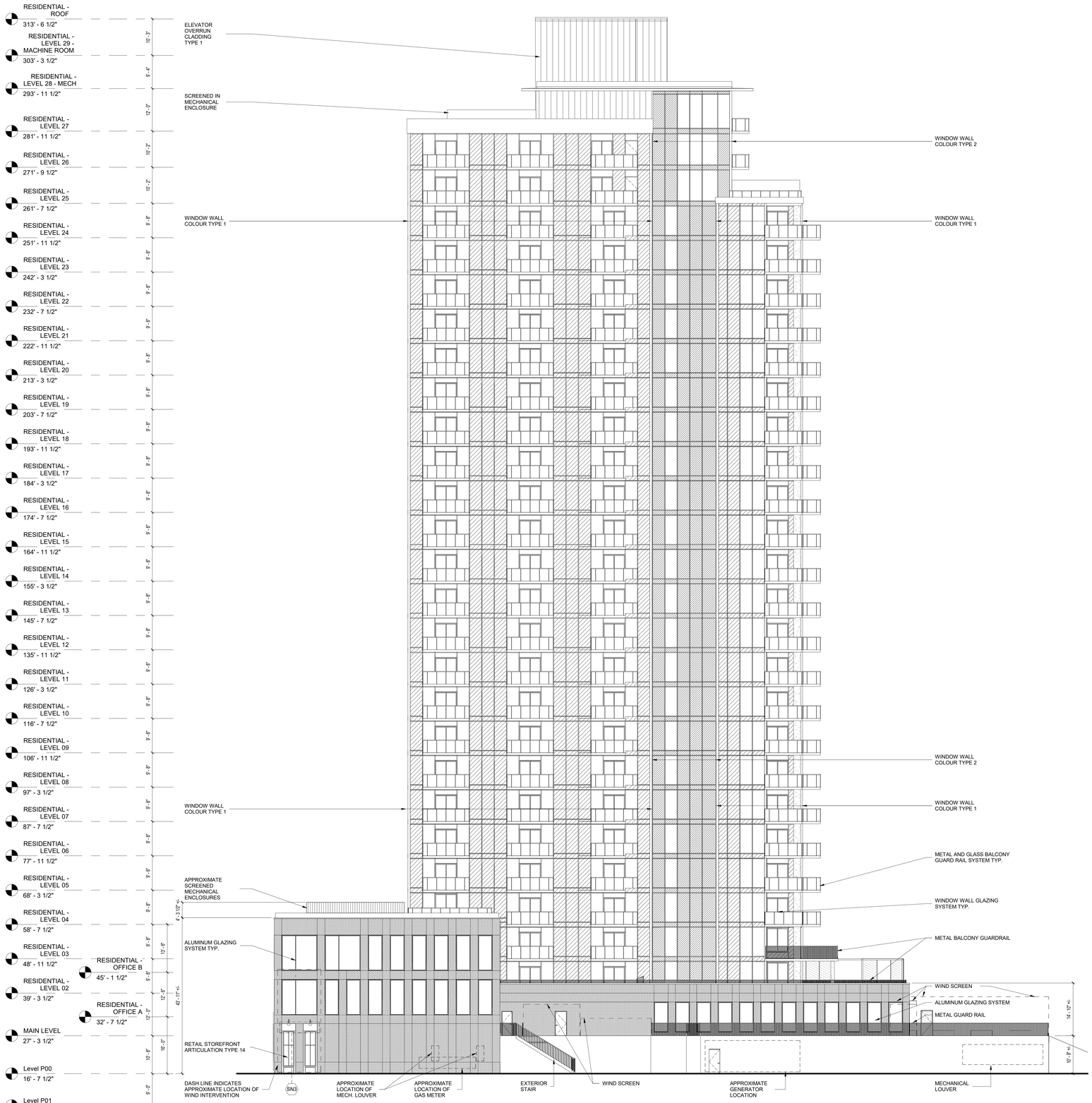
'GOOSENECK' TYPE PROJECTED LIGHTING

UP / DOWN BUILDING LIGHTING

LIGHTING FOR THE PURPOSE OF EXTERNALLY ILLUMINATING SIGNS

EXTERIOR LIGHTING NOTES:

ALL EXTERIOR LIGHTING TO CONFORM WITH LOCAL BYLAWS. LIGHTING



3/32" = 1'-0" 1 G ELEVATIONS - TOWER - RAILWAY (NW)

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1	06 APR 21	ISSUED FOR DEVELOPMENT AGREEMENT

ISSUED/REVISIONS:

NORTH ARROW:

SEAL:

CLIENT:
FARES INC.

Contact: David Quilichini
Vice President
902.817.0700

PROJECT:
KINGS WHARF BUILDING E

50 Kings Wharf Place,
Dartmouth, NS, B2Y 0B4

TITLE:

SCHEDULE G: NORTH WEST (RAILWAY) ELEVATION and PRELIMINARY SIGNAGE PLAN

DRAWN BY:	Author
PROJECT #:	Project Number
SCALE:	3/32" = 1'-0"

DRAWING #:

Schedule G

7/26/2021 9:23:54 AM

SIGNAGE LEGEND:

SN1	GENERAL SIGNAGE BAND LOCATION
SN2	GENERAL ENTRANCE SIGNAGE LOCATION
SN3	GENERAL BAND SIGNAGE LOCATION
SN4	GENERAL BAND SIGNAGE LOCATION
SN5	GENERAL BAND SIGNAGE LOCATION
SN6	GENERAL BAND SIGNAGE LOCATION
SN7	GENERAL ENTRANCE SIGNAGE LOCATION
SN8	GENERAL ENTRANCE SIGNAGE LOCATION

WINDOW WALL LEGEND:

COLOUR TYPE 1	MULLION TYPE A GLAZING TYPE A SPANDREL TYPE A
COLOUR TYPE 2	MULLION TYPE B GLAZING TYPE B SPANDREL TYPE B

NOTE:
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ALLOWABLE EXTERIOR LIGHTING TYPES:

DECORATIVE WALL SCONCE LIGHTING

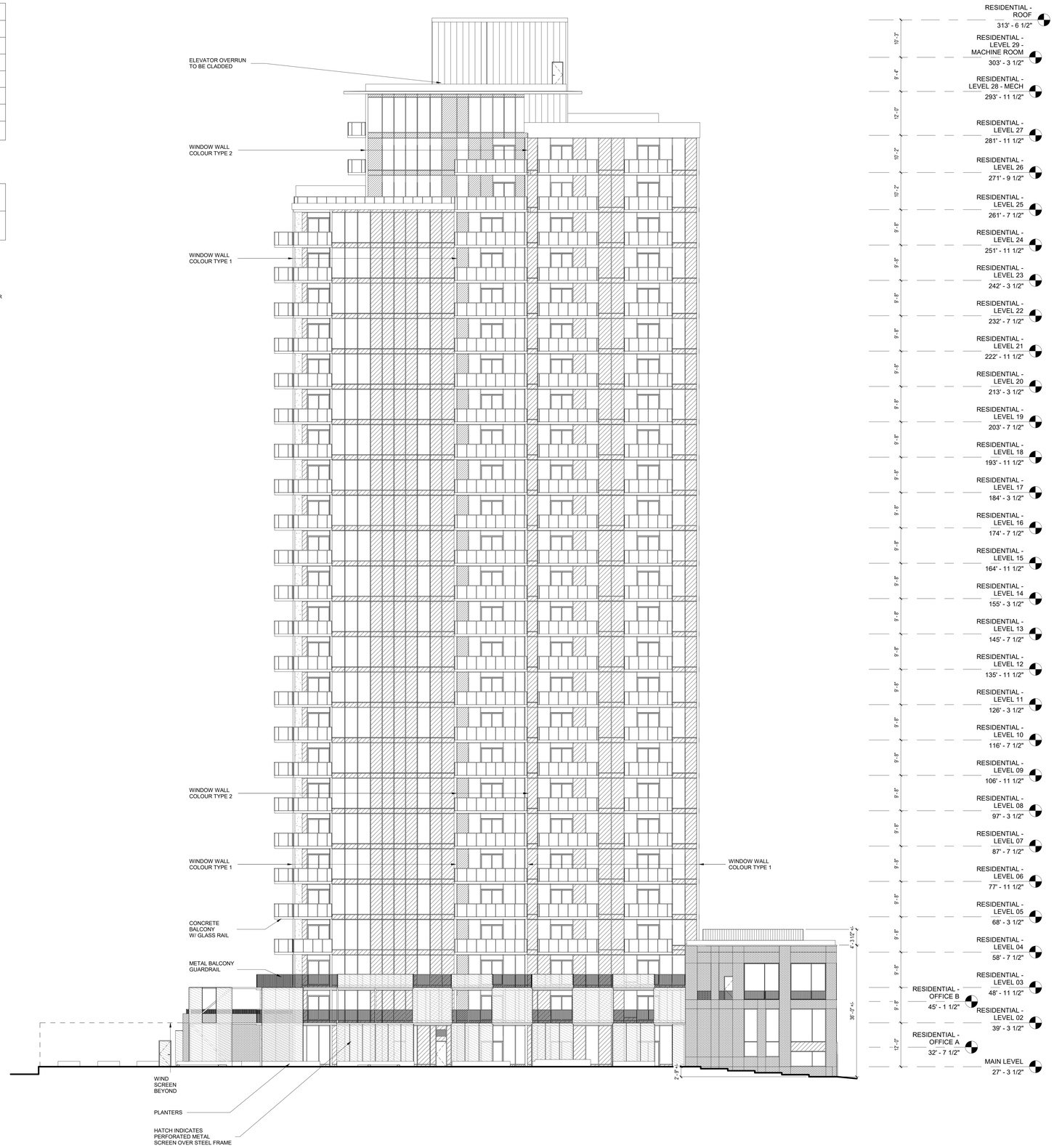
'GOOSENECK' TYPE PROJECTED LIGHTING

UP / DOWN BUILDING LIGHTING

LIGHTING FOR THE PURPOSE OF EXTERNALLY ILLUMINATING SIGNS

EXTERIOR LIGHTING NOTES:

ALL EXTERIOR LIGHTING TO CONFORM WITH LOCAL BYLAWS. LIGHTING



3/32" = 1'-0" 1 H ELEVATIONS - TOWER - TOWER ROAD A (SE)

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THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH SPECIFICATIONS AND GENERAL CONTRACTUAL CONDITIONS.

ALL DIMENSIONS AND CONDITIONS ARE TO BE VERIFIED ON SITE. ALL DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT AND AGREED UPON BEFORE PROCEEDING.

THESE DRAWINGS ARE TO BE USED FOR THIS PROJECT ONLY AND SHALL NOT BE USED FOR ANY OTHER PURPOSE WITHOUT WRITTEN CONSENT OF THE ARCHITECT.

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NORTH ARROW:

SEAL:

CLIENT:
FARES INC.

Contact: David Quilichini
Vice President
902.817.0700

PROJECT:
KINGS WHARF BUILDING E

50 Kings Wharf Place,
Dartmouth, NS, B2Y 0B4

**SCHEDULE H:
SOUTH EAST(TOWER)
ELEVATION**

**and
PRELIMINARY
SIGNAGE PLAN**

DRAWN BY: Author
PROJECT #: Project Number
SCALE: 3/32" = 1'-0"
DRAWING #:

Schedule H

SIGNAGE LEGEND:

SN1	GENERAL SIGNAGE BAND LOCATION
SN2	GENERAL ENTRANCE SIGNAGE LOCATION
SN3	GENERAL BAND SIGNAGE LOCATION
SN4	GENERAL BAND SIGNAGE LOCATION
SN5	GENERAL BAND SIGNAGE LOCATION
SN6	GENERAL BAND SIGNAGE LOCATION
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SN8	GENERAL ENTRANCE SIGNAGE LOCATION

WINDOW WALL LEGEND:

COLOUR TYPE 1	MULLION TYPE A GLAZING TYPE A SPANDREL TYPE A
COLOUR TYPE 2	MULLION TYPE B GLAZING TYPE B SPANDREL TYPE B

NOTE:
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ALLOWABLE EXTERIOR LIGHTING TYPES:

DECORATIVE WALL SCONCE LIGHTING

'GOOSENECK' TYPE PROJECTED LIGHTING

UP / DOWN BUILDING LIGHTING

LIGHTING FOR THE PURPOSE OF EXTERNALLY ILLUMINATING SIGNS

EXTERIOR LIGHTING NOTES:

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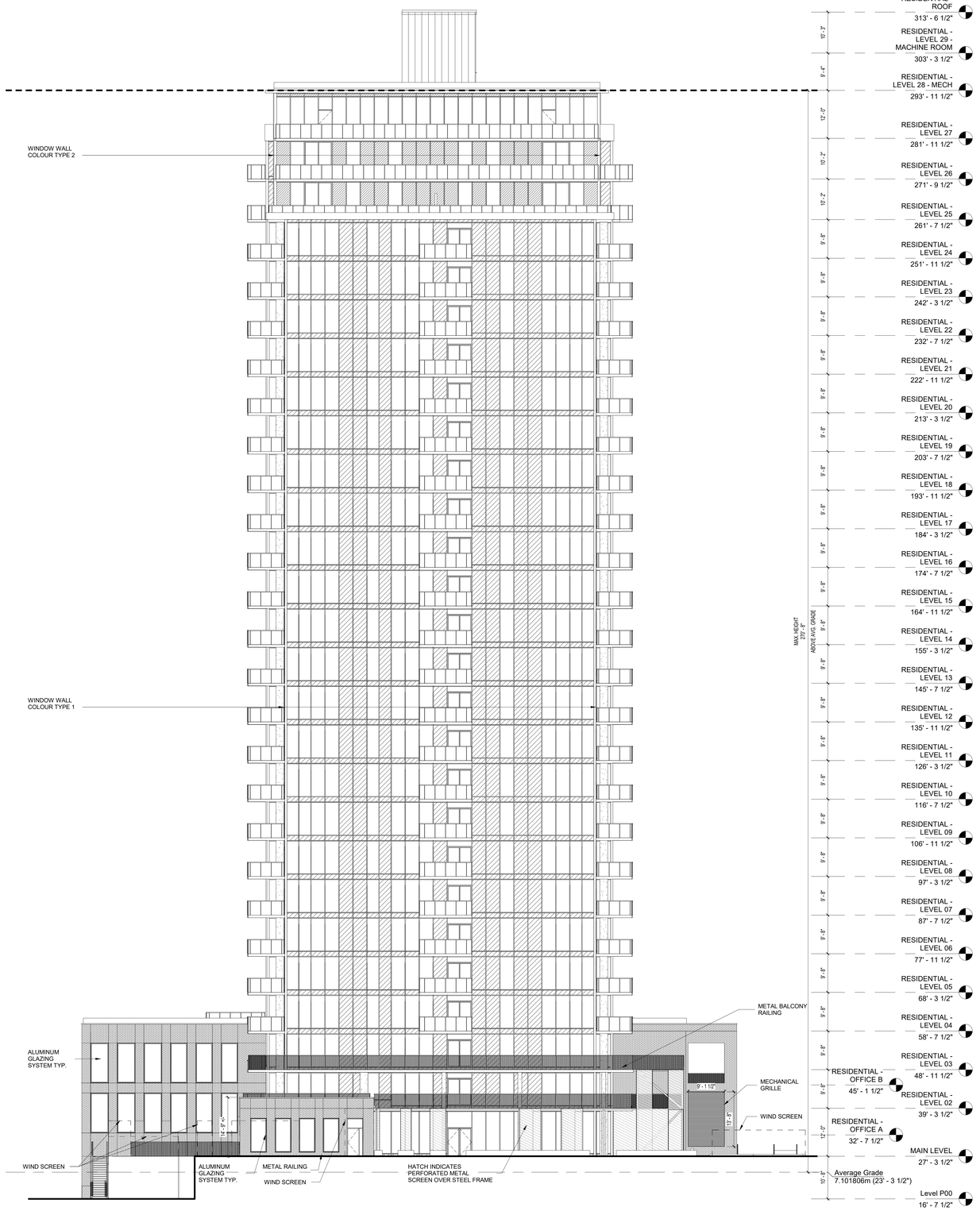

3/32" = 1'-0" 1 ELEVATIONS - TOWER - PEDESTRIAN PATH (SW)

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1	06 APR 21	ISSUED FOR DEVELOPMENT AGREEMENT

ISSUED/REVISIONS:

NORTH ARROW:

SEAL:

CLIENT:
FARES INC.

Contact: David Quilichini
Vice President
902.817.0700

PROJECT:
KINGS WHARF BUILDING E

50 Kings Wharf Place,
Dartmouth, NS, B2Y 0B4

SCHEDULE I: SOUTH WEST (TOWER) ELEVATION and PRELIMINARY SIGNAGE PLAN

DRAWN BY: Author
PROJECT #: Project Number
SCALE: 3/32" = 1'-0"
DRAWING #:

Schedule I

7/26/2021 9:24:51 AM

SIGNAGE LEGEND:

SN1	GENERAL SIGNAGE BAND LOCATION
SN2	GENERAL ENTRANCE SIGNAGE LOCATION
SN3	GENERAL BAND SIGNAGE LOCATION
SN4	GENERAL BAND SIGNAGE LOCATION
SN5	GENERAL BAND SIGNAGE LOCATION
SN6	GENERAL BAND SIGNAGE LOCATION
SN7	GENERAL ENTRANCE SIGNAGE LOCATION
SN8	GENERAL ENTRANCE SIGNAGE LOCATION

NOTE:
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ALLOWABLE EXTERIOR LIGHTING TYPES:

DECORATIVE WALL SCONCE LIGHTING

'GOOSENECK' TYPE PROJECTED LIGHTING

UP / DOWN BUILDING LIGHTING

LIGHTING FOR THE PURPOSE OF EXTERNALLY ILLUMINATING SIGNS

EXTERIOR LIGHTING NOTES:

ALL EXTERIOR LIGHTING TO CONFORM WITH LOCAL BYLAWS. LIGHTING

1/4"=1'-0" 1 J ELEVATIONS - HOTEL - KINGS WHARF PLACE (NE)

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SEAL:

CLIENT:
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Contact: David Quilichini
Vice President
902.817.0700

PROJECT:
KINGS WHARF BUILDING E

50 Kings Wharf Place,
Dartmouth, NS, B2Y 0B4

SCHEDULE J:
NORTH EAST (HOTEL) ELEVATION
and
PRELIMINARY SIGNAGE PLAN

DRAWN BY: Author
PROJECT #: Project Number
SCALE: 1/4" = 1'-0"
DRAWING #:

Schedule J

7/20/2021 9:25:19 AM

SIGNAGE LEGEND:

SN1	GENERAL SIGNAGE BAND LOCATION
SN2	GENERAL ENTRANCE SIGNAGE LOCATION
SN3	GENERAL BAND SIGNAGE LOCATION
SN4	GENERAL BAND SIGNAGE LOCATION
SN5	GENERAL BAND SIGNAGE LOCATION
SN6	GENERAL BAND SIGNAGE LOCATION
SN7	GENERAL ENTRANCE SIGNAGE LOCATION
SN8	GENERAL ENTRANCE SIGNAGE LOCATION

NOTE:
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ALLOWABLE EXTERIOR LIGHTING TYPES:

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'GOOSENECK' TYPE PROJECTED LIGHTING

UP / DOWN BUILDING LIGHTING

LIGHTING FOR THE PURPOSE OF EXTERNALLY ILLUMINATING SIGNS

EXTERIOR LIGHTING NOTES:

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1/8" = 1'-0" 1 K ELEVATIONS - HOTEL - COURTYARD - RESTAURANT FACADE (NW)

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3	19 JLY 21	ISSUED FOR DEVELOPMENT AGREEMENT - REVISIONS
2	12 JLY 21	ISSUED FOR DEVELOPMENT AGREEMENT - REVISIONS
1	06 APR 21	ISSUED FOR DEVELOPMENT AGREEMENT

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SEAL:

CLIENT:
FARES INC.

Contact: David Quilichini
Vice President
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PROJECT:
KINGS WHARF BUILDING E

50 Kings Wharf Place,
Dartmouth, NS, B2Y 0B4

SCHEDULE K:
NORTH WEST (COURTYARD - HOTEL) ELEVATION

and
PRELIMINARY SIGNAGE PLAN

DRAWN BY: Author
PROJECT #: Project Number
SCALE: 1/8" = 1'-0"
DRAWING #:

Schedule K

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SIGNAGE LEGEND:

SN1	GENERAL SIGNAGE BAND LOCATION
SN2	GENERAL ENTRANCE SIGNAGE LOCATION
SN3	GENERAL BAND SIGNAGE LOCATION
SN4	GENERAL BAND SIGNAGE LOCATION
SN5	GENERAL BAND SIGNAGE LOCATION
SN6	GENERAL BAND SIGNAGE LOCATION
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SN8	GENERAL ENTRANCE SIGNAGE LOCATION

NOTE:
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ALLOWABLE EXTERIOR LIGHTING TYPES:

DECORATIVE WALL SCONCE LIGHTING

'GOOSENECK' TYPE PROJECTED LIGHTING

UP / DOWN BUILDING LIGHTING

LIGHTING FOR THE PURPOSE OF EXTERNALLY ILLUMINATING SIGNS

EXTERIOR LIGHTING NOTES:

ALL EXTERIOR LIGHTING TO CONFORM WITH LOCAL BYLAWS. LIGHTING

1/8" = 1'-0" 1 L ELEVATIONS - HOTEL - ROAD A (SE)

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NORTH ARROW:

SEAL:

CLIENT:
FARES INC.

Contact: David Quilichini
Vice President
902.817.0700

PROJECT:
KINGS WHARF BUILDING E

50 Kings Wharf Place,
Dartmouth, NS, B2Y 0B4

SCHEDULE L:
SOUTH EAST (HOTEL) ELEVATION

and

PRELIMINARY SIGNAGE PLAN

DRAWN BY: Author
PROJECT #: Project Number
SCALE: 1/8" = 1'-0"
DRAWING #:

Schedule L

7/20/2021 9:32:22 AM

SIGNAGE LEGEND:

SN1	GENERAL SIGNAGE BAND LOCATION
SN2	GENERAL ENTRANCE SIGNAGE LOCATION
SN3	GENERAL BAND SIGNAGE LOCATION
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SN5	GENERAL BAND SIGNAGE LOCATION
SN6	GENERAL BAND SIGNAGE LOCATION
SN7	GENERAL ENTRANCE SIGNAGE LOCATION
SN8	GENERAL ENTRANCE SIGNAGE LOCATION

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'GOOSENECK' TYPE PROJECTED LIGHTING

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LIGHTING FOR THE PURPOSE OF EXTERNALLY ILLUMINATING SIGNS

EXTERIOR LIGHTING NOTES:

ALL EXTERIOR LIGHTING TO CONFORM WITH LOCAL BYLAWS. LIGHTING

1/4" = 1'-0" 1 M ELEVATIONS - HOTEL - COURTYARD - RESTAURANT FACADE (SW)

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CLIENT:
FARES INC.

Contact: David Quilichini
Vice President
902.817.0700

PROJECT:
KINGS WHARF BUILDING E

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Dartmouth, NS, B2Y 0B4

SCHEDULE M: SOUTH WEST (HOTEL) ELEVATION

and

PRELIMINARY SIGNAGE PLAN

DRAWN BY: Author
PROJECT #: Project Number
SCALE: 1/4" = 1'-0"
DRAWING #:

Schedule M

KING'S WHARF PLACE

SIDEWALK

STEEL PLANTERS

SIDEWALK

Legend

(A) Semi-permeable wind screens 4m to 6m high. Maximum 30% permeability. Total of 7 screens
(B) White pine trees, total of 2
(C) 1.5m high, semi-permeable screen (fencing). Maximum 30% permeability
(D) Wind shelter. 2.7m high with cover
(E) 1.5m high, impermeable screen
(F) 2.7m high impermeable screen
(G) 2.4m high, semi-permeable screen. Maximum 30% permeability.
(H) Planter boxes
(I) 2m high seme-permeable screen. Maximum 30% permeability.
(J) 1.5m deep awning
(K) 1.2m deep awning

CONC PLANTER

COURTYARD

BUILDING E

ROAD A

SIDEWALK

PLAYGROUND

RESIDENTIAL AMENITY TERRACE

GATE

CN RAIL LINE

PROPERTY LINE

PROPERTY LINE

FARES INC.

ISSUE 1	21-05-25
DA	
ISSUE 2	
ISSUE 3	
ISSUE 4	
ISSUE 5	

NOTES

1. See

NORTH

SCALE 1:150

PROJECT NUMBER 22867

PROJECT
KING'S WHARF
BUILDING E

SCHEDULE N: REQUIRED WIND TREATMENTS

DRAWING

Attachment B: Review of Relevant MPS and SMPS Policies

Regional Municipal Planning Strategy	
Chapter 9: Governance and Implementation	
Policy G-15 In considering development agreement applications pursuant to the provisions of this Plan, in addition to all other criteria as set out in various policies of this Plan, HRM shall consider the following:	
(a) that the proposal is not premature or inappropriate by reason of:	
(i) the financial capability of HRM to absorb any costs relating to the development;	The proposed development is not expected to generate costs for the Municipality beyond normal maintenance expenses related to central services, parks and streets infrastructure.
(ii) the adequacy of municipal wastewater facilities, stormwater systems or water distribution systems;	HRM Development Engineering and Halifax Water have reviewed the proposed development and have not raised any concerns.
(iii) the proximity of the proposed development to schools, recreation or other community facilities and the capability of these services to absorb any additional demands;	The subject site is close to the following schools and community facilities: • Dartmouth High School (grades 9-12); • Bicentennial School (grades 1-9); • Leighton Dillman Park and Dartmouth Common; • Zatzman Sportsplex; • Ferry Terminal Park; • Alderney Ferry Terminal; • Alderney Branch - Halifax Public Library; • The Trans-Canada Trail; • Halifax Transit Bridge Terminal; • Sullivan's Pond; and • North Woodside Community Centre;
(iv) the adequacy of road networks leading to or within the development; and	HRM Traffic Management have reviewed the proposed development and have not raised any concerns in relation to the road network leading to the development. The proposed street network within the Kings Wharf development site was approved by the existing Stage 1 Development Agreement and would not change with the approval of the proposed Stage 2 Development Agreement.
(v) the potential for damage to or for destruction of designated historic	There are no designated heritage sites or buildings on or close to the subject site.

buildings and sites;	
(b) that controls are placed on the proposed development so as to reduce conflict with any adjacent or nearby land uses by reason of:	
(i) type of use;	Proposed use is in accordance with the existing Stage 1 Development Agreement.
(ii) height, bulk and lot coverage of any proposed building;	Height, bulk and lot coverage of the proposed development are in accordance with the provisions of the existing Stage 1 Development Agreement.
(iii) traffic generation, access to and egress from the site, and parking;	An existing CN rail line crosses Kings Wharf Place at grade, west of the subject site. There is significant train traffic on this rail line, and Kings Wharf Place is impassable to vehicles and pedestrian traffic when trains are using the crossing. This creates a potential nuisance but is also a significant public safety concern. A train stopped at the crossing would make the subject site inaccessible to emergency response vehicles. In order to resolve these concerns, the existing Stage 1 and Stage 2 Development Agreement and the proposed both require a grade-separated emergency vehicle access overpass be constructed and deemed operational by the HRM Development Engineer before any Occupancy Permits can be issued for any building on Lot E (the subject site). The required overpass would not be open to personal vehicle traffic. The overpass would provide grade-separated access to the Kings Wharf area for emergency vehicles, pedestrians, and cyclists only. Underground vehicle parking would be permitted but not required on the subject site. No surface parking would be permitted. Bicycle parking would be required in accordance with the Land Use By-law for the Regional Centre.
(iv) open storage; and	Open storage is not proposed.
(v) signs;	The proposed Stage 2 Development Agreement permits signs in accordance with the design guidelines contained within Schedule H of the existing Stage 1 Development Agreement.
(c) that the proposed development is suitable in terms of the steepness of grades, soil and geological conditions, locations of watercourses, marshes or bogs and	The proposed building would be constructed on a site with no significant grade. There are no watercourses on or abutting the site.

susceptibility to flooding; and	
(d) if applicable, the requirements of policies E 10, T-3, T-9, EC-14, CH-14 and CH-16.	See below. Policies E-10, T-3, CH-14 and CH-16 are not relevant to the proposed development.
Policy T-9 HRM shall require mixed use residential and commercial areas designed to maximize access to public transit (Transit Oriented Development) within the Urban Transit Service Boundary through secondary planning strategies, and shall strive to achieve the intent of this policy through land use by-law amendments, development agreements and capital investments.	The subject site (Lot E) is located within the Urban Transit Service Boundary. The proposed Stage 2 Development Agreement would permit a 27-storey mixed use building, with residential and commercial uses. The subject site is located close to Dartmouth's downtown, and within walking distance of the Alderney Ferry Terminal and the Dartmouth Transit Terminal. Multiple bus routes pass the subject site on Alderney Drive. It is reasonable to expect that some residents of the proposed building would choose to not own a personal vehicle, which could be expected to add users to the Halifax Transit system.
Policy EC-14 When considering an amendment to secondary planning strategies, land use by-laws or development agreements to permit new residential development in proximity to harbour related industrial uses, consideration shall be given to the potential for nuisances and compatibility issues and the importance to HRM in protecting the viability of the marine related industrial uses.	The existing Stage 1 Development Agreement does not permit industrial uses on the subject site. There are ongoing industrial uses in Dartmouth Cove, along the Dartmouth waterfront north of the subject site. Staff do not expect the non-industrial uses permitted on the Kings Wharf site to create a nuisance or compatibility issues with these adjacent industrial uses. There are existing residential uses (multiple unit dwellings) on the north side of Kings Wharf Place. The CN rail line that passes the subject site on its western edge is supportive of industrial uses in Dartmouth and Eastern Passage. Development proposed for the Kings Wharf site would be required to accommodate the rail line, and alternative emergency vehicle access must be provided with a grade-separated access that would not interfere with train traffic prior to Occupancy Permit issuance for development on the subject site.
Regional Centre Municipal Planning Strategy	
Part 3: Urban Structure	
Precinct 4: King's Wharf	
Policy	**Comment**
Policy 3.9 The Land Use By-law shall establish the	This application was deemed complete on April 15, 2020 and can therefore be considered under the

King's Wharf Special Area (KW) on Schedule 4 of the Land Use By-law. Development agreements or amendments to development agreements for King's Wharf that have been received by the Municipality on or before September 5, 2029, may be considered by Council in accordance with the policies in effect at the time Council provides notice of intention to adopt this Plan.	Downtown Dartmouth Secondary Planning Strategy policies that were in place at the time Council provided notice of its intention to adopt the Regional Centre Municipal Planning Strategy.

Downtown Dartmouth Municipal Planning Strategy	
4.3 – Waterfront Development	
2. Dartmouth Cove – East Waterfront	
Policy	**Comment**
Policy W-9 Any development of marine business uses on the water side of the CN Rail line in the Dartmouth Cove area shall be regulated under a Site Plan Approval Process. Site standards shall be set out in the Land Use By-law to address such items as screening of outdoor storage, exterior lighting, maintenance, and requirements for landscaping. Notwithstanding policies W-8 and W-9, HRM may consider permitting a mixed-use development on the former Dartmouth Marine Slips property (identified as PID Nos. 00130286, 00130419, 00130278, 41164286 and 40943730) by approval of a two-stage development agreement. The Stage I development agreement shall generally show the concept of the proposal including the land uses, site plan, access and street layout, servicing capability, parks and open space, and phasing of the development. Notwithstanding the development agreement criteria of Policy W- 9A, the stage I agreement shall establish further specific requirements of any Stage II development agreement. Council shall hold a public hearing prior to the approval of the Stage I development agreement. Stage II development agreements shall be generally consistent with the intent of the Stage I development agreement, through the provision of fine grain details of a phase under the Stage I development agreement. Stage II development agreements shall be approved by	The subject site is located on the Dartmouth Marine Slips (Kings Wharf site), at 16 Kings Wharf Place. This policy enables the two-stage development agreement. The Stage 1 Development Agreement was approved by the Harbour East Marine Drive Community Council as Case 21296 after a public hearing on February 6, 2020. Staff advise that the proposed Stage 2 Development Agreement is generally consistent with the intent of the existing Stage 1 Development Agreement. HEMDCC would not be required to hold a public hearing prior to approving this proposed Stage 2 Development Agreement.

a resolution of Council. Any development agreement application shall conform with the following criteria:	
1. The development shall consist of a mix of land uses (residential, commercial, office, institutional, and park and open space uses) with residential land uses that contain a mix of unit types being the primary land use.	Proposed unit mix is as follows: • 1 bedroom: 44 (21%) • 1 bedroom + den: 67 (33%) • 2 bedroom: 46 (22%) • 2 bedroom + den: 48 (23%) • No 3-bedroom units are proposed. • 4,290 m^2 commercial space
2. Residential proposals should incorporate adequate soundproofing measures to buffer residents from nearby waterfront events and activities.	Clause 3.5.2 of the proposed Stage 2 Development Agreement requires soundproofing in accordance with the National Building Code of Canada.
3. A high quality of urban design is encouraged and adequate consideration is given to Policy W-9B.	
a) Special consideration should be given to building materials in proximity to the water's edge	Lot E is not on the water's edge. See W-9B review below.
b) The proposal should impart a sense of history to the area and contribute to the area's evolving history.	The proposed design meets this criterion in the following ways: • Modern design does not mimic historic context; • Some use of organic material such as brick and stone to reflect historic textures • Variations in the roofline to improve consistency with the smaller buildings typical in downtown Dartmouth • Continuation of the gridded street pattern found in downtown Dartmouth throughout the King's Wharf development; • Narrow storefronts to support smaller scale commercial uses, which are prevalent in downtown Dartmouth; and • Design elements to reflect the area's maritime legacy;
c) Proposals should respect that the waterfront is a pedestrian precinct. Wherever possible, buildings should be designed to create public spaces, and appropriate consideration should be given to weather protection for pedestrians.	Public open spaces are provided through an internal courtyard with pedestrian connection through the courtyard between Kings Wharf Place and Road A.
4. Visual access to the harbour shall be provided through the incorporation of street corridor views leading to the water and	This would be confirmed by the developer at permitting.

through the use of urban design features. The height of any proposed building should respect the view planes from the Dartmouth Common as shown on Map 7.	
5. The Development should address public accessibility [to] the water's edge.	A right-of-way and access easement are required by Schedule D of the Stage 1 Development Agreement. The purpose of the easement is to create a pedestrian and cycling pathway along the western edge of Lot E connecting Kings Wharf Place to Ferry Terminal Park on the water side of the CN Rail tracks. This would improve accessibility to the water's edge.
6. Special consideration shall be given to parking to ensure that proposals are designed with pedestrian orientation in mind rather than cars. Where parking is needed it should be situated below finished grade or enclosed within the core of a building with other uses wrapping the core to render the parking invisible. Surface parking is strongly discouraged, but when deemed absolutely necessary surface parking areas are to be strictly limited in size and duration.	The proposed Stage 2 Development Agreement requires all indoor parking to be underground.
7. An internal street may be needed to provide emergency and delivery access to the development. Alternative street design standards should be considered for any new streets which are in keeping with the historical grid and pedestrian character of the downtown.	The required grade-separated emergency vehicle access would pass to the south of Lot E and is not shown on any site plan or schedule of the proposed Stage 2 Development Agreement.
8. The Development shall minimize the amount of infilling that occurs on the water lots to ensure the character of Dartmouth Cove is not significantly altered.	Lot E is existing land and will not be infilled beyond normal construction fill.
Policy W-9B Notwithstanding Policy D-1, HRM should ensure that a high quality of urban design is provided for the development. To achieve this objective Council shall adopt the following design guidelines for the former Dartmouth Marine Slips property:	
a) The traditional street grid pattern and grain of development of Downtown Dartmouth should be maintained and re-established in the new development;	No concerns – the proposed street pattern conforms with the existing Stage 1 Development Agreement.
b) Microclimate issues such as wind, solar orientation, and shadowing should be considered, with positive impacts capitalized upon, and negative impacts minimized.	The applicant has provided wind and shadow studies to evaluate the expected micro-climate on the site. Significant wind mitigation is required by the proposed Stage 2 Development Agreement. Micro-climate impacts of shadows expected in

	the internal courtyard will be mitigated by decreasing wind intensity through treatments detailed in Schedule N of the proposed Stage 2 development agreement. The site is currently windy and wind studies have identified several areas on the subject site where wind speeds have been measured to be above 25 metres per second, pre-development. Wind experts identify 25 m/s as the maximum safe wind speed. Schedule N of the proposed Stage 2 Development Agreement includes a variety of wind interventions that would be required on the proposed building and developed site to mitigate wind impacts. These wind interventions would ensure that any wind that would be accelerated by the proposed development do not exceed the 25 m/s safety threshold. However, despite the wind mitigation required by the proposed Stage 2 Development Agreement, wind speeds in some areas of the site would still exceed 25 m/s. Please see the quantitative wind study attached to the staff report as Attachment D for additional information.
c) Pedestrian street level activity shall be encouraged in all development through the incorporation of outdoor cafes, ground floor uses, and uses that are open beyond daytime hours of operation. Consideration should be given to weather protection for pedestrians through use of decorative canopies and awnings.	No concerns - the ground floor of the proposed development is wrapped with commercial uses, including along façades facing the courtyard. Both street frontages (Kings Wharf Place and Road A) are designated Pedestrian Oriented Commercial Streets on Schedule G of the existing Stage 1 Development Agreement. Permitted uses on Pedestrian Oriented Commercial Streets include: • retail store; • restaurant – full service; • drinking establishments; • financial institutions; • medical clinics; • personal service; • grocery stores; • hotels; • cultural uses; • schools, university or college; • pedestrian entrances and lobbies for any other use permitted in the zone; and • vehicle entry points for parking areas.

	Schedule N of the proposed Stage 2 Development Agreement identifies wind interventions that are required to improve the micro-climate on the subject site. Wind interventions may include awnings and canopies where useful to mitigate wind.
d) Proposals should respect that the waterfront is primarily a pedestrian precinct, and pedestrian circulation should be an important consideration of all development. Buildings should be designed to create attractive and functional public spaces and pedestrian routes. Active ground level uses shall be encouraged adjacent to public access points and public open spaces.	The proposed design is effective in creating public spaces for pedestrians. The proposed design includes an internal courtyard that will provide outdoor amenity for residents and will also be accessible to the public. Ground level uses are predominantly pedestrian-oriented commercial uses including retail and restaurants. In addition to providing amenity space, the proposed internal courtyard would provide pedestrian throughfare between Kings Wharf Place and Road A.
e) Public art should be provided on or adjacent to buildings throughout any proposed development, commensurate with HRM's Cultural Plan.	Public art is proposed for the elevation facing the CN rail line. Clause 5.5 of the existing Stage 1 Development Agreement creates a public art program that requires public art to be installed on the subject site prior to Occupancy being approved for the final building in the phase. Therefore, public art will be considered and approved by the Development Officer for the subject site in the future.
f) Important views from parks and streets should be respected in the design and configuration of development, especially harbour and street corridor views as shown on "Map 7 - Public Views."	Map 7 does not require a public view corridor across Lot E.
g) A high quality of design should be required for streetscape elements and furniture.	Staff have reviewed the proposed development with consideration of Schedule H - Design Guidelines of the existing Stage 1 Development Agreement and advise that the proposed design satisfies its requirements. Elements of the proposed development which respond to the streetscaping requirements of Schedule H include: • Signage that is pedestrian scale and placed to prioritize pedestrian viewers; • Storefronts are narrow and provide visibility into stores (transparency), to

	create a lively pedestrian context; • The types of commercial uses permitted on ground floors is curated to enliven the public realm with high-frequency customer trips and interesting storefronts; • Awnings to provide colour and wind protection; • Commercial uses are continued into the courtyard to add interest and encourage potential users to enter the courtyard; • Streetwalls are of moderate height, to prioritize the experiences of pedestrians and reduce the "tunnel" sensation of walking between tall buildings; • Entrance recesses in the streetwall add definition and interest for pedestrians; and • The streetwall is placed on or close to the streetline, to create a connection between ground floor commercial uses and pedestrians on the public sidewalk.
h) Public safety should be a consideration in the design of new buildings and public spaces to ensure the design of public spaces does not create opportunities for crime at any time, with special attention paid to placement and intensity of lighting, visibility, directional signage, and land uses which will provide opportunities for eyes on the street through incorporation of residential development and street level activity after normal working hours.	The proposed Stage 2 Development Agreement includes a preliminary lighting plan and requires a more detailed lighting plan prior to permitting. Lighting on the site must be sufficient to promote safety and security throughout the site, including the internal courtyard. The residential and retail uses facing the internal courtyard will provide onlookers for activity in the courtyard.
i) A high level of refinement in the architectural details shall be provided to provide visual interest, both in the upper stories, and in particular at pedestrian level.	Materials proposed include cement panels and spandrel glass with brass coloured accents. Staff advise that these materials meet the requirements of the design guidelines of Schedule H of the existing Stage 1 Development Agreement and are appropriate for a pedestrian-focused public realm. The proposed Stage 2 Development Agreement requires 60% of any streetwall to consist of clear glazing, which will enable visibility into the pedestrian-oriented retail uses on the ground level. Staff advise this will create visual interest at pedestrian level.
j) The waters edge should be designed for unrestricted public access by either public ownership and/or perpetual	No concerns - Lot E is not on the water's edge.

easement.	

Form 24

Purpose: To change the registered interest, benefits or burdens

(Instrument code: 450)
(If change[(s)] requested relate[(s)] to one or more of the following and no other interests are being added or removed on this form: manner of tenure, description of manner of tenure, non-resident status, parcel access or NSFLB occupant. Note: This form cannot be used to correct an error in a parcel register.)

(Instrument code: 451)
(Change to existing servient or dominant tenement PID number in a parcel register as a result of subdivision or consolidation. Note: This form cannot be used to correct an error in a parcel register.)

For Office Use

Registration district:	Halifax
Submitter's user number:	6478
Submitter's name:	George Monroe/McInnes Cooper

HALIFAX COUNTY LAND REGISTRATION OFFICE
I certify that this document was registered or recorded as shown here.
Kim MacKay, Registrar
11651839 LR☒ ROD☐
Document #
06 22 2020 12:31 BP
MM DD YYYY Time

In the matter of Parcel Identification Number (PID)

PID: 00130278	**PID: 41471848**	**PID:00130286**
PID: 41164278	**PID:**	**PID:**

(Expand box for additional PIDs, maximum 9 PIDs per form)

The following additional forms are being submitted simultaneously with this form and relate to the attached document: *(check appropriate boxes, if applicable)*

☐ Form 24[(s)]

☐ Form 8A[(s)]

Additional information: *(check appropriate boxes, if applicable.)*

☐ This Form 24 creates or is part of a subdivision or consolidation.

☐ This Form 24 is a municipal or provincial street or road transfer.

☐ This Form 24 is adding a corresponding benefit or burden as a result of an AFR of another parcel.

☐ *This Form 24 is adding a benefit or burden where the corresponding benefit/burden in the "flip-side" parcel is already identified in the LR parcel register and no further forms are required.*

Power of attorney *(Note: completion of this section is mandatory)*

☐ The attached document is signed by attorney for a person under a power of attorney, and the power of attorney is:
- ☐ recorded in the attorney roll
- ☐ recorded in the parcel register
- ☐ incorporated in the document

OR

☒ No power of attorney applies to this document

This form is submitted to make the changes to the registered interests, or benefits or burdens, and other related information, in the above-noted parcel register[(s)], as set out below.

The following burdens are to be added and/or removed in the parcel registers:
(Note: An amending PDCA is required if the changes being made to the burden section are not currently reflected in the description in the parcel register).

Instrument type	Agreement re Use of Land
Interest holder and type to be removed *(if applicable)*	
Interest holder and type to be added *(if applicable) Note: include qualifier (eg., estate of, executor, trustee, personal representative) (if applicable)*	Halifax Regional Municipality – Party to Agreement (Burden)
Mailing address of interest holder to be added *(if applicable)*	PO Box 1749 Halifax, NS B3J 3A5
Reference to related instrument in names-based roll/parcel register *(if applicable)*	
Reason for removal of interest *(for use only when interest is being removed by operation of law)* ***Instrument code: 443***	

Certificate of Legal Effect:

I certify that, in my professional opinion, it is appropriate to make the changes to the parcel register as instructed on this form.

Dated at Halifax, in the County of Halifax, Province of Nova Scotia, on April 17, 2020.

Original Signed

Signature of authorized lawyer

Name George Monroe/McInnes Cooper
Address PO Box 730, Halifax, Nova Scotia, B3J 2V1
Phone 902-425-6500
Email: george.monroe@mcinnescooper.com
Fax: 902-425-6350

☐ This document also affects non-land registration parcels. The original will be registered under the *Registry Act* and a certified true copy for recording under the *Land Registration Act* is attached.

THIS AGREEMENT made this 21 day of May, 20 20

BETWEEN:

THE ANCHORAGE AT DARTMOUTH COVE PROPERTY DEVELOPMENT INCORPORATED
a body corporate, in the Province of Nova Scotia

OF THE FIRST PART

FARES ART HOLDINGS INCORPORATED
a body corporate, in the Province of Nova Scotia

OF THE SECOND PART

(The Anchorage at Dartmouth Cove Property & Fares Art Holdings Incorporated, are hereinafter jointly referred to as the 'Developer')

- and -

HALIFAX REGIONAL MUNICIPALITY
a municipal body corporate, in the Province of Nova Scotia
(hereinafter called the "Municipality")

OF THE THIRD PART

WHEREAS the Developer is the registered owner of certain lands located at King's Wharf Place, Dartmouth and which said lands are more particularly described in Schedule A hereto (hereinafter called the "Lands");

AND WHEREAS the Municipality approved an application to enter into a Stage I Development Agreement pertaining to the concept plan for the King's Wharf development on August 7, 2008, (Municipal Case 00798), and which was registered at the Nova Scotia Land Registry on August 18, 2009 as Document Number 94067684, (hereinafter called the "Original Stage I Agreement");

AND WHEREAS the Municipality approved an application to amend the Original Stage I Agreement to revise the phasing plan for the development on the Lands (Municipal Case 01335) on November 12, 2009, and which was registered at the Nova Scotia Land Registry on January 15, 2010 as Document Number 95113008, (hereinafter called the "First Amendment to the Stage I Agreement");

AND WHEREAS the Municipality approved an application to enter into a Stage II Development Agreement to enable the development of Phase 1 on the Lands (Municipal Case 01335) on December 3, 2009, and which was registered at the Nova Scotia Land Registry on March 18, 2010 as Document Number 95534534, (hereinafter called the "Original Stage II Agreement");

AND WHEREAS the Municipality discharged the Original Stage II Agreement (Municipal Case 17735) on May 3, 2012, and which was registered at the Nova Scotia Land Registry on June 21, 2012 as Document Number 100947408 (hereinafter called the "Discharging Agreement");

AND WHEREAS the Municipality approved an application to enter into a Stage II Development Agreement to reflect changes to the design and land use within Phase 1 on the Lands (Municipal Case 17735) on May 3, 2012, and which was registered at the Nova Scotia Land Registry on June 21, 2012 as Document Number 100947523 (herein called the "Existing Stage II Agreement");

AND WHEREAS the Municipality approved an application to amend the Original Stage I Agreement to revise the phasing and mix of land uses to permit 354 residential units (Municipal Case 19241) on August 26, 2014 and which was registered at the Nova Scotia Land Registry on December 16, 2014 as Document Number 106347819, (hereinafter called the "Second Amendment to the Stage I Agreement");

AND WHEREAS the Original Stage I Agreement, the First Amendment to the Stage I Agreement, and the Second Amendment to the Stage I Agreement together comprise the Existing Stage I Agreement (herein called "the Existing Stage I Agreement);

AND WHEREAS the Municipality approved an application to amend the Existing Stage II Agreement to allow changes to the design and use of Building C and to permit a total of 354 units in Phase 1 (Municipal Case 19241) on August 26, 2014, and which was registered at the Nova Scotia Land Registry on December 16, 2014 as Document Number 106347835, (hereinafter called the "First Amendment to the Existing Stage II Agreement");

AND WHEREAS the Developer has requested that the Municipality discharge the Existing Stage I Agreement enter into a new Stage I Development Agreement to allow for a revised site design on the Lands pursuant to the provisions of the *Halifax Regional Municipality Charter* and pursuant to Policy W-9A of the Downtown Dartmouth Secondary Planning Strategy;

AND WHEREAS the Harbour East - Marine Drive Community Council for the Municipality approved this request at a meeting held on February 6, 2020, referenced as Municipal Case Number 21296

THEREFORE, in consideration of the benefits accrued to each party from the covenants herein contained, the Parties agree as follows:

PART 1: GENERAL REQUIREMENTS AND ADMINISTRATION

1.1 Applicability of Agreement

1.1.1 The Developer agrees that the Lands shall be developed and used only in accordance with and subject to the terms and conditions of this Development Agreement.

1.2 Applicability of Land Use By-law and Subdivision By-law

1.2.1 Except as otherwise provided for herein, the development, use and subdivision of the Lands shall comply with the requirements of the applicable Land Use By-law and the Regional Subdivision By-law, as may be amended from time to time.

1.2.2 Variances to the requirements of the applicable Land Use Bylaw shall not be permitted.

1.3 Applicability of Other By-laws, Statutes and Regulations

1.3.1 Further to Section 1.2, nothing in this Agreement shall exempt or be taken to exempt the Developer, lot owner or any other person from complying with the requirements of any by-law of the Municipality applicable to the Lands (other than the Land Use By-law to the extent varied by this Agreement), or any statute or regulation of the Provincial/Federal Government and the Developer or Lot Owner agree(s) to observe and comply with all such laws, by-laws and regulations, as may be amended from time to time, in connection with the development and use of the Lands.

1.3.2 The Developer shall be responsible for securing all applicable approvals associated with the on-site and off-site servicing systems required to accommodate the development, including but

not limited to sanitary sewer system, water supply system, stormwater sewer and drainage system, and utilities. Such approvals shall be obtained in accordance with all applicable by-laws, standards, policies, and regulations of the Municipality and other approval agencies. All costs associated with the supply and installation of all servicing systems and utilities shall be the responsibility of the Developer. All design drawings and information shall be certified by a Professional Engineer or appropriate professional as required by this Agreement or other approval agencies.

1.4 Conflict

1.4.1 Where the provisions of this Agreement conflict with those of any by-law of the Municipality applicable to the Lands (other than the applicable Land Use By-law to the extent varied by this Agreement), Municipal Planning Strategy, or any provincial or federal statute or regulation, the higher or more stringent requirements shall prevail.

1.4.2 Where the written text of this Agreement conflicts with information provided in the Schedules attached to this Agreement, the written text of this Agreement shall prevail.

1.5 Costs, Expenses, Liabilities and Obligations

1.5.1 The Developer shall be responsible for all costs, expenses, liabilities and obligations imposed under or incurred in order to satisfy the terms of this Agreement and all Federal, Provincial and Municipal laws, by-laws, regulations and codes applicable to the Lands.

1.6 Provisions Severable

1.6.1 The provisions of this Agreement are severable from one another and the invalidity or unenforceability of one provision shall not affect the validity or enforceability of any other provision.

PART 2: DEFINITIONS

2.1 Words Not Defined under this Agreement

2.1.1 All words unless otherwise specifically defined herein shall be as defined in the applicable Land Use By-law and Subdivision By-law, if not defined in these documents their customary meaning shall apply.

2.2 Definitions Specific to this Agreement

2.2.1 The following words used in this Agreement shall be defined as follows:

(a) **Amenity Space:** means non-commercial indoor or outdoor above grade space designed for private or shared use by a building's occupants, such as private balconies, private grade-related unit patios, private courtyards, planters and plots for gardening, barbeque areas, swimming pools, fitness rooms, racquet or other sport courts, playgrounds, games and television rooms, exercise or art studios, music rooms, workshops, greenhouses, saunas, meeting rooms, outdoor landscaped areas for use by building occupants, or other similar uses.

(b) **Building Height:** means the vertical difference between the average finished grade around the structure, and the structure's highest point excluding mechanical rooms, elevator shafts, stairwells and other non-occupiable spaces such as a church spire, lightning rod, flag pole, antenna, skylight, chimney, landscape vegetation, solar collector, roof top cupola, parapet, cornices, eaves, railings or guards, or other similar features, provided that the total of all such features, shall

occupy in the aggregate less than 30 % of the area of the roof of the building on which they are located and no taller than 8 metres above the roof on which it sits.

(c) **Commencement of Construction:** means installation of the footings and foundation of a building.

(d) **Commercial Space:** means the use of a building for office uses, retail uses, or service uses.

(e) **Cultural Uses:** means a premise used for the collection and presentation of art, films, musical and artistic performances, lectures, materials, and exhibits, including libraries, archives, museums, art galleries, cultural centres, and small performance venues containing 500 seats or fewer, excluding, convention centre uses, and other similar uses.

(f) **Drinking Establishment:** means premises whose primary purpose is serving liquor to the public, and which is licenced under the *Liquor Control Act*, S.N.S., 1989, c. 260, as amended

(g) **Fabrication Retail:** means space used for the small scale designing, crafting, production, constructing, and sale of objects and products created on site, such as print goods, clothing, housewares, artistic wares, and may also include a craft brewery primarily engaged in the production and packaging of less than 15,000 hectolitres per year of wine, cider, specialty or craft beer, ale, or other malt beverages or a craft distillery primarily engaged in the production and packaging of less than 75,000 litres per year of liquor and spirits, other than wine and beer, both of which may include accessory uses such as retail sale, wholesale, tours and events or hospitality room, where beverages produced at the facility can be sampled.

(h) **Financial Institutions:** means premises providing financial and banking services to customers and clients, including banks, trust companies, savings banks, credit unions, and lending establishments.

(i) **Floor Plate Area:** means the horizontal cross-section of a floor, between the floor and the next floor above, measured to the outside surface of the exterior walls and includes all mechanical equipment areas and all open areas inside a building that do not contain a floor, including atriums, elevator shafts, stairwells and similar areas.

(j) **Grocery Store:** means a retail establishment with 200 square metres or more of gross floor area that primarily sells food, including food prepared on-site and food intended for take-out, and that may also sell other convenience and household goods.

(k) **Gross Floor Area:** means the gross horizontal area of all floors in all buildings, measured from the exterior faces of the exterior walls but excluding unenclosed balconies and any floor area below the ground floor that is not used for residential purposes.

(l) **Ground Floor** means, for each streetline, the first floor level that:
   a. abuts the streetline; and
   b. commences no lower than 1.0 metre below the streetline grade.

(m) **Hard Landscaping:** means an outdoor area covered by hard or impermeable material such as outdoor furniture, planters, decorative concrete, stonework, bricks, gravel, tiles, pavers, boardwalks, or wood decking.

(n) **High-rise:** means any main building with a building height of 22.0 metres or more.

(o) **Low-rise:** means any main building with a building height of 11.0 metres high or less.

(p) **Main Building:** means a structure or structures containing the primary use of a lot.

(q) **Marina:** means an area used for the purposes of providing docking, moorage space, and related activities associated with the upkeep and storage of boats inclusive of renting, servicing, fuelling, pumping-out, chartering, launching, as well as minor repair of pleasure boats and yachts, and accessory facilities.

(r) **Mid-rise:** means any main building with a building height greater than 11.0 metres and less than 22.0 metres high.

(s) **Obnoxious Use:** includes any use that creates a nuisance or is offensive through the creation of noise, vibration, glare, electrical interference, fire, or explosion hazard, or the emission of gas, fumes, dust, smoke, oil, runoff, or objectionable smell, or the unsightly storage of goods, wares, merchandise, salvage, refuse matter, waste, or other material.

(t) **Personal Service:** means services for the needs of individuals or pets, such as grooming and haircutting, tailoring and shoe repair, tattooing, depots for collecting dry cleaning and laundry, laundromats, warming and cooling centres, foodbanks, soup kitchens, drop-in centres and the retail sale of products accessory to any service provided. Animal hospitals and funeral homes, excluding crematoriums, are considered personal service uses.

(u) **Public Realm:** means space which is belonging or open to, enjoyed and used by or maintained for the public generally.

(v) **Rooftop Greenhouse:** means a permanent structure located on a roof and constructed primarily of transparent materials, which is devoted to the protection and cultivation of medicinal, food producing, and ornamental plants such as vegetables, fruits, herbs, sprouts, and flowers.

(w) **Service Use** means a business whose primary function is call-out or dispatch work, such as exterminators, plumbers, carpet cleaners, locksmiths, electricians, tow trucks, landscapers, taxis, and standalone catering.

(x) **Soft Landscaping:** means an outdoor area covered by soft or water-permeable material and vegetation such as trees, hedges, shrubs, flowers, grass, fruit and vegetable plants, sod, or other vegetative groundcover.

(y) **Stage II Agreement** means an amending development agreement that amends this development agreement;

(z) **Stepback:** means a specified horizontal recess from the top of a streetwall, which shall be unobstructed from the streetwall to the sky except as otherwise specified.

(aa) **Streetline:** means any lot line dividing a lot from a street.

(ab) **Streetline Grade:** means the elevation of a streetline at a midpoint of a streetwall. Separate streetline grades are determined for the midpoint of each streetwall segment that is greater than 8.0 metres wide, or a part thereof.

(ac) **Streetline Setback:** means a yard extending across the full width of a lot between the streetline and the nearest wall of any main building on the lot.

(ad) **Streetwall:** means the wall of a building or portion of a wall facing a streetline, or common shared private driveway, that is below the height of a specified stepback which does not include minor recesses for elements such as doorways or intrusions such as bay windows.

(ae) **Streetwall Height:** means the vertical distance between the top of the streetwall and the streetline grade or common shared private driveway extending across the width of the streetwall.

(af) **Streetwall Setback:** means the distance between the streetwall and the streetline or common shared private driveway.

(ag) **Water Taxi:** means a private ferry service that transports persons by boat to and from locations within the Halifax Harbour.

PART 3: USE OF LANDS, SUBDIVISION AND DEVELOPMENT PROVISIONS

3.1 Schedules

3.1.1 The Developer shall develop the Lands in a manner, which, in the opinion of the Development Officer, conforms with the following Schedules attached to this Agreement and filed in the Halifax Regional Municipality as Case Number 21296:

Schedule A	Legal Description of the Lands(s)
Schedule B	Site Plan
Schedule C	Phasing Plan
Schedule D	Parks, Open Space and Easements
Schedule E	Maximum Building Height
Schedule F	Maximum Streetwall Height
Schedule G	Pedestrian Oriented Commercial Streets
Schedule H	Design Guidelines
Schedule I	Interim Uses

Stage II Agreements will be facilitated for through the provision of additional Schedules to this agreement.

3.1.2 Schedule B of this agreement contains a site plan for the development of the Lands. Submission and approval of a separate subdivision concept plan shall be required in advance of any Stage II Agreement application approvals pursuant to this agreement. Road locations, park locations, and easements shall be generally consistent with Schedule B.

3.1.3 Development permits shall only be granted for the Lands after approval of Stage II Agreements of the associated phase by Council and registration of the Stage II Agreement.

3.1.4 Notwithstanding Section 3.1.3, temporary uses shall be permitted prior to the approval of a Stage II Agreement in accordance with Section 3.18 provided the grade separate emergency vehicle access as shown on Schedule B is deemed complete and functional by the Engineer.

3.1.5 No development permit shall be issued for a building on the Lands until the grade separate emergency vehicle access has been determined to be complete and functional by the Engineer.

3.1.6 Notwithstanding section 3.1.5, a development permit may be issued for the construction of Buildings on Lots E, H and J, for the construction of a grade separate emergency vehicle access, or for construction of both, before the grade separate emergency vehicle access is constructed and determined to be complete and functional by the Engineer.

3.2 Requirements Prior to Approval

3.2.1 Development on the Lands beyond those temporary uses referenced in Section 3.18 shall be subject to a Stage II Agreement.

3.2.2 Prior to Council considering a Stage II Agreement, the Developer shall obtain subdivision approval from the Municipality to subdivide the Lands pursuant to Section 3.5 and the Regional Subdivision By-law, as amended from time to time.

3.2.3 The design of the grade separate emergency vehicle access as shown on Schedule B must be submitted in a form inclusive of plans which are signed and stamped by a professional engineer and accompanied by a letter provided by CN rail indicating they have approved the design and location of the ramp prior to the Developer being permitted to make an application for a building permit for any development within phases 1 through 4 or sites 1 or 2.

3.2.4 No occupancy permit for any development on the Lands within phases 1 to 4 or sites 1 or 2 as per Schedule C will be granted until such time that the grade separate emergency vehicle access has been deemed complete and operational by the Development Engineer.

3.2.5 Site preparation for each phase or portion thereof shall not occur until a Stage II Agreement has been approved and registered for that phase.

3.2.6 Notwithstanding Section 3.2.5 of this Agreement, site work, including clearing or grubbing that is associated with development of municipal streets, may occur prior to the approval and registration of the Stage II Agreements for those phases so long as the documents required under Sections 5.2, 5.3, 5.4, and 5.6 of this Agreement have been provided to and deemed satisfactory by the Development Officer.

3.2.7 Prior to Development Permits being issued for any development upon parcels, or portions of such parcels, identified as water lots as per their land title, all necessary Provincial and Federal permissions and permits must be acquired relating to infill of the Halifax Harbour.

3.2.8 The Developer shall provide a residential unit tracking chart and a commercial floor space tracking chart to the Municipality with each application to develop a phase, and to the Development Officer with each application for a development permit.

3.2.9 No occupancy permit for a building shall be issued unless the following requirements have been fulfilled:

(a) Section 3.5 relating to the granting of public easements;
(b) Section 3.6. relating to the completion of parks; and
(c) Section 3.2.4 relating to grade separate emergency vehicle access.

3.3 General Description of Land Use

3.3.1 (1) The use(s) of the Lands permitted by this Agreement are the following:

(a) Maximum of 1146 residential units inclusive of work-live units;
(b) 27,421 square meters of commercial uses, including temporary uses, fabrication retail, marina uses, space within work-live units, and excluding adult entertainment uses, billboards, industrial uses, and obnoxious uses;
(c) Two marinas generally located as per Schedule B;
(d) Park and open space uses as per Section 3.6 of this Agreement;
(e) Temporary uses as per sections 3.17 and 3.18 of this Agreement; and
(e) Accessory uses to the foregoing.

(2) Marina uses that are located within a building shall count towards the 27,241 square meters of commercial uses, and marina uses that are located outside of a building shall not count towards the 27,241 square meters.

3.3.2 Notwithstanding Section 3.3.1, institutional land uses may be permitted within any Stage II Agreement up to a maximum of 7000 square meters of floor area with a corresponding reduction in the permitted commercial floor area.

3.4 Phasing

3.4.1 The development shall be developed sequentially in 4 phases as shown on Schedule C of this Agreement with the additional option to develop Site 1 and Site 2 out of sequence as permitted to occur in sections 3.4.2 and 3.4.3 of this Agreement.

3.4.2 Development of Site 1 as identified on Schedule B shall be permitted at any point in the development after construction has commenced on a minimum of 1 building in Phase 2, and Council has a Stage II Agreement for Site 1 as per section 3.4.5.

3.4.3 Development of Site 2 as identified on Schedule B shall be permitted at any point subsequent to the Engineer being satisfied that the grade separate emergency vehicle access has been completed, with the permitted use of this lot being limited to a Marina and subject to the completion of a Stage II Agreement for the site as per section 3.4.5.

3.4.4 Each lot identified on Schedule B is subject to a Stage II Agreement and construction must be commenced on all lots within each phase before any development permits are issued within the next phase.

3.4.5 Each Stage II Agreement shall address the following:

(a) Detailed provisions for land use, pursuant to Section 3.3;
(b) Design of the building or buildings pursuant to Section 3.8 and the Schedules contained within this Agreement;
(c) The further subdivision of lands into lots in accordance with Schedule B of this agreement and as per the Regional Subdivision By-law;
(d) Submission and review of a Stormwater Management Plan and Erosion and Sedimentation Control Plan as per Section 5.2 of this Agreement;
(e) Accessory building provisions;
(f) The timing for the construction and conveyance of any public easement shown on Schedule D of this Agreement, and as outlined within sections 3.11 and 3.12;
(g) Shadow impact study with a focus on minimizing impact on the public realm;
(h) Sound mitigation as in accordance with Section 3.8.15;
(i) Wind impact as per section 3.10.2 of this Agreement;
(j) Appropriate consideration of building materials given the site location on the water's edge;
(k) Boardwalk design with the aim of maximizing public access to the water's edge to the greatest extent possible;
(l) Landscaping of lots as per section 3.14 of this Agreement;
(m) The design, number and location of permitted signs;
(n) The design of buildings located adjacent to parkland or open spaces ensuring the design of buildings and the connections they provide promote the use and enjoyment of the parkland or open space;
(o) Consideration of the Design Guidelines as found in Schedule H of this agreement; and
(p) Other relevant land use considerations which are based on the policy guidance of the applicable Municipal Planning Strategy.

3.5 Subdivision of the Lands

3.5.1 Subdivision applications shall be submitted to the Development Officer, and shall generally conform with this Stage I Agreement, and the Regional Subdivision By-law.

3.5.2 Subdivision of the land and public road construction may occur prior to approval of a Stage II Agreement consistent with Schedule B of this Agreement.

3.5.3 All easements which exist or are proposed to be granted to the Municipality shall be shown on the plan of subdivision and granted to the Municipality.

3.5.4 Park A, as identified on Schedule B of this Agreement, shall be conveyed to the Municipality in advance of the approval of a Stage II Agreement for the development of Phase 2, as identified in Schedule C, provided the lands meet the definition of usable lands within the Regional Subdivision By-law, unless equivalent value has been otherwise provided to meet the requirements of the Regional Subdivision By-law.

3.5.5 Park B, as identified on Schedule B of this Agreement, shall be conveyed to the Municipality in advance of the approval of a Stage II Agreement for the development of Phase 3, as identified in Schedule C, provided the lands meet the definition of usable lands within the Regional Subdivision By-law, unless equivalent value has been otherwise provided to meet the requirements of the Regional Subdivision by-law.

3.6 Parks and Open Spaces

3.6.1 Where park dedication is in the form of land, the parks shall include land located in the general location of Park A and B, as shown on Schedule B, and must meet the park requirements contained in the Regional Subdivision By-law.

3.6.2 Where the provision of parks does not meet the minimum land area requirements of the Regional Subdivision By-law, equivalent value shall be provided as required by the Regional Subdivision By-law.

3.6.3 Where land is provided for parkland, prior to an occupancy permit being issued for a building constructed on either Lot G or Lot T, whichever is last, the Developer shall construct Park A, as shown on Schedule D, to a finished state.

3.6.4 Where land is provided for parkland, prior to an occupancy permit being issued for a building constructed on either Lot J or Lot N, whichever is last, the Developer shall construct Park B, as shown on Schedule D, to a finished state.

3.6.5 Finished state for the purposes of 3.6.3 and 3.6.4 is regulated by the applicable Stage 2 Agreement and is determined by the Development Officer.

3.6.6 Land for the purposes of parkland dedication shall meet the requirements of the Regional Subdivision By-law, including the definition of useable land and section 83.

3.7 Land Use Controls

3.7.1.1 Along a streetline that abuts a pedestrian-oriented commercial street identified on Schedule G, only the following uses may be located on portions of the ground floor of a building which directly abuts the pedestrian-oriented street:

(a) retail store;
(b) restaurant – full service;
(c) drinking establishments;
(d) financial institutions;
(e) medical clinics;
(f) personal service;
(g) grocery stores;
(h) hotels;
(i) cultural uses;
(j) schools, university or college;
(k) pedestrian entrances and lobbies for any other use permitted in the zone; and
(l) vehicle entry points for parking areas.

3.7.1.2 Subsection 3.7.1.1. shall not apply to existing buildings.

3.7.2 20% of all dwelling units in a multi-unit dwelling, rounded up to the nearest whole number of such units, shall be a minimum of 80 square metres (861 ft²) in size.

3.7.3 For all multiple unit dwellings, private amenity space shall be provided at a rate of 5.0 square metres per dwelling unit, for use by building residents.

3.8 Built Form and Architectural Requirements

Building Height

3.8.1 Maximum building heights for each lot shall be as shown on Schedule E.

3.8.2 The minimum setback from the roof edge for rooftop features shall be 3m, except for railings and guards.

3.8.3 Rooftop greenhouses shall be permitted to exceed the maximum building height up to 7.5 metres and shall have a minimum setback of 3 metres from the roof edge.

Streetwall

3.8.4 Maximum streetwall height shall apply to mid-rise and high-rise buildings and shall be generally consistent with Schedule F.

3.8.5 For high-rise buildings, a minimum stepback of 3 metres is required at the height of the streetwall.

3.8.6 For mid-rise buildings, a minimum stepback of 1.5 metres is required at the height of the streetwall.

3.8.7 No streetwall stepback shall be required for up to 20% of the width of a building along a streetline.

3.8.8 The maximum streetwall height and stepback may be exceeded by a clear uncoloured glass guard and railing system to allow for the safe use of podiums and roofs by the occupants of the building.

3.8.9.1 A streetwall shall extend the full width of a lot abutting the streetline on pedestrian-oriented commercial streets, as identified on Schedule G.

3.8.9.2 Subsection 3.8.9.1 does not apply to the extension of the streetwall respecting

(a) a pedestrian connection between lots F and G that travels between King's Wharf Place and Road B, or
(b) for the purpose of providing public access, as identified in Schedule D, or
(c) for the creation of outdoor open space.

3.8.10 The setback of buildings shall be minimized in all cases in an effort to ensure buildings address the street and provide a comfortable and engaging walking experience.

3.8.11 Watercourse setback and buffer requirements of the applicable Land Use By-law do not apply to these lands.

Separation Distances

3.8.12 For high-rise buildings above the streetwall height, any portions of the same or any other main buildings shall be separated by at least 25.0 metres.

3.8.13 More than one main building on a lot may be permitted so long as the separation distances referenced in 3.8.12 are met.

Maximum Building Dimensions

3.8.14 Above the streetwall height, any contiguous portion of a high-rise building shall not exceed a floor plate area of:
(a) 915 square metres for Lot E;
(b) 830 square metres for Lots F, G, and J; and
(c) 800 square metres for all other lots

3.8.15 Above the streetwall height:
(a) the building depth of any contiguous portion of a high-rise building shall not exceed 35.0 metres; and
(b) tower width along a streetline shall be no greater than 35m.

Materials

3.8.16 Prohibited materials include the following:
(a) Stucco;
(b) Plywood;
(c) Vinyl;
(d) Concrete block; and
(e) darkly tinted or mirrored glass, excepting spandrel glass panels;

Sound Mitigation

3.8.17 Soundproofing measures shall be provided in accordance with the National Building Code of Canada.

Ground Floor Requirements

3.8.18 On Pedestrian Oriented commercial streets identified in Schedule G, at least 60% of the building's total ground floor streetwall for each pedestrian oriented streetline shall consist of clear glazing.

3.8.19 A minimum of 50% of residential units located at the ground floor must have direct pedestrian access to the street.

3.9 Site 1 Requirements

3.9.1 Notwithstanding Section 3.8.2 through 3.8.17 of this Agreement, it is acknowledged that Site 1 as shown on Schedule B will need to be developed in a way specific to its context, surrounded by ocean on 3 sides, adjacent to a public park, and with minimal public street frontage. As such, in considering Stage II Agreements for a mixed use building for Site 1 Council shall consider the following:

(a) the scale of the podium of the building and its compatibility with the surrounding public realm, open space, and park space;
(b) the orientation and massing of a tower and whether it minimizes the impact on the publicly accessible open spaces;
(c) the adequacy of private amenity spaces for the occupants of the building;
(d) whether there is an active ground floor that utilizes visually permeable materials and encompasses commercial uses adjacent to the public realm where possible;
(e) the buildings are designed to provide public access and views to the Halifax Harbour;
(f) the creation of high quality design detail at street level through attention to such matters as landscaping, signs, building entrances, and vehicle layby areas;
(g) the provision of high quality open space and leisure areas of a size and type adequate for the resident population;
(h) the mix of unit types and sizes;
(i) whether the design places pedestrians first and minimizes the impact of parking and parkade access on pedestrians;

(j) the impact of the residential and commercial densities on municipal services;
(k) the quality of the exterior construction materials; and
(l) other relevant land use considerations which are based on the policy guidance of the Municipal Planning Strategy.

3.10 Required Studies

3.10.1 Quantitative wind studies are required for any Stage II Agreement Application containing a high-rise building. Studies shall be prepared and sealed by a qualified Professional Engineer with the results of the study informing mitigation of found impacts through building and site design.

3. 10.2 Any required wind impact assessment must address:

(a) existing wind conditions, including the effects of buildings and physical features on the lot and surrounding lots;
(b) the impact of the development on wind conditions in the following areas:
  i. the public realm, including parks, plazas, other open spaces, sidewalks, other pedestrian areas, and building entrances,
  ii. outdoor amenity space, and
  iii. surrounding properties;
(c) the expected level of comfort for activities such as sitting, standing, strolling, and walking;
(d) pedestrian safety, where wind gusts might adversely affect a pedestrian's balance; and
(e) the methodology and standards used in the assessment.

3.11 Parking, Circulation and Access

3.11.1 Subject to Section 3.1.4, prior to the approval of a Stage II Agreement, surface parking may be located within the Interim Uses Area as shown on Schedule I and may be permitted to exist until such time that construction commences on the phase in which the parking is located.

3.11.2 Pursuant to Section 3.11.1, surface parking shall be permitted as per the following:
(a) a maximum total of 25 parking stalls will be permitted at any given time; and
(b) parking shall be limited to the interim use areas as shown on Schedule I.

3.11.3 All parking outside of that permitted within Sections 3.11.1 and 3.11.2 must be located below grade or completely contained within a building. Surface parking, including accessory surface parking lot, is prohibited within any Stage II Agreement.

3.11.4 The grade separate emergency vehicle access as required under section 3.2.3 and shown on Schedule B shall not be used for public vehicle traffic, however shall be open and accessible to pedestrians at all times.

3.11.5 The grade separate emergency vehicle access shown on Schedule B shall be owned by the Developer and maintenance shall be the sole responsibility of the Developer.

3.11.6 The developer shall provide an easement in a form satisfactory to the Municipality at no cost over the grade separate emergency vehicle access as per Schedule D to provide for public pedestrian access and emergency vehicle access following completion of the grade separate emergency vehicle access and in advance of occupancy for the Buildings located on E and J. The easement for the grade separate emergency vehicle access is not required at the time of subdivision of the lands.

3.12 Public Access & Connectivity of Privately Owned Areas

3.12.1 A boardwalk will be provided as shown on Schedule D and will be owned and maintained solely by the Developer.

3.12.2 The boardwalk will be a minimum width of 3 metres and will connect publicly accessible open spaces, both privately and publicly owned.

3.12.3 Public access to the waterfront via boardwalk and parklands shall be provided in the areas as per Schedule D.

3.12.4 No development of Lots P, Q, R, S and T as shown on Schedule D, shall take place until such time that the waterfront boardwalk access design has been completed and found acceptable by the Development Officer in consultation with the Parks Planner to determine whether the required widths, materials, connections to public open spaces, and easements are sufficient to satisfy the intent of this development agreement in respect of public access.

3.12.5 Ownership and maintenance of the seawall, and other engineered structures, including engineering infrastructure, between the development and the harbour shall be the sole responsibility of the developer.

3.13 Outdoor Lighting

3.13.1 Lighting plans shall be required for each Stage II Agreement and shall be consistent with Schedule H of this Agreement.

3.14 Landscaping

3.14.1 Landscaping plans shall be provided at the time of each Stage II Agreement submission and shall be consistent with Schedule H of this Agreement.

3.14.2 High-rise and mid-rise buildings with a flat roof, or a flat-roofed addition to an existing building, must provide soft landscaping on 50% of any area of the flat roof that:

(a) exceeds 100.0 contiguous square metres, or for the top of a mechanical room which is the highest roof on a building 150 square meters;
(b) has at least one linear dimension exceeding 5.0 metres; and
(c) is not required or used for amenity space, architectural features, mechanical equipment, building maintenance, greenhouses or solar collectors.

3.15. Maintenance

3.15.1 The Developer or owner of the lots shall maintain and keep in good repair all portions of the development on the Lands, including but not limited to, the exterior of the building, fencing, walkways, recreational amenities, parking areas and driveways, and the maintenance of all landscaping including the replacement of damaged or dead plant stock, trimming and litter control, garbage removal and snow and ice control, salting of walkways and driveways.

3.15.2 All disturbed areas shall be reinstated to original condition or better.

3.15.3 The maintenance of boardwalks, seawalls, grade separate emergency vehicle access, and other areas subject to public easements shall be as outlined within Sections 3.11.5, and 3.12.5

3.16 Signs

3.16.1 Details regarding the general location, size, and type of signage shall be contained within Stage II Agreements and be consistent with Schedule H of this Agreement

3.17 Temporary Construction Uses

3.17.1 One building shall be permitted on the Lands for the purpose of housing equipment, materials and office related matters relating to the construction and sale of the development in accordance with this Agreement. The building shall be a single storey in height, and no larger than 500m². The construction building shall be removed from the Lands prior to the issuance of the last Occupancy Permit.

3.18 Temporary Uses not associated with Construction Uses

3.18.1 In advance of the redevelopment of the lands currently containing the warehouse building shown on Schedule I, the existing warehouse building as shown on Schedule I of this Agreement may be used, maintained, and upkept for the following uses:

(a) Outdoor patio accessory to any use listed in Section 3.18.1 to a maximum size of 1,000 sq. ft.;
(b) Fabrication Space;
(c) Personal Service;
(d) Drinking Establishment;
(e) Restaurant – full service;
(f) Office;
(g) Cultural Use; and
(h) Retail Store.

3.18.2 The existing warehouse building referenced in Section 3.18.1 is exempt from all architectural and built form requirements in Section 3.8 of this Agreement.

3.18.3 The Marina and Water Taxi uses are permitted to be located within the Interim Marina Uses Area as shown on Schedule I and may operate within that area until such time that permanent marina facilities are constructed.

3.18.4 Pursuant to Section 3.18.3, a maximum of 1 shipping container for Marina use storage shall be permitted so long as it is screened, cladded, and landscaped in a manner acceptable to the Development Officer.

3.18.5 In addition to the allowances of Section 3.18.4, a total maximum of 4 shipping containers are permitted within either the interim uses area or interim marina uses area as indicated on Schedule I of this Agreement for use of urban farms, retail, rental activities, or storage on the site, subject to the following:

(a) the use of the containers may continue until construction of the first building in Phase 3 has commenced;
(b) the containers are not located within 30 metres of a residential use; and
(c) containers must be screened, cladded, and landscaped in a manner acceptable to the Development Officer.

3.18.6 In accordance with Section 3.1.5, the temporary uses permitted within Section 3.18 shall require a development permit.

3.19 View Corridors

3.19.1 No building or portion thereof shall project through the view corridors shown in the applicable land use bylaw.

PART 4: STREETS AND MUNICIPAL SERVICES

4.1 General Provisions

4.1.1 All design and construction of primary and secondary service systems shall satisfy the most current edition of the Municipal Design Guidelines and Halifax Water Design and Construction Specifications and shall receive written approval from the Development Engineering prior to undertaking the work.

4.2 Off-Site Disturbance

4.2.1 Any disturbance to existing off-site infrastructure resulting from the development, including but not limited to, streets, sidewalks, curbs and gutters, street trees, landscaped areas and utilities, shall be the responsibility of the Developer, and shall be reinstated, removed, replaced or relocated by the Developer as directed by the Development Officer, in consultation with the Development Engineer.

4.3 Streets

4.3.1 The street network shall be developed as generally shown on Schedule B. All street construction shall satisfy the Municipal Design Guidelines and shall receive written approval from the Development Engineer prior to undertaking the work. The Development Officer, in consultation with the Development Engineer, may give consideration to minor changes to the street network as identified in Schedule B, provided the modifications serve to maintain or enhance the intent of this Agreement.

4.4 Undergrounding Services

4.4.1 All secondary or primary (as applicable) electrical, telephone and cable service to all buildings shall be underground installation.

4.5 Site Preparation in a Subdivision

4.5.1 The Developer shall not commence clearing, excavation or blasting activities required for the installation of primary or secondary services in association with a subdivision prior to receiving final approval of the subdivision design, unless otherwise permitted in writing by the Development Officer, in consultation with the Development Engineer.

4.6 Outstanding Site Work

4.6.1 For each building, securities for the completion of outstanding on-site paving and landscaping work (at the time of issuance of the first Occupancy Permit) may be permitted. Such securities shall consist of a security deposit in the amount of 110 percent of the estimated cost to complete the work. The security shall be in favour of the Municipality and may be in the form of a certified cheque or irrevocable automatically renewing letter of credit issued by a chartered bank. The security shall be returned to the Developer by the Development Officer when all outstanding work is satisfactorily completed.

PART 5: ENVIRONMENTAL PROTECTION MEASURES

5.1 Private Storm Water Facilities

5.1.1 All private storm water facilities shall be maintained in good order in order to maintain full storage capacity by the owner of the lot on which they are situated.

5.2 Stormwater Management Plans and Erosion and Sedimentation Control Plan

5.2.1 Prior to the commencement of any site work on the Lands, including earth movement or tree removal other than that required for preliminary survey purposes, or associated off-site works, the Developer shall:

(a) Submit to the Development Officer a detailed Site Disturbance Plan, prepared by a Professional Engineer indicating the sequence and phasing of construction and the areas to be disturbed or undisturbed;
(b) Submit to the Development Officer a detailed Erosion and Sedimentation Control Plan prepared by a Professional Engineer in accordance with the Erosion and Sedimentation Control Handbook for Construction Sites as prepared and revised from time to time by Nova Scotia Environment. Notwithstanding other sections of this Agreement, no work is permitted on the Lands until the requirements of this clause have been met and implemented. The Erosion and Sedimentation Control Plan shall indicate the sequence of construction, all proposed detailed erosion and sedimentation control measures and interim stormwater management measures to be put in place prior to and during construction; and
(c) Submit to the Development Officer a detailed Site Grading and Stormwater Management Plan prepared by a Professional Engineer.

5.3 Archaeological Monitoring and Protection

5.3.1 The Lands fall within the High Potential Zone for Archaeological Sites identified by the Province of Nova Scotia. The Developer shall contact the Coordinator of Special Places of the Nova Scotia Department of Communities, Culture and Heritage prior to any disturbance of the Lands and the Developer shall comply with the requirements set forth by the Province of Nova Scotia in this regard.

5.4 Sulphide Bearing Materials

5.4.1 The Developer agrees to comply with the legislation and regulations of the Province of Nova Scotia with regards to the handling, removal, and disposal of sulphide bearing materials, which may be found on the Lands.

5.5 Public Art

5.5.1 The developer agrees to provide public art, as defined in HRM 's Cultural Plan. The appraised value of the public art shall be at least 0.75% of the total construction costs of the buildings in each Stage II Agreement.

5.5.2 Public art required per Section 5.5 shall be provided in each individual phase, on lands owned and controlled by the Developer, and shall be installed prior to the issuance of an occupancy permit of the last building in that phase of development.

5.5.3 A public art master plan, outlining the location, styte, cost, and overview of how the art will integrate into the project as a whole, must be provided at or prior to the time of submission of the last Stage II Agreement application within a given phase

5.5.4 If the art installation is not completed in advance of the completion of construction of any given building, the Developer shall post security in the amount of 0.75% of the total construction costs of the building. The security shall be in favour of the Municipality and shall be in the form satisfactory to the Municipality. The security shall be taken in advance of the issuance of an occupancy permit for each building. The security shall be returned to the Developer only upon completion of the work as described herein and as approved by the Development Officer.

5.6 Site Remediation

5.6.1 The Developer shall, through a qualified professional, submit verification of any remediation required by Nova Scotia Environment prior to the issuance of the first Development Permit for any phase.

5.7 Coastal Elevation

5.7.1 No development permit shall be issued for any building on a lot abutting the coast of the Atlantic Ocean, including its inlets, bays and harbours, where a residential unit is located within a 3.8 meter elevation above the Canadian Geodetic Vertical Datum (CGVD 28).

PART 6: AMENDMENTS

6.1 Non-Substantive Amendments

6.1.1 The following items are considered by both parties to be not substantive and may be amended by resolution of Council:

(a) Approvals of any Stage II Agreement associated with this development;
(b) Amendments to this Agreement that were made by a Stage II Agreement;
(c) The granting of an extension to the date of commencement of construction as identified in Section 7.3 of this Agreement;
(d) The length of time for the completion of the development as identified in Section 7.4 of this Agreement;
(e) Amendments to this Agreement to include the use of cruise ship or luxury yacht docking facility;
(f) Notwithstanding section 3.11 of this Agreement, changes to the amount of surface parking so long as it is screened from the public realm by surrounding buildings;
(g) Amendments to the list of permitted temporary uses as contained within Section 3.18 of this Agreement;
(h) Amendments to the list of prohibited materials as contained within Section 3.18.16 of this Agreement;
(i) Revision to the lot lines as shown on Schedule B;
(j) Amendments to Schedule C – Phasing Plan;
(k) Amendments to Schedule H – Design Guidelines;
(l) Amendments to 3.7.1 - the list of pedestrian oriented uses in this Agreement; and
(m) Amendments to the configuration of the marinas set out in this Agreement.

6.2 Substantive Amendments

6.2.1 Amendments to any matters not identified under Section 6.1 shall be deemed substantive and may only be amended in accordance with the approval requirements of the *Halifax Regional Municipality Charter*.

PART 7: REGISTRATION, EFFECT OF CONVEYANCES AND DISCHARGE

7.1 Registration

7.1.1 A copy of this Agreement and every amendment or discharge of this Agreement shall be recorded at the Registry of Deeds or Land Registry Office at Halifax, Nova Scotia and the Developer shall incur all costs in recording such documents.

7.2 Subsequent Owners

7.2.1 This Agreement shall be binding upon the parties hereto, their heirs, successors, assigns, mortgagees, lessees and all subsequent owners, and shall run with the Lands which are the subject of this Agreement until this Agreement is discharged by Council.

7.2.2 Upon the transfer of title to any lot(s), the subsequent owner(s) thereof shall observe and perform the terms and conditions of this Agreement to the extent applicable to the lot(s).

7.3 Commencement of Development

7.3.1 In the event that the Developer has not entered into a Stage II Agreement on the lands within three (3) years from the date of registration of this Agreement at the Registry of Deeds or Land Registry Office, as indicated herein, this Agreement shall have no further force or effect and henceforth the development of the Lands shall conform with the provisions of the applicable land use by-law.

7.3.3 For the purpose of this section, Council may consider granting an extension of the commencement of development time period through a resolution under Section 6.1.1(d) if the Municipality receives a written request from the Developer at least sixty (60) calendar days prior to the expiry of the commencement of development time period.

7.4. Completion of Development and Discharge

7.4.1 On granting of the Final Occupancy Permit for development of a lot pursuant to a Stage II Agreement, Council may discharge this Agreement, in whole or in part, from the lot and apply appropriate zoning pursuant to the Municipal Planning Strategy and Land Use By-law.

7.4.2 If the Developer fails to complete this development, after 15 years from the date of registration of this Agreement at the Land Registration Office Council may review this Agreement, in whole or in part, and may:

(a) retain the Agreement in its present form;
(b) negotiate a new Agreement;
(c) discharge this Agreement; or
(d) for those portions of the development which are completed, discharge this Agreement and apply appropriate zoning pursuant to the Municipal Planning Strategy and Land Use By-law for Downtown Dartmouth, as may be amended from time to time.

PART 8: ENFORCEMENT AND RIGHTS AND REMEDIES ON DEFAULT

8.1 Enforcement

8.1.1 The Developer agrees that any officer appointed by the Municipality to enforce this Agreement shall be granted access onto the Lands during all reasonable hours without obtaining consent of the Developer. The Developer further agrees that, upon receiving written notification from an officer of the Municipality to inspect the interior of any building located on the Lands, the Developer agrees to allow for such an inspection during any reasonable hour within twenty-four hours of receiving such a request.

8.2 Failure to Comply

8.2.1 If the Developer fails to observe or perform any condition of this Agreement after the Municipality has given the Developer thirty days written notice of the failure or default, then in each such case:

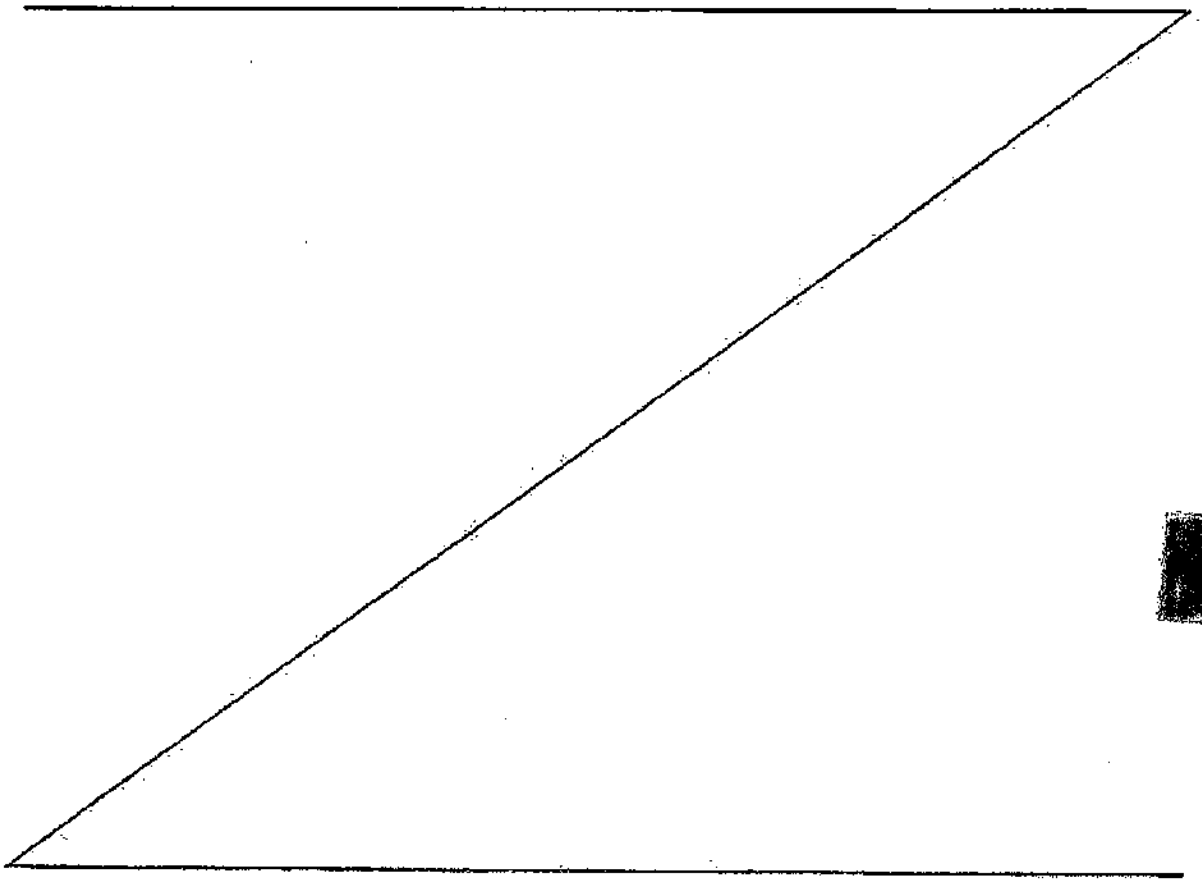
(a) The Municipality shall be entitled to apply to any court of competent jurisdiction for injunctive relief including an order prohibiting the Developer from continuing such default and the Developer hereby submits to the jurisdiction of such Court and waives any defence based upon the allegation that damages would be an adequate remedy;

(b) The Municipality may enter onto the Lands and perform any of the covenants contained in this Agreement or take such remedial action as is considered necessary to correct a breach of the Agreement, whereupon all reasonable expenses whether arising out of the entry onto the Lands or from the performance of the covenants or remedial action, shall be a first lien on the Lands and be shown on any tax certificate issued under the *Assessment Act*;

(c) The Municipality may by resolution discharge this Agreement whereupon this Agreement shall have no further force or effect and henceforth the development of the Lands shall conform with the provisions of the Land Use By-law; or

(d) In addition to the above remedies, the Municipality reserves the right to pursue any other remedy under the *Halifax Regional Municipality Charter* or Common Law in order to ensure compliance with this Agreement.

IN WITNESS WHEREAS the said parties to these presents have hereunto set their hands and affixed their seals the day and year first above written.



SIGNED, SEALED AND DELIVERED in the presence of:

Original Signed

Witness

Original Signed

Witness

SIGNED, DELIVERED AND ATTESTED to by the proper signing officers of Halifax Regional Municipality, duly authorized in that behalf, in the presence of:

Original Signed

Witness

Original Signed

Witness

THE ANCHORAGE AT DARTMOUTH COVE PROPERTY DEVELOPMENT INCORPORATED

Original Signed

Per:
Name:
Position:

FARES ART HOLDINGS INCORPORATED

Original Signed

Per:
Name:
Position:

HALIFAX REGIONAL MUNICIPALITY

Per: Original Signed
MAYOR

Per: Original Signed
MUNICIPAL CLERK

PROVINCE OF NOVA SCOTIA
COUNTY OF HALIFAX

On this 27 day of March, A.D. 20 20, before me, the subscriber personally came and appeared David Dedrick a subscribing witness to the foregoing indenture who having been by me duly sworn, made oath and said that **The Anchorage At Dartmouth Cove Property Development Incorporated** of the parties thereto, signed, sealed and delivered the same in his/her presence.

Original Signed

A Commissioner of the Supreme Court of Nova Scotia

ELIAS A. METLEJ
A Barrister of the Supreme Court of Nova Scotia

PROVINCE OF NOVA SCOTIA
COUNTY OF HALIFAX

On this 21st day of May A.D. 2020, before me, the subscriber personally came and appeared Leslie Neate & Bob Murphy the subscribing witness to the foregoing indenture who being by me sworn, made oath, and said that Mike Savage, Mayor and Acting Clerk, Sherryll Murphy, of the Halifax Regional Municipality, signed the same and affixed the seal of the said Municipality thereto in his/her presence.

Original Signed

A Commissioner of the Supreme Court of Nova Scotia

LIAM MACSWEEN
A Commissioner of the
Supreme Court of Nova Scotia

PROVINCE OF NOVA SCOTIA
COUNTY OF HALIFAX

On this 27 day of March, A.D. 20 20, before me, the subscriber personally came and appeared David [illegible] a subscribing witness to the foregoing indenture who having been by me duly sworn, made oath and said that **Fares Art Holdings Incorporated** of the parties thereto, signed, sealed and delivered the same in his/her presence.

Original Signed

A Commissioner of the Supreme Court
of Nova Scotia

ELIAS A. METLEJ
A Barrister of the Supreme
Court of Nova Scotia

PROVINCE OF NOVA SCOTIA
COUNTY OF HALIFAX

On this ________________ day of _____, A.D. 20___, before me, the subscriber personally came and appeared ______________________ the subscribing witness to the foregoing indenture who being by me sworn, made oath, and said that Mike Savage, Mayor and Acting Clerk, Sherryll Murphy, of the Halifax Regional Municipality, signed the same and affixed the seal of the said Municipality thereto in his/her presence.

A Commissioner of the Supreme Court
of Nova Scotia

Schedule A

Legal Description No. 1
Kings Wharf Place, Dartmouth
Halifax County, Nova Scotia

All those certain pieces or parcels of land and land covered by water situated in the vicinity of Kings Wharf Place and Alderney Drive, Dartmouth, Halifax County, Nova Scotia comprised of the following:

PID 00130278 (Parcel CC-1)

ALL THAT CERTIAN lot, piece or parcel of land situate, lying and being on the northeastern side of Prince Street, the southeastern side of Alderney Drive and the southwestern side of King Street in Dartmouth, Halifax County, Nova Scotia, said parcel being shown as Parcel CC-1 on a plan entitled Plan of Survey of Parcels BB-1, CC-1, G & X, Lands and Lands Covered With Water Conveyed to Irving Shipbuilding Inc. prepared by Whyte, McElmon & Associates Limited and signed by David J. Whyte, N.S.L.S., dated February 2, 2005, said parcel being more particularly described as follows:

BEGINNING on the southwestern boundary of King Street at the northern corner of Canadian Government Railways, said corner being the beginning of a curve having a radius of one hundred ninety-eight decimal six one four (198.614) metres;

THENCE southwesterly along said curve and being along the northwestern boundary of Canadian Government Railways and curving to the left, five decimal two seven three (5.273) metres to the end of said curve;

THENCE South 2 9 degrees 40 minutes 40 seconds West along the northwestern boundary of the Canadian Government Railways, seventeen decimal one three zero (17.130) metres to a northern corner thereof;

THENCE North 60 degrees 19 minutes 20 seconds West along a northeastern boundary of Canadian Government Railways, one decimal five two four (1.524) metres to a northern corner thereof;

THENCE South 29 degrees 40 minutes 40 seconds West along the northwestern boundary of Canadian Government Railways, thirty-three decimal seven six three (33.763) metres to the beginning of a curve to the right having a radius of one hundred forty-two decimal five three one (142.531) metres;

THENCE southwesterly along said curve and being along the northwestern boundary of Canadian Government Railways, eighteen decimal nine seven four (18.974) metres to the end of said curve;

THENCE South 49 degrees 55 minutes 08 seconds East along a southwestern boundary of Canadian Government Railways, zero decimal one three one (0.131) metres to a northern corner of Prince Street;

THENCE South 52 degrees 21 minutes 19 seconds West along a northwestern boundary of Prince Street, six decimal two three nine (6.239) metres to a northern corner thereof;

THENCE North 49 degrees-55 minutes 08 seconds West along the northeastern boundary of Prince Street, twenty-eight decimal seven nine eight (28.798) metres to the southeastern boundary of Alderney Drive;

Continued...

THENCE North 58 degrees 26 minutes 44 seconds East along the southeastern boundary of Alderney Drive, thirty-two decimal zero seven four (32.074) metres to an angle in said boundary;

THENCE North 43 degrees 19 minutes 00 seconds East along the southeastern boundary of Alderney Drive, twenty-four decimal three eight four (24.384) metres to an angle in said boundary; Thence N27 degrees 46 minutes 59 seconds E along the southeastern boundary of Alderney Drive, nineteen decimal three zero three (19.303) metres to an angle in said boundary;

THENCE North 40 degrees 01 minutes 59 seconds East along the southeastern boundary of Alderney Drive, six decimal eight zero zero (6.800) metres to the southwestern boundary of King Street;

THENCE South 49 degrees 59 degrees 20 seconds East along the southwestern boundary of King Street, eleven decimal eight seven eight (11.878) metres to the **POINT OF BEGINNING.**

CONTAINING an area of 1,379.5 square metres.

SUBJECT TO a service easement in favour of Halifax Regional Municipality, said easement being shown as Service Easement D-1447 on the afore mentioned plan and being more particularly described as follows:

BEGINNING on the southwestern boundary of King Street at a point being South 49 degrees 59 minutes 20 seconds East, a distance of two decimal one two nine (2.129) metres from the southeastern boundary of Alderney Drive, as shown on said plan;

THENCE South 49 degrees 59 minutes 20 seconds East along the southwestern boundary of King Street, nine decimal one eight eight (9.188) metres to a point thereon;

THENCE South 34 degrees 46 minutes 15 seconds West, a distance of seventy decimal two five five (70.255) metres to the beginning of a curve to the right having a radius of fifty-eight decimal five seven five (58.575) metres;

THENCE southwesterly along said curve, a distance of ten decimal five two one (10.521) metres to the northeastern boundary of Prince Street;

THENCE North 49 degrees 55 minutes 08 seconds West along said boundary, nine decimal one nine one (9.191) metres to a point thereon, said point being the beginning of a curve to the left, said curve having a radius of forty-nine decimal four two five (49.425) metres;

THENCE northeasterly along said curve, a distance of nine decimal six seven five (9.675) metres to the end of said curve;

THENCE North 34 degrees 46 minutes 15 seconds East, a distance of seventy-one decimal zero nine four (71.094) metres to the **POINT OF BEGINNING.**

BEING AND INTENDED TO BE a portion of lands conveyed to Irving Shipbuilding Inc. by deed registered at Book 4311 Page 1127 (see Book 7326 Page 738 for name change) in the Registry Office for Halifax County.

SUBJECT TO an easement/ right of way as described in a deed recorded at the Halifax County Registry of Deeds in Book 6070 at Page 532.

Continued...

SUBJECT TO an agreement described in Document # 95113008 recorded at the Halifax County Land Registration Office on January 15, 2010.

SUBJECT TO a Land Use Agreement with Halifax Regional Municipality which Agreement was registered at the Land Registration office for the County of Halifax as Document Number 96903738 on September 30, 2010.

SUBJECT TO a Land Use Agreement with Halifax Regional Municipality which Agreement was registered at the Land Registration office for the County of Halifax as Document Number 94067684 on August 18, 2009.

SUBJECT TO Restrictive Covenants as described in a deed recorded at the Halifax County Land Registration Office on June 2, 2006 as Document # 85241355.

SUBJECT TO a Land Use Agreement with Halifax Regional Municipality which Agreement was registered at the Land Registration office for the County of Halifax as Document Number 100947523 on June 21, 2012.

SUBJECT TO an agreement described in Document # 106347819 recorded at the Halifax County Land Registration Office on December 16, 2014.

SUBJECT TO an agreement described in Document # 106347835 recorded at the Halifax County Land Registration Office on December 16, 2014.

PID 41471848 (Lands of Halifax Regional Municipality)

All that certain lot of land situate at Dartmouth extending from Prince Edward Street to an unused street laid out on the plan of the Town at highwater mark, the said land consisting of a strip fifteen feet in width and lying immediately north of the lots granted by the said
Town of Dartmouth to the said Chebucto Marine Railway Company by Deed bearing even date herewith and being a strip with two parallel sides, and the said lot of land is conveyed pursuant to an act of the Legislature of Nova Scotia passed in the year One Thousand Eight Hundred and Eighty-four.

PID 00130286 (Parcel R-X-KS)

ALL THAT CERTAIN piece or parcel of land and land covered by water situated at Kings Wharf Place, Dartmouth, Halifax County, Nova Scotia shown as **Parcel R-S--KS** on a Plan of Survey of Lots KS-1 to Lot KS-5 incl., a subdivision of Parcel R-X, lands and water lots of The Anchorage at Dartmouth Cove Property Development Inc., dated July 10, 2012, signed by Joseph R. Alcorn, N.S.L.S. and registered as plan number 101105485. Said **Parcel R-S-KS** being more particularly described as follows:

BEGINNING at the intersection of a curved eastern boundary of lands of Canadian National Railways Company and the southwestern boundary of Kings Wharf Place;

THENCE South 49 degrees 20 minutes 12 seconds East a distance of 204.190 metres along said southwestern boundary of Kings Wharf Place to a point of curvature;

Continued...

THENCE Southeasterly and southerly, following a curve to the right having a radius of 15.000 metres, an arc distance of 16.181 metres to a point of reverse curvature (chord bearing and distance being South 18 degrees 26 minutes 02 seconds East and 15.408 metres, respectively);

THENCE Southerly, southeasterly, easterly, northeasterly and northerly, following a curve to the left having a radius of 19.500 metres, an arc distance of 63.152 metres to a point of compound curvature (chord bearing and distance being South 80 degrees 18 minutes 30 seconds East and 38.954 metres, respectively);

THENCE northerly, following a curve to the left having a radius of 15.000 metres, an arc distance of 5.682 metres to a point;

THENCE North 40 degrees 39 minutes 48 seconds East a distance of 7.665 metres along the southeastern boundary of Lot KS-4 to a point;

THENCE South 48 degrees 12 minutes 38 seconds East a distance of 148.326 metres to a point;

THENCE South 41 degrees 47 minutes 22 seconds West a distance of 60.960 metres to a point;

THENCE North 48 degrees 12 minutes 38 seconds West a distance of 132.588 metres to a point;

THENCE South 41 degrees 47 minutes 22 seconds West a distance of 265.216 metres to a point;

THENCE North 48 degrees 12 minutes 38 seconds West a distance of 203.911 metres to a point;

THENCE North 38 degrees 45 minutes 36 seconds East a distance of 195.977 metres to a point;

THENCE Northwesterly a distance of 5.78 metres, more or less, along a northeastern boundary of lands conveyed to the former City of Dartmouth to a point;

THENCE North 40 degrees 19 minutes 24 seconds East a distance of 18.203 metres to a point;

THENCE North 49 degrees 40 minutes 36 seconds West a distance of 4.752 metres to a point;

THENCE South 40 degrees 19 minutes 24 seconds West a distance of 15.241 metres to a point;

THENCE North 49 degrees 40 minutes 36 seconds West a distance of 23.905 metres to a point on a southeastern boundary of lands of Canadian National Railways Company;

THENCE North 44 degrees 15 minutes 00 seconds East a distance of 15.277 metres along said southeastern boundary of lands of Canadian National Railways Company to a point;

THENCE North 46 degrees 56 minutes 32 seconds East a distance of 16.167 metres along a southeastern boundary of lands of Canadian National Railways Company to a point of curvature;

THENCE northeasterly, following a curve to the left having a radius of 154.723 metres, an arc distance of 21.188 metres to a point of curvature (chord bearing and distance being North 33 degrees 36 minutes 29 seconds East and 21.171 metres, respectively);

THENCE North 29 degrees 40 minutes 40 seconds East a distance of 33.763 metres along a southeastern boundary of lands of Canadian National Railways Company to a point;

Continued...

THENCE North 60 degrees 19 minutes 20 seconds West a distance of 1.524 metres to a point;

THENCE North 29 degrees 40 minutes 40 seconds East a distance of 17.113 metres along a southeastern boundary of lands of Canadian National Railways Company to a point of curvature;

THENCE northeasterly, following a curve to the right having a radius of 189.470 metres, an arc distance of 3.071 metres to the **POINT OF BEGINNING;**

CONTAINING a total area of 74,867 square metres, more or less.

TOGETHER WITH an easement/ right of way as described in deed recorded at the Halifax County Registry of Deeds in Book 4311 at Page 1127.

SUBJECT TO an easement/ right of way as described in deed recorded at the Halifax County Registry of Deeds in Book 3259 at Page 659.

SUBJECT TO an agreement described in Document # 95113008 recorded at the Halifax County Land Registration Office on January 15, 2010.

SUBJECT TO a Land Use Agreement with Halifax Regional Municipality which Agreement was registered at the Land Registration office for the County of Halifax as Document Number 94067684 on August 18, 2009.

SUBJECT TO a Land Use Agreement with Halifax Regional Municipality which Agreement was registered at the Land Registration office for the County of Halifax as Document Number 96903736 on September 30, 2010.

SUBJECT TO Restrictive Covenants described in a deed recorded at the Halifax County Land Registration Office as Document Number 85241355 on June 2, 2006.

SUBJECT TO an easement/ right of way as described in Document # 101957752 recorded at the Halifax County Land Registration Office on Nov. 15, 2012.

SUBJECT TO an easement/ right of way as described in Document # 101957810 recorded at the Halifax County Land Registration Office on Nov. 15, 2012.

SUBJECT TO an easement/ right of way as described in Document # 101957851 recorded at the Halifax County Land Registration Office on Nov. 15, 2012.

SUBJECT TO an easement/ right of way as described in Document # 101957885 recorded at the Halifax County Land Registration Office on Nov. 15, 2012.

SUBJECT TO a Land Use Agreement with Halifax Regional Municipality which Agreement was registered at the Land Registration office for the County of Halifax as Document Number 100947523 on June 21, 2012 and which Agreement was amended by Document Number 106347819 on December 16, 2014.

SUBJECT TO an agreement described in Document # 106347835 recorded at the Halifax County Land Registration Office on December 16, 2014.

Continued...

PID 41164278 (Parcel G)

ALL THAT CERTAIN piece or parcel of land covered by water situated in the vicinity of Kings Wharf Place, Dartmouth, Halifax County, Nova Scotia shown as **Parcel G** on a Plan of Survey of Lots KS-1 to Lot KS-5 Incl., a subdivision of Parcel R-X, lands and water lots of The Anchorage at Dartmouth Cove Property Development Inc., dated July 10, 2012, signed by Joseph R. Alcorn, N.S.L.S. and registered as plan number 101105485. Said **Parcel G** being more particularly described as follows:

BEGINNING at the most eastern corner of Parcel R-X-KS as shown on the above mentioned plan;

THENCE North 34 degrees 12 minutes 38 seconds West a distance of 214.183 metres to a point;

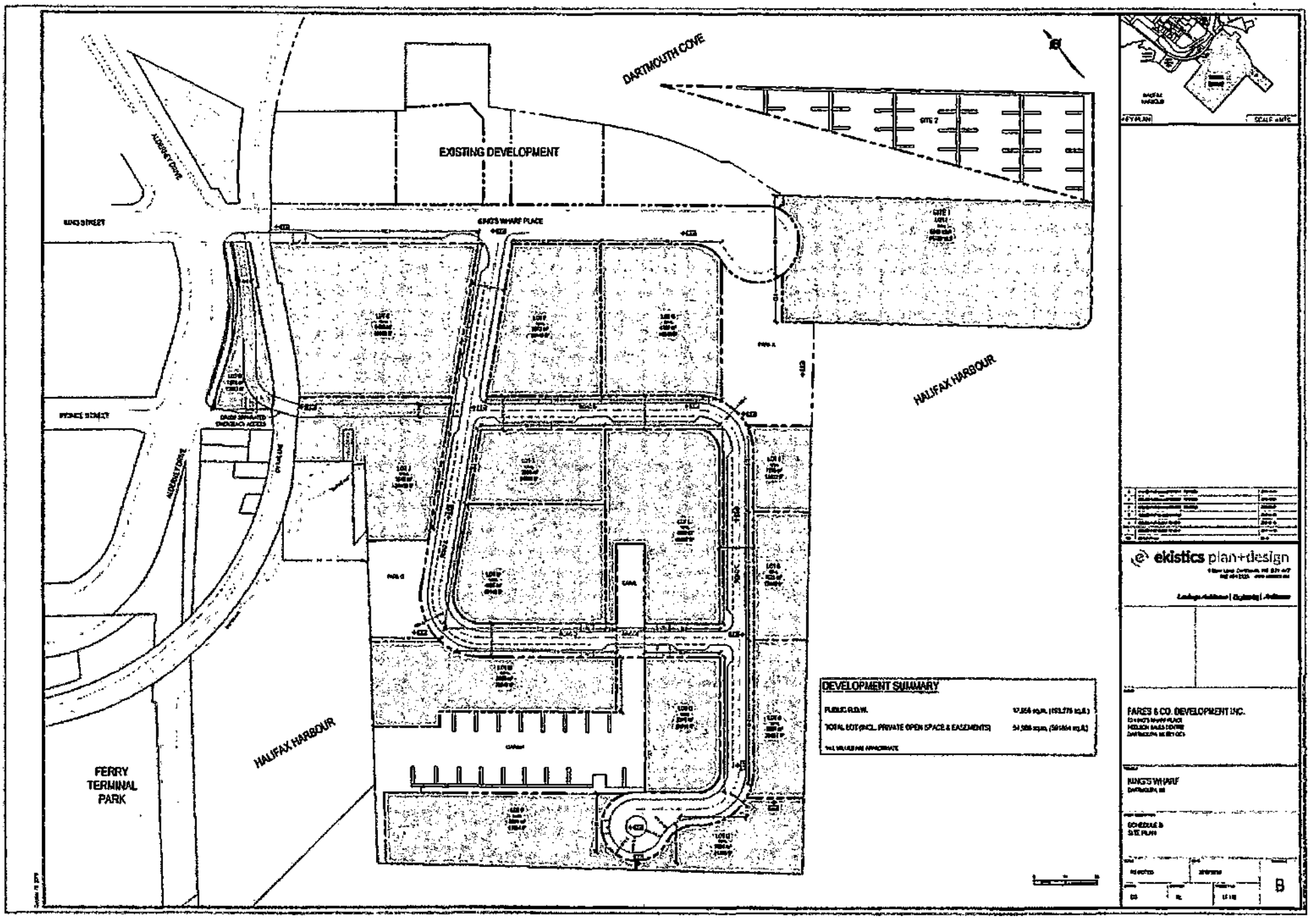
THENCE South 48 degrees 12 minutes 38 seconds East a distance of 207.821 metres to a point;

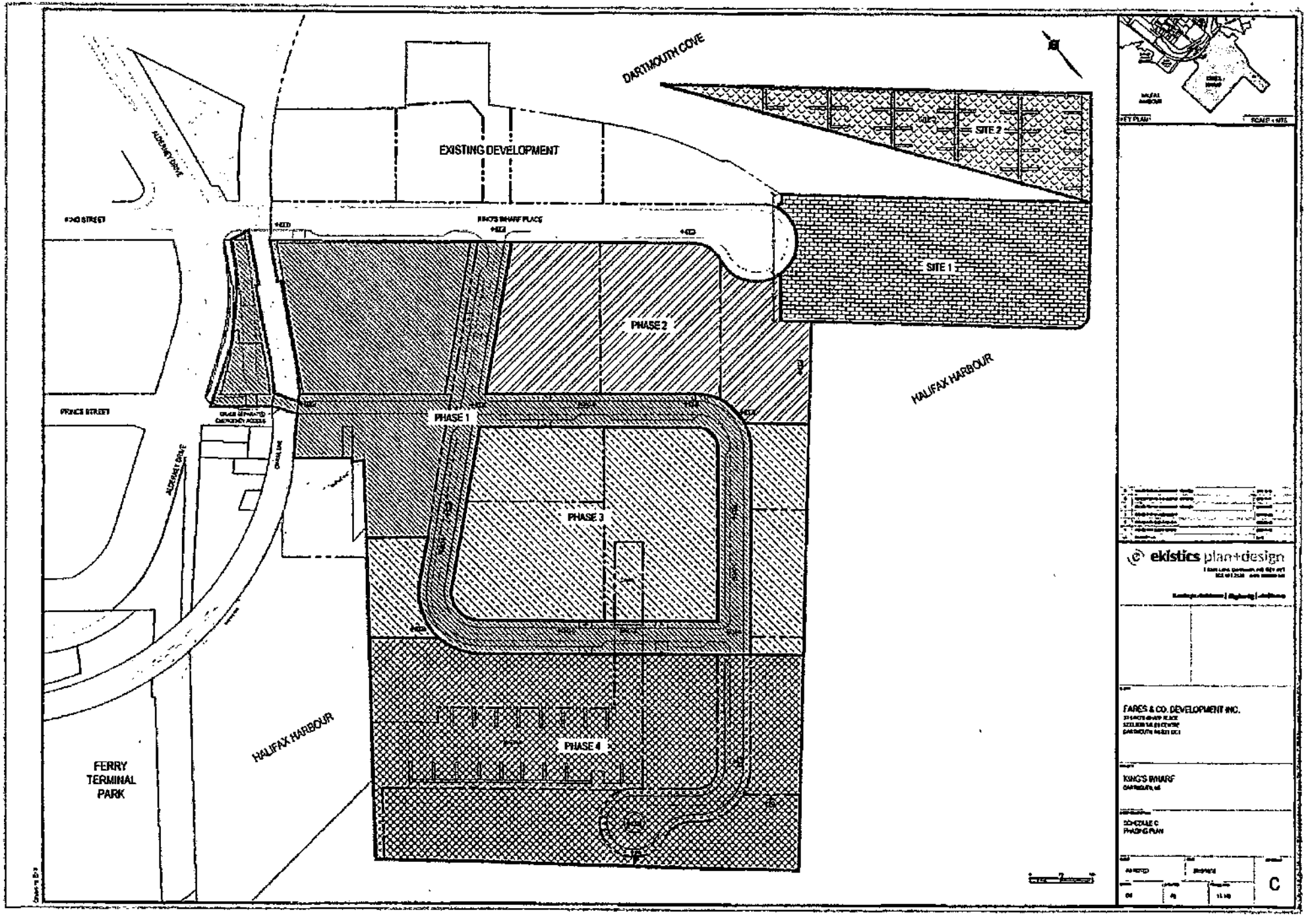
THENCE South 41 degrees 47 minutes 22 seconds West a distance of 51.816 metres the **POINT OF BEGINNING.**

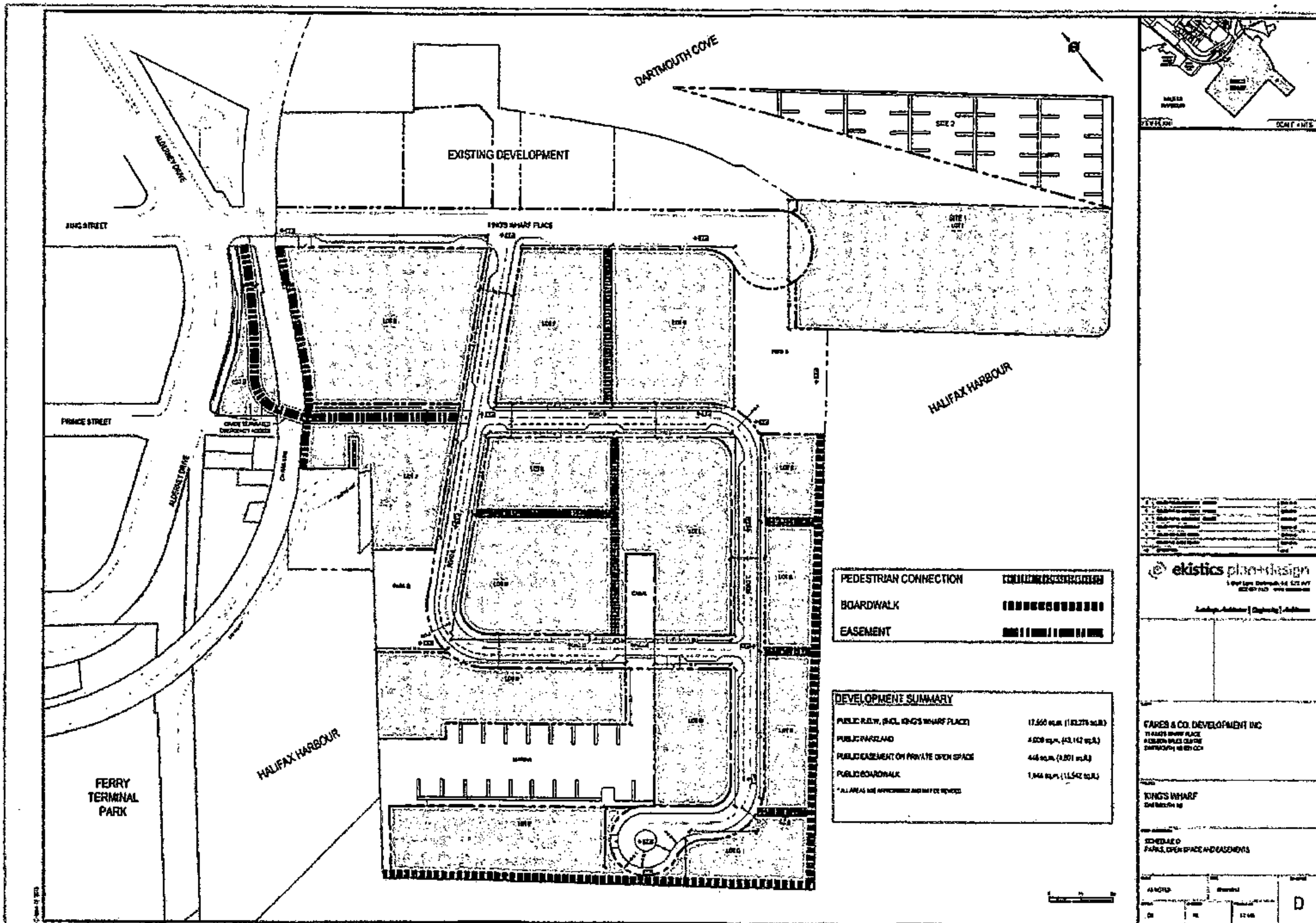
CONTAINING an area of 5,384.2 square metres.

SAVING, EXCEPTING AND RESERVING unto Her Majesty the Queen, Her Heirs and Successors, the free use, passage and enjoyment of, in , over and above all navigable waters that shall or may be found on, or under, or be flowing through or upon any part of the lands hereby granted or intended so to be.

ALL BEARINGS are based on 3-degree M.T.M. Grid North, Central Meridian 64 degrees 30 minutes West.


DARTMOUTH COVE
EXISTING DEVELOPMENT
KING'S WHARF PLACE
HALIFAX HARBOUR
HALIFAX HARBOUR
FERRY TERMINAL PARK
DEVELOPMENT SUMMARY
PUBLIC R.O.W.
TOTAL SITE (INCL. PRIVATE OPEN SPACE & EASEMENTS)
ekistics plan+design
FARES & CO. DEVELOPMENT INC.
KING'S WHARF
SCHEDULE B
SITE PLAN
B


DARTMOUTH COVE
EXISTING DEVELOPMENT
SITE 2
SITE 1
PHASE 2
PHASE 1
PHASE 3
PHASE 4
HALIFAX HARBOUR
HALIFAX HARBOUR
FERRY TERMINAL PARK
ALDERNEY DRIVE
PRINCE STREET
KING'S WHARF PLACE
ekistics plan+design
FARES & CO. DEVELOPMENT INC.
KING'S WHARF
SCHEDULE C
PHASING PLAN
C


DARTMOUTH COVE
EXISTING DEVELOPMENT
SITE 2
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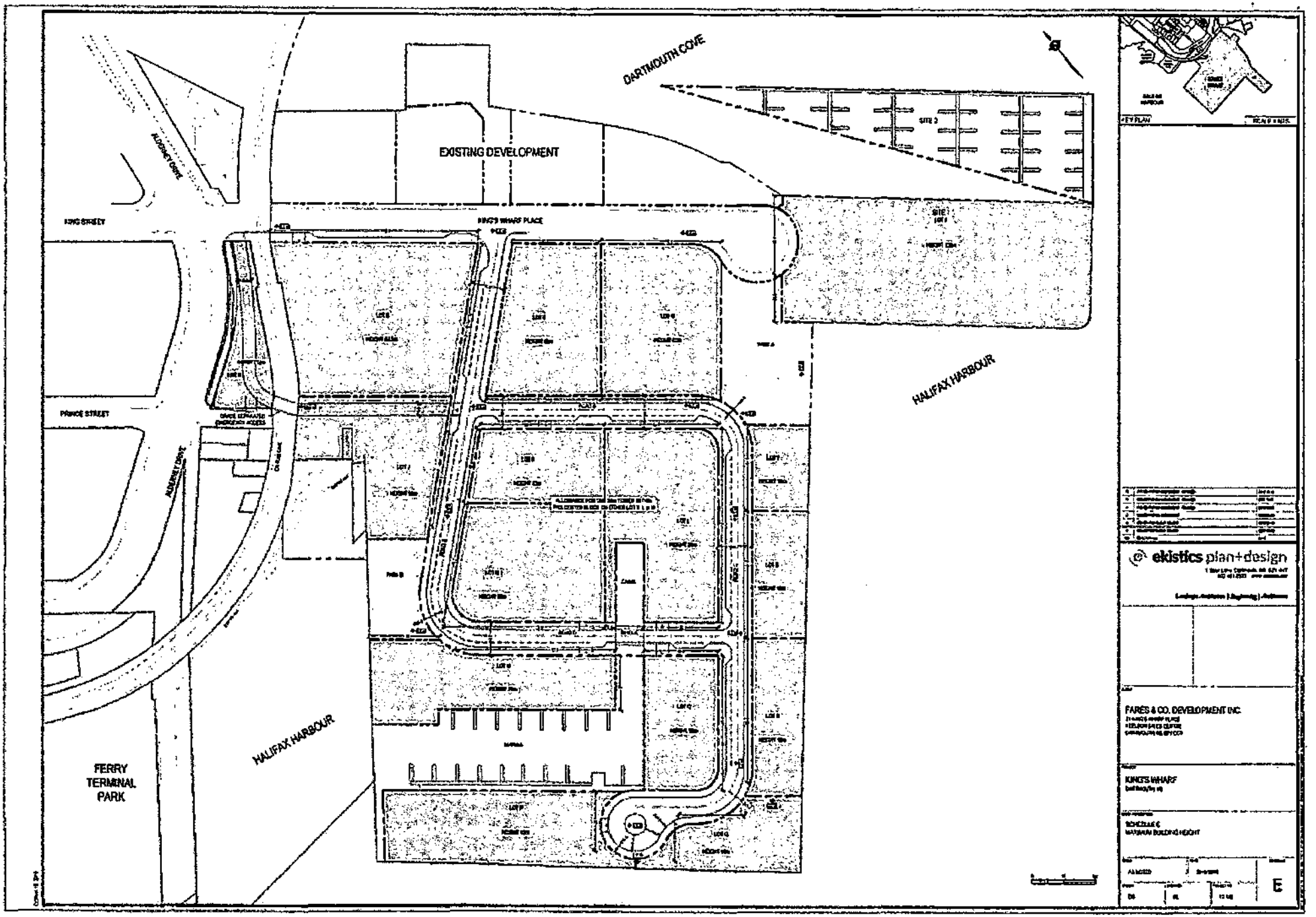
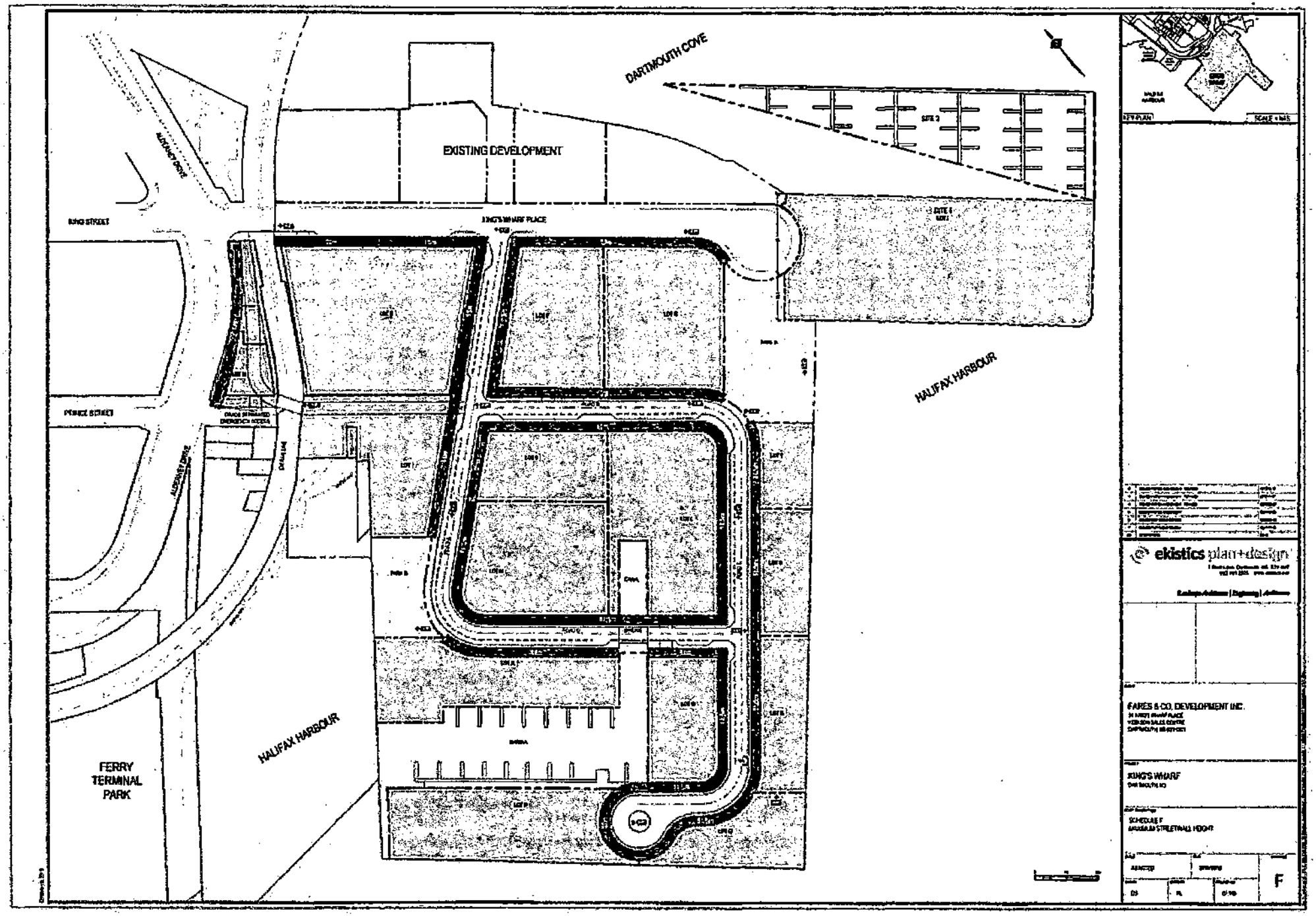
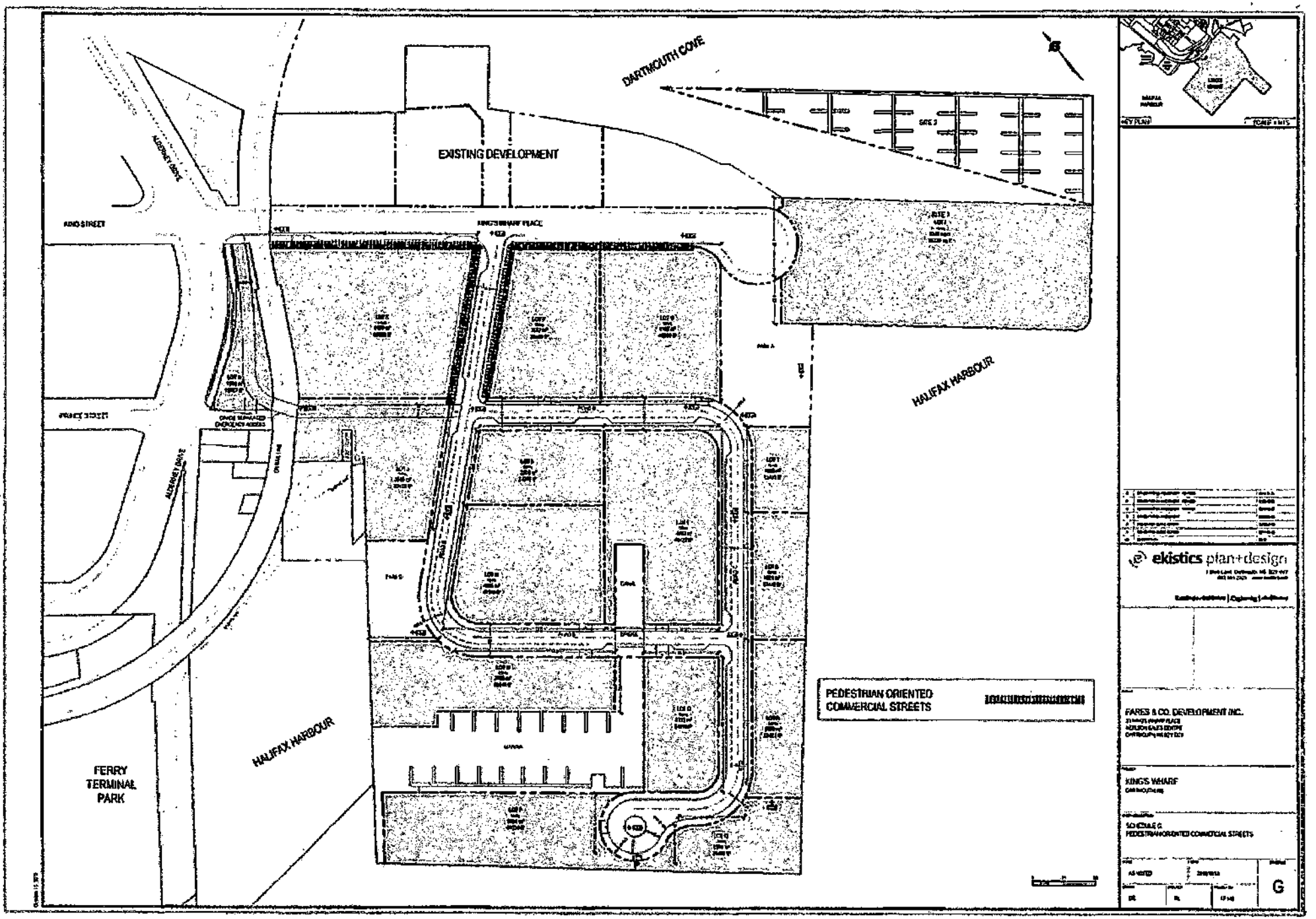
PRINCE STREET
ALDERNEY DRIVE
HALIFAX HARBOUR
HALIFAX HARBOUR
FERRY
TERMINAL
PARK
PEDESTRIAN CONNECTION
BOARDWALK
EASEMENT
DEVELOPMENT SUMMARY
PUBLIC R.O.W. (INCL. KING'S WHARF PLACE)
PUBLIC PARKLAND
PUBLIC EASEMENT ON PRIVATE OPEN SPACE
PUBLIC BOARDWALK
ekistics plan+design
FARES & CO. DEVELOPMENT INC
KING'S WHARF
SCHEDULE D
PARKS, OPEN SPACE AND EASEMENTS
D


DARTMOUTH COVE
EXISTING DEVELOPMENT
SITE 2
SITE 1
KING STREET
KING'S WHARF PLACE
PRINCE STREET
ALBERT DRIVE
HALIFAX HARBOUR
HALIFAX HARBOUR
FERRY TERMINAL PARK
KEY PLAN
ekistics plan+design
FARES & CO. DEVELOPMENT INC.
KINGS WHARF
SCHEDULE E
MAXIMUM BUILDING HEIGHT
E


DARTMOUTH COVE
EXISTING DEVELOPMENT
KING STREET
KING'S WHARF PLACE
PRINCE STREET
ALDERNEY DRIVE
HALIFAX HARBOUR
HALIFAX HARBOUR
FERRY TERMINAL PARK
SITE 2
SITE 1
KEY PLAN
ekistics plan+design
FARES & CO. DEVELOPMENT INC.
KING'S WHARF
SCHEDULE F
F


DARTMOUTH COVE
EXISTING DEVELOPMENT
KING'S WHARF PLACE
ALDERNEY DRIVE
HALIFAX HARBOUR
HALIFAX HARBOUR
FERRY TERMINAL PARK
PEDESTRIAN ORIENTED COMMERCIAL STREETS
ekistics plan+design
FARES & CO. DEVELOPMENT INC.
KING'S WHARF
SCHEDULE G
PEDESTRIAN-ORIENTED COMMERCIAL STREETS
G

Schedule H – Design Guidelines

1. When considering a Stage II Agreement and amendment thereto for King's Wharf, Council shall consider the design guidelines set out in this Schedule, with the goal of ensuring that King's Wharf will develop as a world-class, mixed-use, pedestrian oriented waterfront community.

2. This document is divided into the following Sections:

   - streetwall guidelines;
   - retail frontage guidelines;
   - building orientation and placement guidelines;
   - residential use guidelines;
   - sloping condition guidelines;
   - animated street guidelines;
   - building material guidelines;
   - building entrance guidelines;
   - roofline and roofscape guidelines;
   - vehicular access, circulation, loading, and utility guidelines;
   - parking garage guidelines;
   - landscaping guidelines;
   - exterior lighting guidelines; and
   - sign guidelines.

Streetwall Guidelines

3. In considering a Stage II Agreement, Council shall consider the following streetwall guidelines:

   (a) that streetwalls contribute to the 'fine-grained' character of the streetscape by articulating the façade in a vertical rhythm that generally consists of 20' to 40' bays;

   (b) that streetwalls are generally built to occupy 100% of a property's frontage along streets, except for passage ways to interior open spaces;

   (c) that streetwalls are designed to have a high quality of material and detail;

   (d) that windows and doors are in the proposed buildings are prevalent to provide 'eyes on the street' and a sense of animation and engagement;

   (e) that mechanical and utility functions, such as vents, trash vestibules, and propane vestibules, are architecturally integrated into the facade; and

   (f) along pedestrian frontages at grade level, the mitigation measures used to minimize the impact of blank walls .

Retail Frontage Guidelines

4. In considering a Stage II Agreement, Council shall consider the following retail frontage guidelines:

   (a) that retail frontages incorporate sound, place making design elements;

   (b) that narrow shop fronts are articulated and placed close to the sidewalk with frequent entries;

(c) that pedestrians are protected from climatic conditions with awnings, canopies or other means such as recessed doorways along portions of pedestrian-oriented commercial frontages (especially entrances); and

(d) that non-commercial uses that are at-grade along pedestrian-oriented commercial frontages, are designed in such a manner to enable future conversion to retail or commercial uses.

Building Orientation and Placement Guidelines

5. In considering a Stage II Agreement for a building, Council shall consider the following building placement and orientation guidelines:

(a) that buildings are oriented and placed at the street edge and have clearly defined primary entry points that directly access the sidewalk; or

(b) that buildings are placed and oriented towards the edge of an on-site public open space, such as plazas, promenades, or eroded building corners.

Residential Use Guidelines

6. In considering a Stage II Agreement, Council shall consider the following residential uses guidelines:

(a) that individually accessed dwelling units, such as town homes, have front doors on the street or into a courtyard area and provide front yard privacy measures inclusive of setbacks and landscaping;

(b) where dwelling units are accessed by a common entrance and lobby, that the entrance and lobby are located at grade-level, and that the entrance is clearly recognizable from the exterior of the building by architectural treatments; and

(c) where a building contains dwelling units with more than two bedrooms, that a portion of these units include an immediately accessible outdoor amenity space located either at-grade or on a podium.

Sloping Condition Guidelines

7. In considering a Stage II Agreement, Council shall consider the following sloping condition guidelines:

(a) that active uses are maintained at-grade with the sidewalk, and that these uses step down with the slope, avoiding levels that are distant from grade;

(b) that windows, doors and other design articulation (internal floor or ceiling lines) are located along the facades of the buildings;

(c) where retail uses are located on a corner of a street, that the retail display windows continue around that corner;

(d) that pedestrian entrances are provided on the sloping street, or if the building is fully accessible at other entrances then a small flight of steps or ramps is provided to facilitate entrances on the slope;

(e) that active uses are located at sidewalk grade, unless these uses could be located elsewhere to animate the public realm; and

(g) the measures used to minimize the impact of blank walls.

Animated Street Guidelines

8. In considering a Stage II Agreement, Council shall consider the following animating street guidelines:

(a) that buildings help create an animated street environment with doors, windows and pedestrian activity fronting and directly accessing the public realm; and

(b) that non-commercial uses at-grade animate the street with frequent entries and windows.

9. In considering a Stage II Agreement, Council shall consider the following building articulation guidelines:

(a) that the building contributes to the streetscape by providing vertical 'breaks' in the façade, as follows:

(i) within the first three storeys (base), the building has a clearly defined area that contributes to the quality of the pedestrian environment through animation, transparency, articulation and material quality;

(ii) within the body of the building above the base (middle), the building contributes to the physical and visual quality of the overall streetscape; and

(iii) the roof (top) of the building is distinguishable from the rest of the building and contributes to the visual quality of the skyline;

(b) that the building contributes to a mix and variety of high-quality architecture while remaining respectful of the context and site;

(c) that the buildings provide architectural variety and visual interest, such as providing vertical and horizontal recesses or projections, datum lines, and changes in material, texture or colour; and

(d) that the facades of the buildings that:

(i) face the street, provide high design quality; and

(ii) are located at the side and rear of a building, but that are visible from the street, have a consistent or complementary design expression as the primary facades.

Building Material Guidelines

10. In considering a Stage II Agreement, Council shall consider the following building material guidelines:

(a) that the exterior materials are durable, sustainable, and easily maintained; and

(b) that any changes in material are avoided at building corners.

Building Entrance Guidelines

11. In considering a Stage II Agreement, Council shall consider the following building entrance guidelines:

    (a) that entrances are emphasized by architectural expressions, such as height, massing, projection, shadow, punctuation, change in roof line, and change in materials; and

    (b) that main building entrances are covered with a canopy, awning, recess or similar device to provide weather protection for pedestrians.

Roofline and Roofscape Guidelines

12. In considering a Stage II Agreement, Council shall consider the following roofline and roofscape guidelines:

    (a) that flat rooftops are landscaped with the incorporation of green roofs;

    (b) that rooftop mechanical equipment is screened from view by integrating it into the architectural design of the building and the expression of the building top;

    (c) that mechanical rooms, elevator and stairway head houses are incorporated into a single well-designed roof top structure; and

    (d) that for buildings above 20 metres in height, the rooftop shall contribute to the skyline by providing sculpting, towers, night lighting or other unique features.

Vehicular Access, Circulation, Loading, and Utility Guidelines

13. In considering a Stage II Agreement, Council shall consider the following vehicular access, circulation, loading, and utility guidelines:

    (a) that vehicular and service access have a minimal impact on the streetscape by minimizing the width of the frontage it occupies, and by designing integrated access portals and garages;

    (b) that loading, storage, and areas for delivery and trash pick-up, are located out of view from public streets and spaces, and residential uses;

    (c) that access and service areas are visible from or shared with public space, are finished with high quality materials and detailing, including continuous paving treatments, landscaping, and well-designed doors and entries;

    (d) that utilities, mechanical equipment, and meters are coordinated and integrated with the design of the building, for example, using consolidated rooftop structures or internal utility rooms;

    (e) that heating, venting and air conditioning vents are located away from public streets to the greatest practical extent;

    (f) that utility hook-ups and equipment such as gas meters are, where possible, are located away from public streets and are located to the sides and rear of buildings, or in underground vaults; and

(g) that siamese connections, where visible to the public, are to be of stainless steel.

Parking Garage Guidelines

14. In considering a Stage II Agreement, Council shall consider the following parking garage guidelines:

(a) that multi-storey parking garages are integrated into new buildings, and are visually obscured from abutting streets by wrapping them with 'sleeves' of active uses which face the street;

(b) that, to the greatest practical extent, at-grade parking access and servicing access for retail stores are located to the rear of buildings and are not visible from the street;

(c) that façade treatments are provided that conceal the parking levels and give the visual appearance of a building articulated with 'window' openings;

(d) that parking garages are designed such that they can be repurposed to other uses (i.e. level floor slabs) if they are unnecessary in the future;

(e) that materials are of high quality and are compatible with existing downtown building;

(f) that pedestrian access is located at street edges and, if a parking garage provides public parking, the pedestrian access provides direct access to the street;

(g) that clear sightlines for vehicles and pedestrians at sidewalks are provided by setting back columns and walls, and using durable low-maintenance mirrors;

(h) that all interior and exterior spaces are well lit, inclusive of parking areas, vehicular circulation aisles, ramps, pedestrian accesses, and all entrances;

(i) that the width and height of vehicular access points is minimized to the greatest practical extent; and

(j) that bicycle parking is visible from at-grade locations.

Landscaping Guidelines

15. In considering a Stage II Agreement, Council shall consider the following landscape guidelines:

(a) that the ground level landscaping:

(i) creates a visual and physical connection between the building setback and public streetscape while maintaining universal access to public and shared entrances, particularly where there are changes in topography,

(ii) supports safe and comfortable pedestrian movements,

(iii) highlights important building features, such as building entrances, and screens less attractive activities such as parking access,

(iii) provides colour, and texture throughout the year, and provides shade, where appropriate, and

(iv) consist of plant material that can withstand the local environment and climate, requires minimal maintenance, and is self-sustaining and requires minimal watering;

(b) that additional landscaping between the building face and public sidewalk is provided, such as tree and shrub planting, water features, minor grade changes, railings, curbs, low walls, fences, public art, lighting, and seating; and

(c) that for rooftops and podiums, the landscaping is designed to:

(i) enhance the visual appearance of the property, to provide an amenity area for the building's occupants, or a combination of both, and

(ii) provide a high-quality growing medium for plant materials where planting is provided.

Exterior Lighting Guidelines

16. In considering a Stage II Agreement, Council shall consider the following exterior lighting guidelines:

(a) that the landscape and architectural features are highlighted with spot-lighting or general lighting placement;

(b) that a variety of lighting opportunities are provided inclusive of street lighting, pedestrian lighting, building up- or down- lighting, internal building lighting, internal and external signage illumination (including street addressing), and decorative or display lighting;

(c) that shielded "full cut-off" fixtures are used to limit the light that reaches adjacent residential areas;

(d) that 'light trespass' onto adjacent residential areas is mitigated by using shielded "full cut-off" fixtures; and

(e) that lighting is directed to driveways, parking areas, loading area, building entrances and walkways to divert the light away from streets, adjacent lots and buildings.

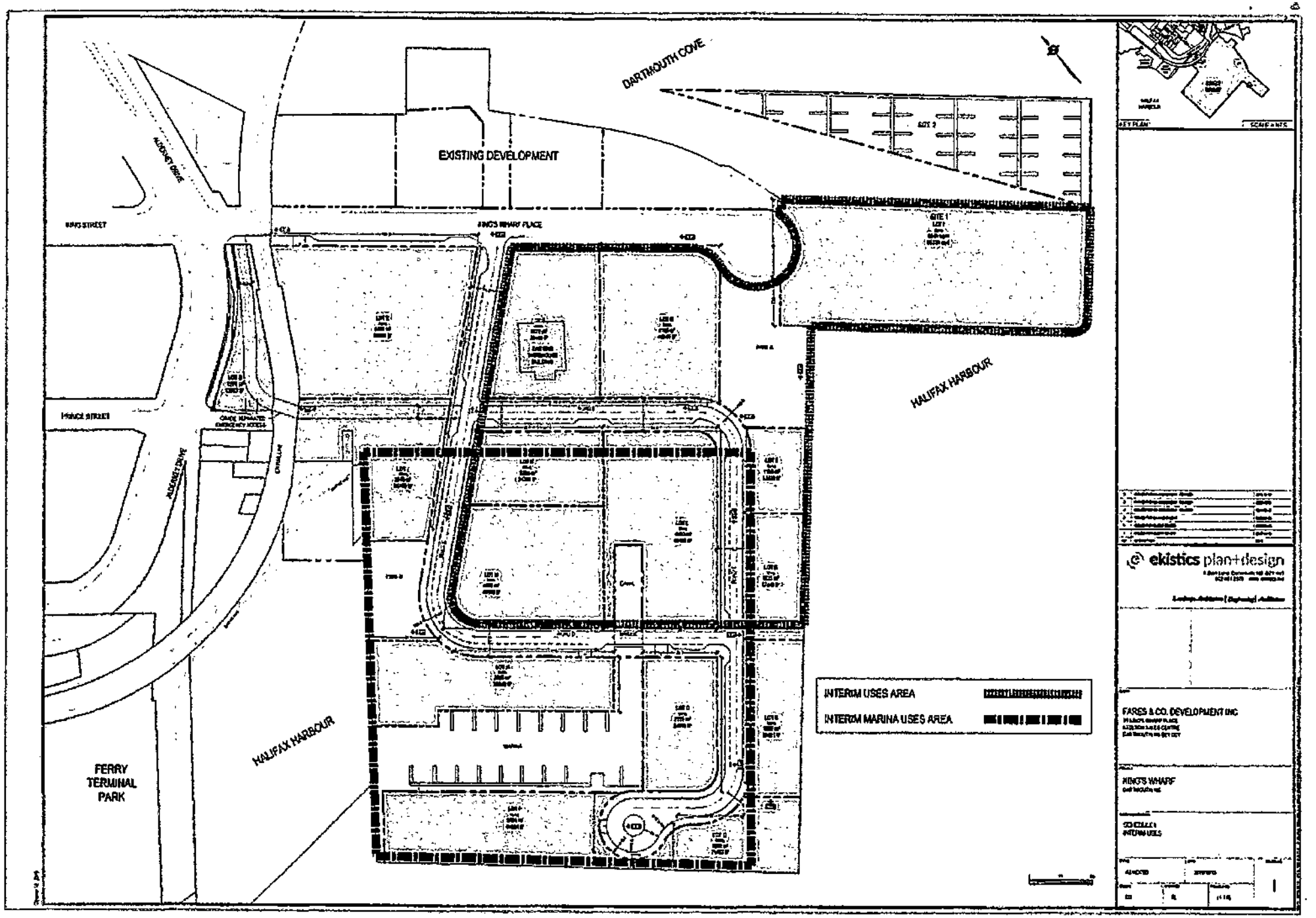
Sign Guidelines

17. In considering a Stage II Agreement, Council shall consider the following sign guidelines:

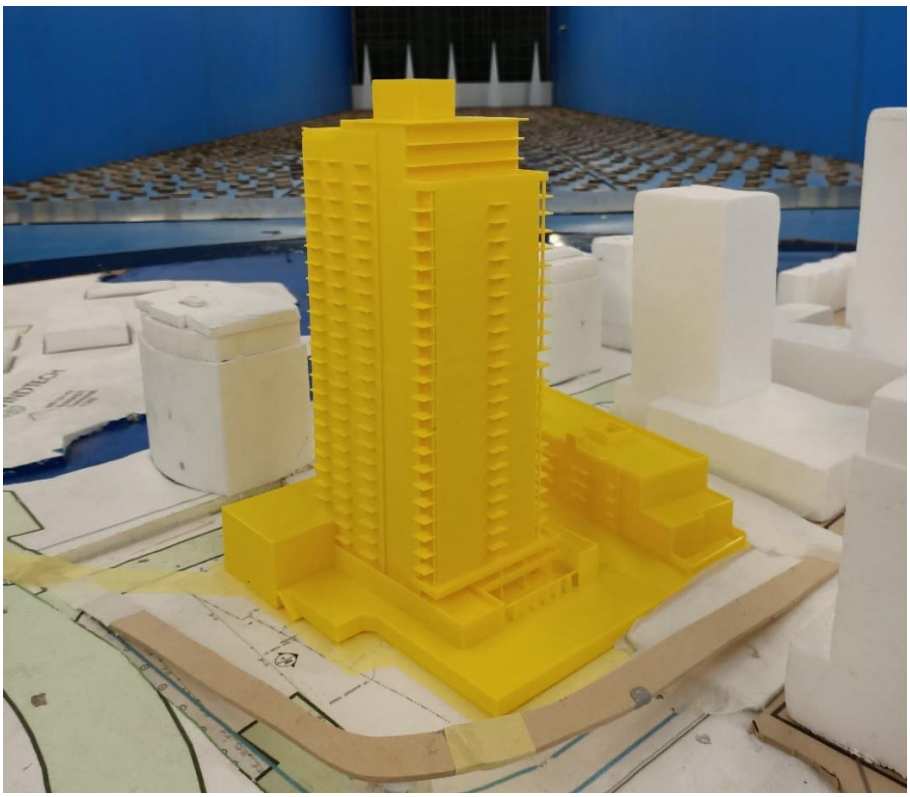
(a) that signs are integrated into the design of building facades by placing them within architectural bays, friezes or datum lines, including coordinated proportions, materials and colours;

(b) that signs are constructed of durable and of high-quality material that relates to the materials and design of the building;

(c) that the scale of the signs reinforces the pedestrian scale, through location at or near grade level for viewing from sidewalks;


DARTMOUTH COVE
EXISTING DEVELOPMENT
KING STREET
KING'S WHARF PLACE
PRINCE STREET
HALIFAX HARBOUR
HALIFAX HARBOUR
FERRY TERMINAL PARK
INTERIM USES AREA
INTERIM MARINA USES AREA
ekistics plan+design
FARES & CO. DEVELOPMENT INC
KING'S WHARF

WINDTECH



PEDESTRIAN WIND ENVIRONMENT STUDY

BUILDING E, KING'S WHARF PLACE, DARTMOUTH

WE191-07F01(REV2)- WE REPORT

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INTERNAL DOCUMENT CONTROL

Date	Revision History	Issued Revision	Prepared By (initials)	Instructed By (initials)	Reviewed & Authorised by (initials)
March 17, 2021	Treatment testing results.	0	HK	JWN/TR	TR
March 19, 2021	Updated recommendations.	1	HK	JWN/TR	TR
March 22, 2021	Summary and figure updates.	2	HK	JWN/TR	TR

EXECUTIVE SUMMARY

This report presents the results of a detailed investigation into the wind environment impact of the Building E development located at King's Wharf Place, Dartmouth. Testing was performed at Windtech's boundary layer wind tunnel facility. The wind tunnel has a 3.0m wide working section and a fetch length of 14m, and measurements were taken from 36 wind directions at 22.5-degree increments. Testing was carried out using a 1:300 detailed scale model of the development. The effects of nearby buildings and land topography have been accounted for through the use of a proximity model which represents an area with a radius of 375m.

Peak gust and mean wind speeds were measured at selected critical outdoor trafficable locations within the public realm around the subject development. Wind velocity coefficients representing the local wind speeds are derived from the wind tunnel and are combined with a statistical model of the regional wind climate (which accounts for the directional strength and frequency of occurrence of the prevailing regional winds) to provide the equivalent full-scale wind speeds at the site. The wind speed measurements are compared with criteria for pedestrian comfort and safety, based on Gust-Equivalent Mean (GEM) and annual maximum gust winds for the months of May to October (Summer) and November to April (Winter).

The model was initially tested in the wind tunnel without the effect of any forms of wind ameliorating devices such as screens, balustrades, etc., which are not already shown in the architectural drawings. The effect of vegetation was also excluded from the initial testing. In total, three surrounds configurations were tested in the wind tunnel, which are as follows:

- The "existing surrounding buildings scenario" is a snapshot of the current existing site conditions.
- The "proposed surrounding buildings scenario" represents the site at approximately the time of completion of the subject development.
- The "future surrounding buildings scenario" includes the proposed scenario and any other future developments within the proximity model.

It has been shown it is possible to ameliorate the impact of the development on the existing wind conditions noting that the modelling of the existing conditions show some areas already experience strong wind conditions. The necessity, size and extent of the treatment strategy is subject to the location's intended use and existing conditions, and potential adaptation to the local wind conditions, given that this area is coastal and thus is already exposed to relatively strong winds than would not be expected in a built-up city environment.

It is recommended that the suggested treatments are implemented to mitigate wind conditions that exceed the Safety Criterion and are worse than the existing wind conditions (as required by the Regional Centre Land Use By-Law Package A (2019)).

CONTENTS

1 INTRODUCTION

A wind tunnel study has been undertaken to assess wind speeds at selected critical outdoor trafficable areas within the public realm around the subject development. The test procedures followed for this wind tunnel study were based on the guidelines set out in the Australasian Wind Engineering Society Quality Assurance Manual (AWES-QAM-1-2019), ASCE 7-16 (Chapter C31), CTBUH (2013) and the Regional Centre Land Use By-Law Package A (2019).

A scale model of the development was prepared, including the surrounding buildings and land topography. Testing was performed at Windtech's boundary layer wind tunnel facility. The wind tunnel has a 3.0m wide working section and a fetch length of 14m, and measurements were taken from 36 wind directions at 10 degree increments. The wind tunnel was configured to the appropriate boundary layer wind profile for each wind direction. Wind speeds were measured using Dantec hot-wire probe anemometers, positioned to monitor wind conditions at critical outdoor trafficable areas of the development.

The model was tested in the wind tunnel without the effect of any forms of wind ameliorating devices such as screens, balustrades, etc., which are not already shown in the architectural drawings. The effect of vegetation was also excluded from the initial testing. Furthermore, additional testing with the inclusion of the proposed vegetation has been undertaken to examine its effect. The wind speeds measured during testing were combined with a statistical model of the regional wind climate to provide the equivalent full-scale wind speeds at the site. In total, three surrounds configurations were tested in the wind tunnel, which are as follows:

- The "existing surrounding buildings scenario" is a snapshot of the current existing site conditions.
- The "proposed surrounding buildings scenario" represents the site at approximately the time of completion of the subject development.
- The "future surrounding buildings scenario" includes the proposed scenario and any other future developments within the proximity model.

The measured wind speeds were compared against appropriate criteria for pedestrian comfort and safety as proposed in the Regional Centre Land Use By-Law Package A (2019), and treatments have been recommended for any area which was exposed to strong winds that exceeded the safety criterion and was worse than the existing conditions. Note, however, that in accordance with the AWES Guidelines (2014), architectural elements or modifications are used to treat winds which represent an exceedance of the existing wind conditions and exceed the safety limit.

2 WIND TUNNEL MODEL

Wind tunnel testing was carried out using a 1:300 scale model of the development and surroundings. The study model incorporates all necessary architectural features on the façade of the development to ensure an accurate wind flow is achieved around the model, and was constructed using a Computer Aided Manufacturing (CAM) process to ensure that a high level of detail and accuracy is achieved. The effect of nearby buildings and land topography has been accounted for through the use of a proximity model, which represents a radius of 375m from the development site. Photographs of the wind tunnel model are presented in Figures 1. A plan of the proximity model is provided in Figures 2.

Figure 1a: Photograph of the Wind Tunnel Model – Existing Scenario (view from the south)

Figure 1b: Photograph of the Wind Tunnel Model – Existing Scenario (view from the west)

Figure 1c: Photograph of the Wind Tunnel Model – Existing Scenario (view from the north)

Figure 1d: Photograph of the Wind Tunnel Model – Existing Scenario (view from the east)

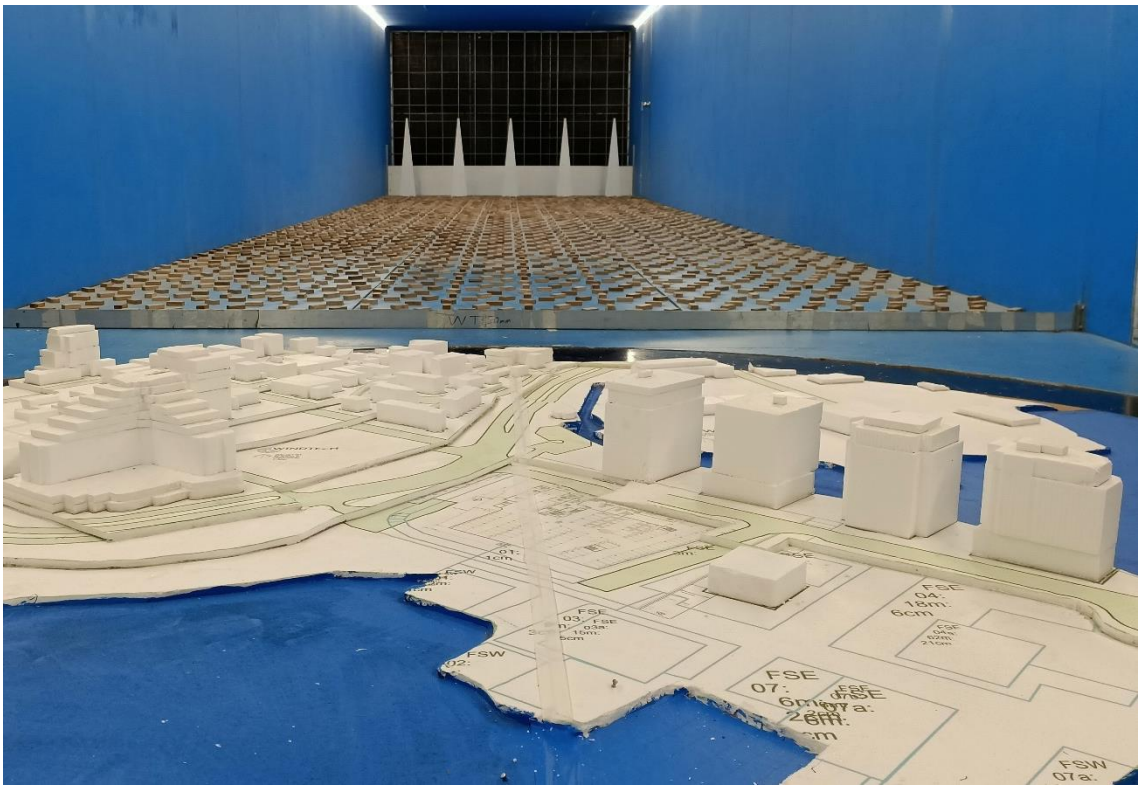

Figure 1e: Photograph of the Wind Tunnel Model – Existing Scenario (view from the south)

Figure 1f: Photograph of the Wind Tunnel Model – Proposed Scenario (view from the south)

Figure 1g: Photograph of the Wind Tunnel Model – Proposed Scenario (view from the west)

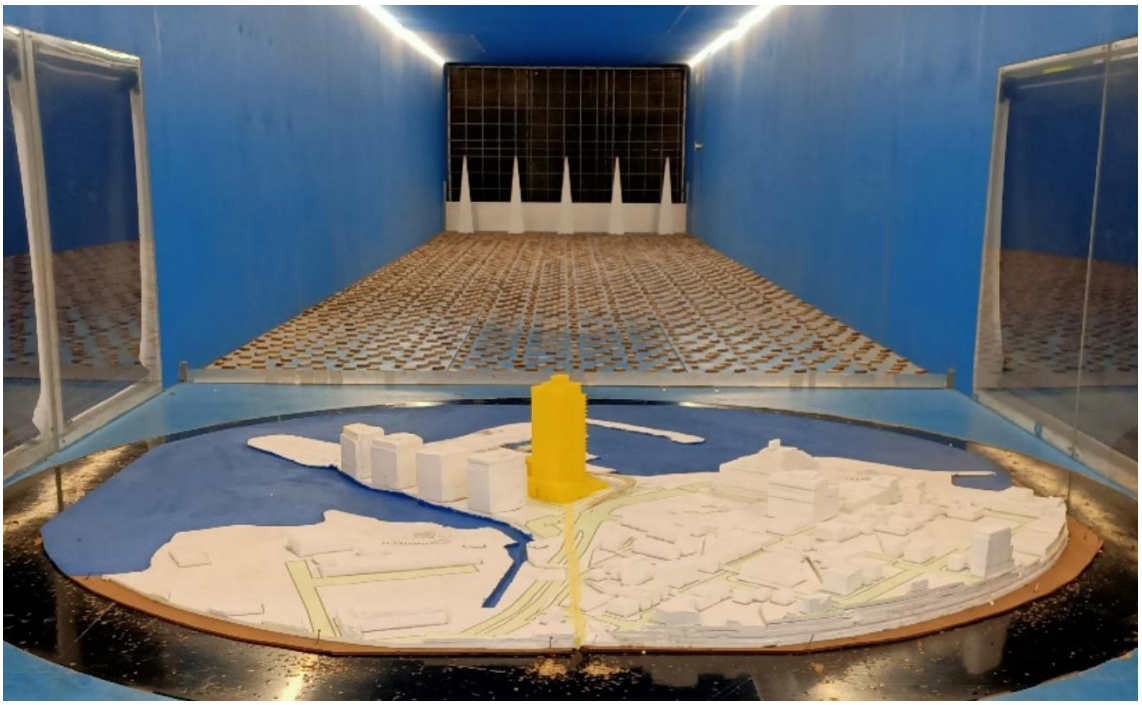

Figure 1h: Photograph of the Wind Tunnel Model – Proposed Scenario (view from the north)

Figure 1i: Photograph of the Wind Tunnel Model – Proposed Scenario (view from the east)

Figure 1j: Photograph of the Wind Tunnel Model – Proposed Scenario (view from the north-west)

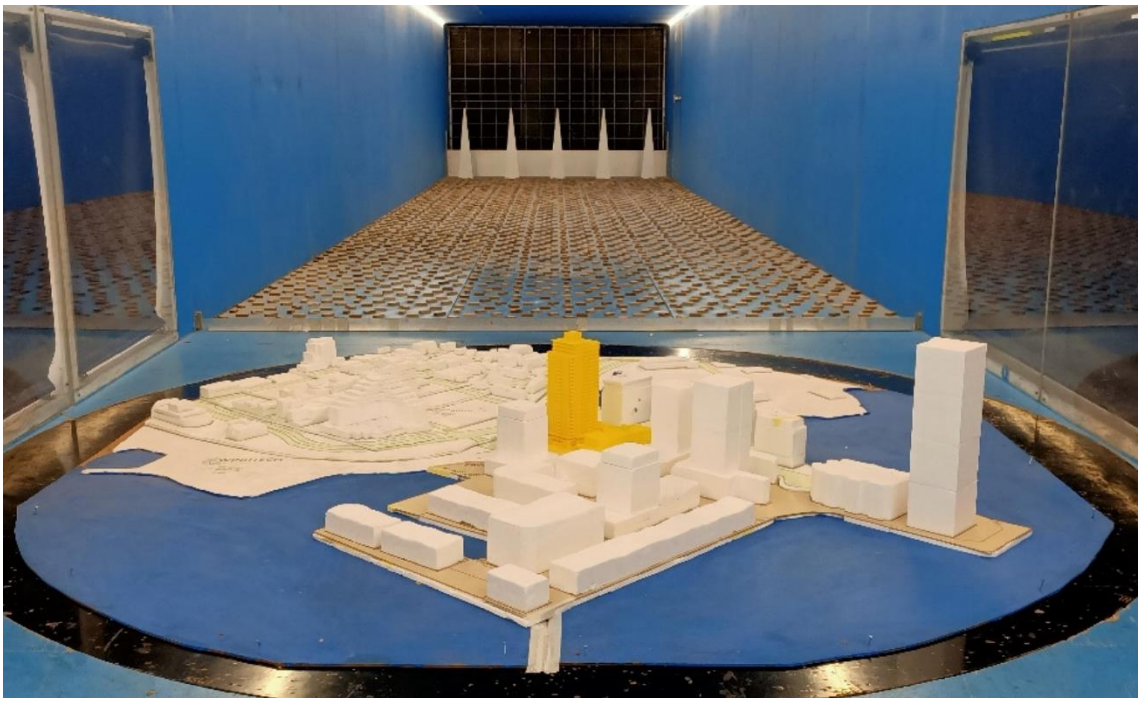

Figure 1k: Photograph of the Wind Tunnel Model – Future Scenario (view from the south)

Figure 1l: Photograph of the Wind Tunnel Model – Future Scenario (view from the west)

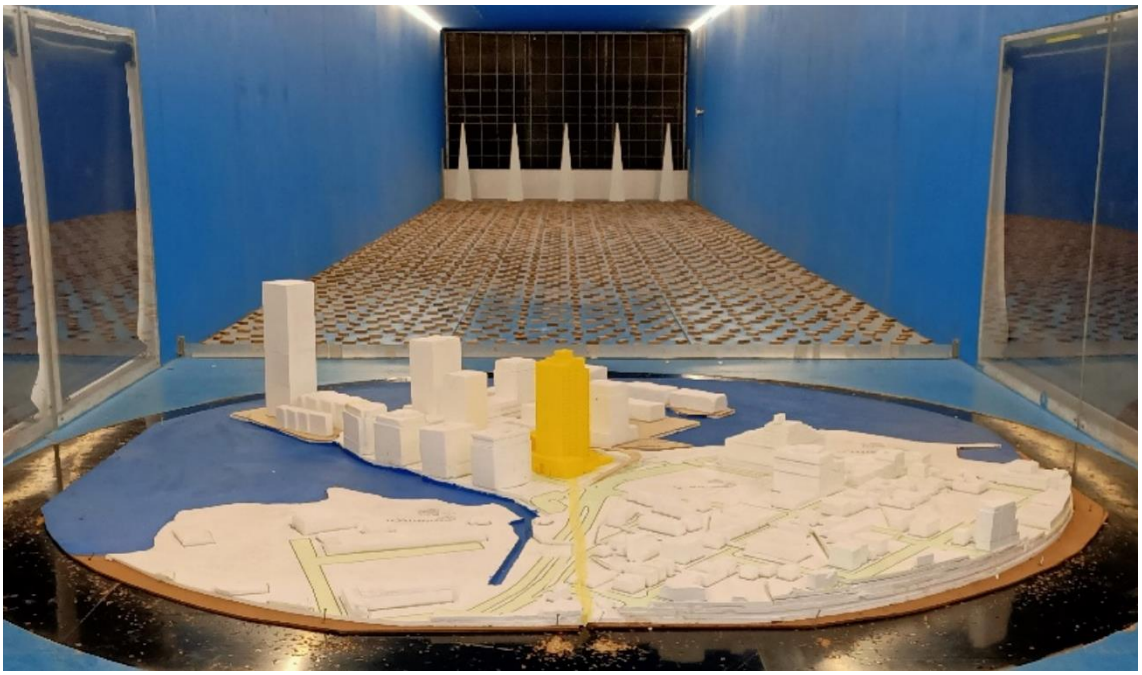

Figure 1m: Photograph of the Wind Tunnel Model – Future Scenario (view from the north)

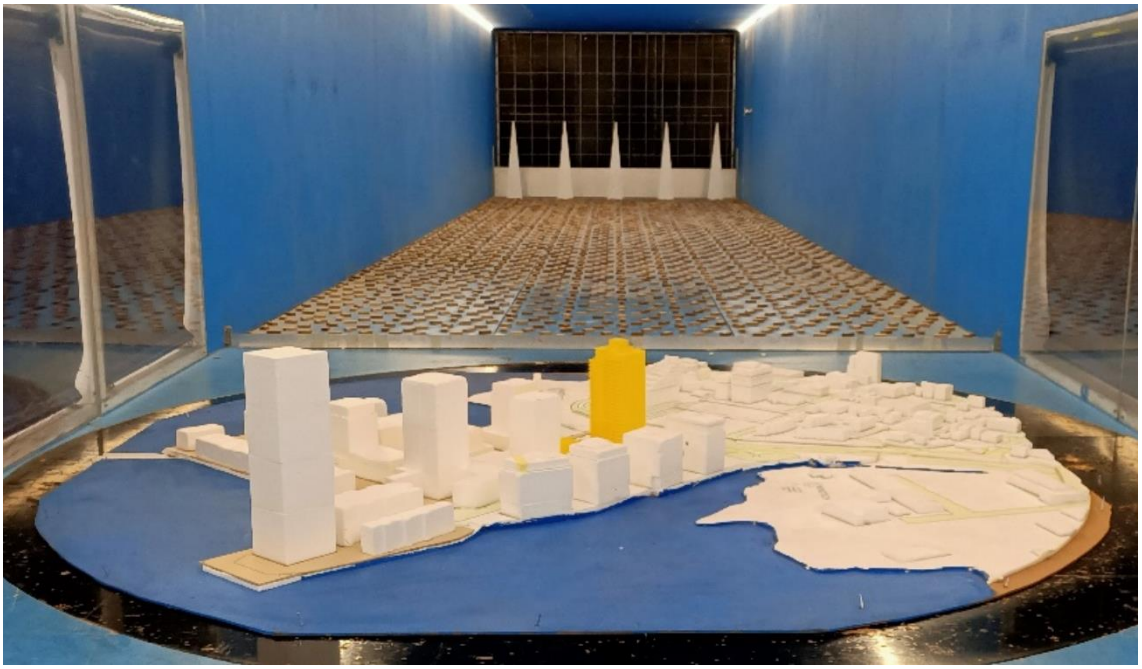

Figure 1n: Photograph of the Wind Tunnel Model – Future Scenario (view from the east)

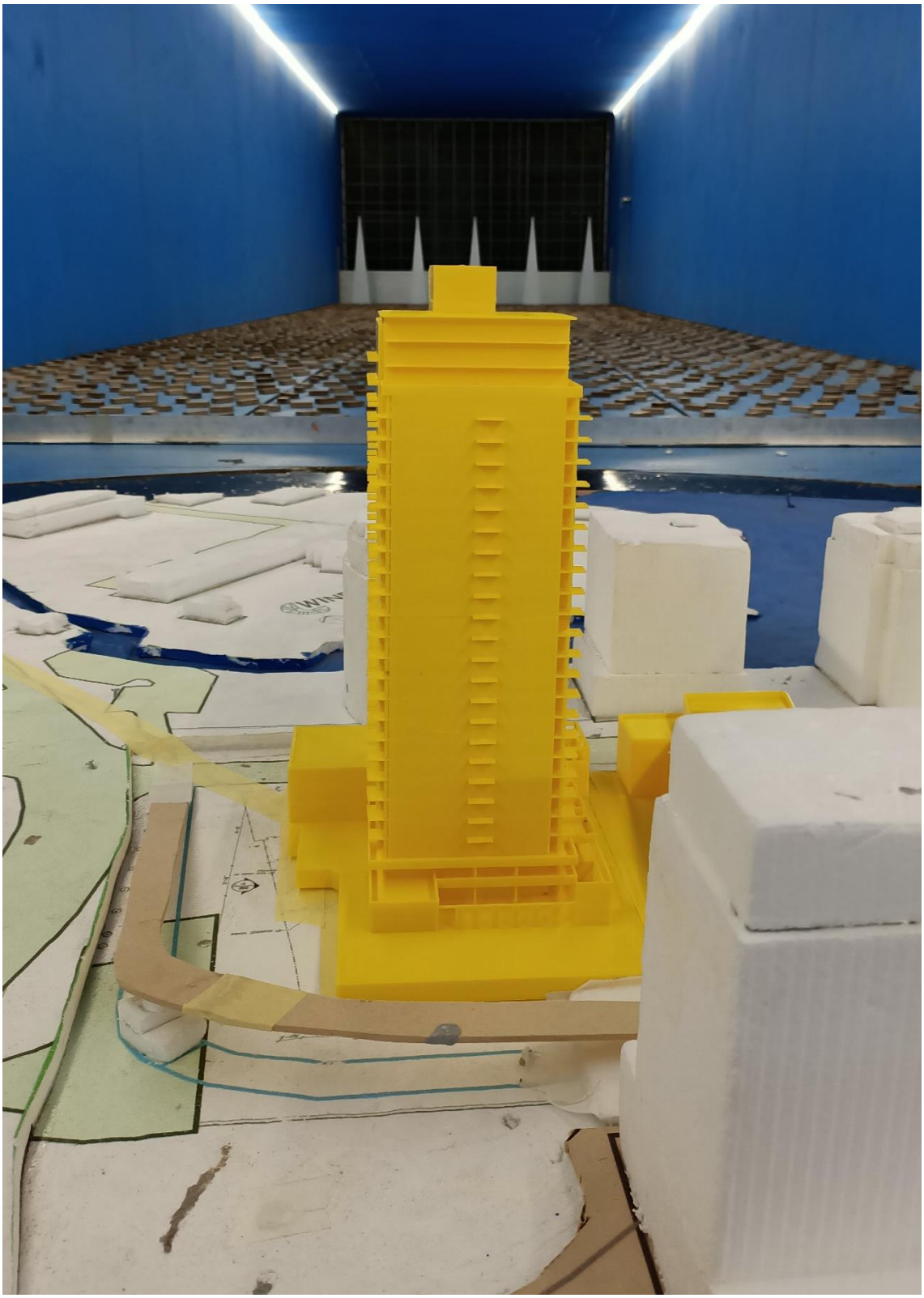

Figure 1o: Photograph of the Wind Tunnel Model – Future Scenario (view from the south-west)

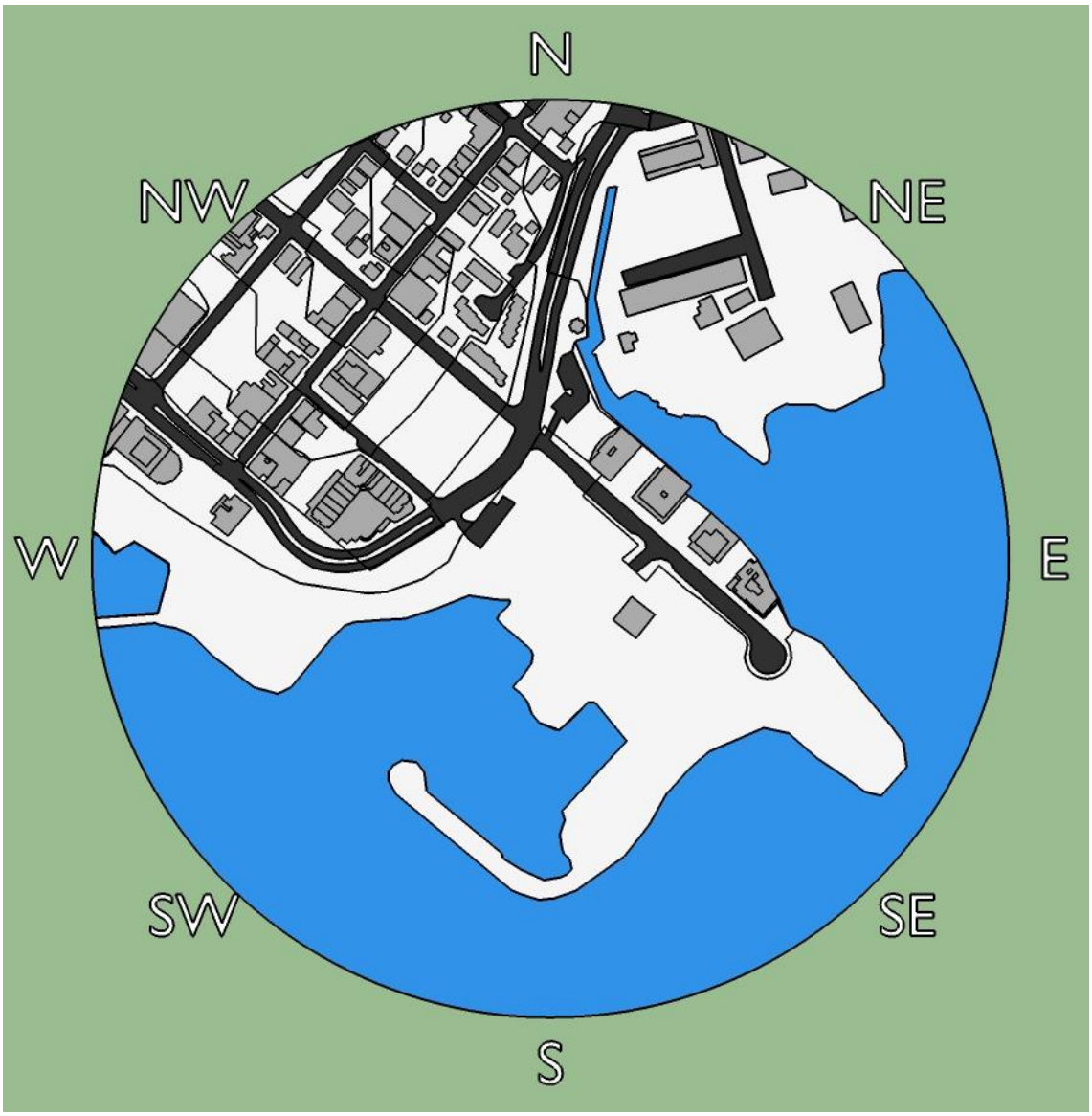

Figure 2a: Proximity Model Plan for the Existing Site Conditions

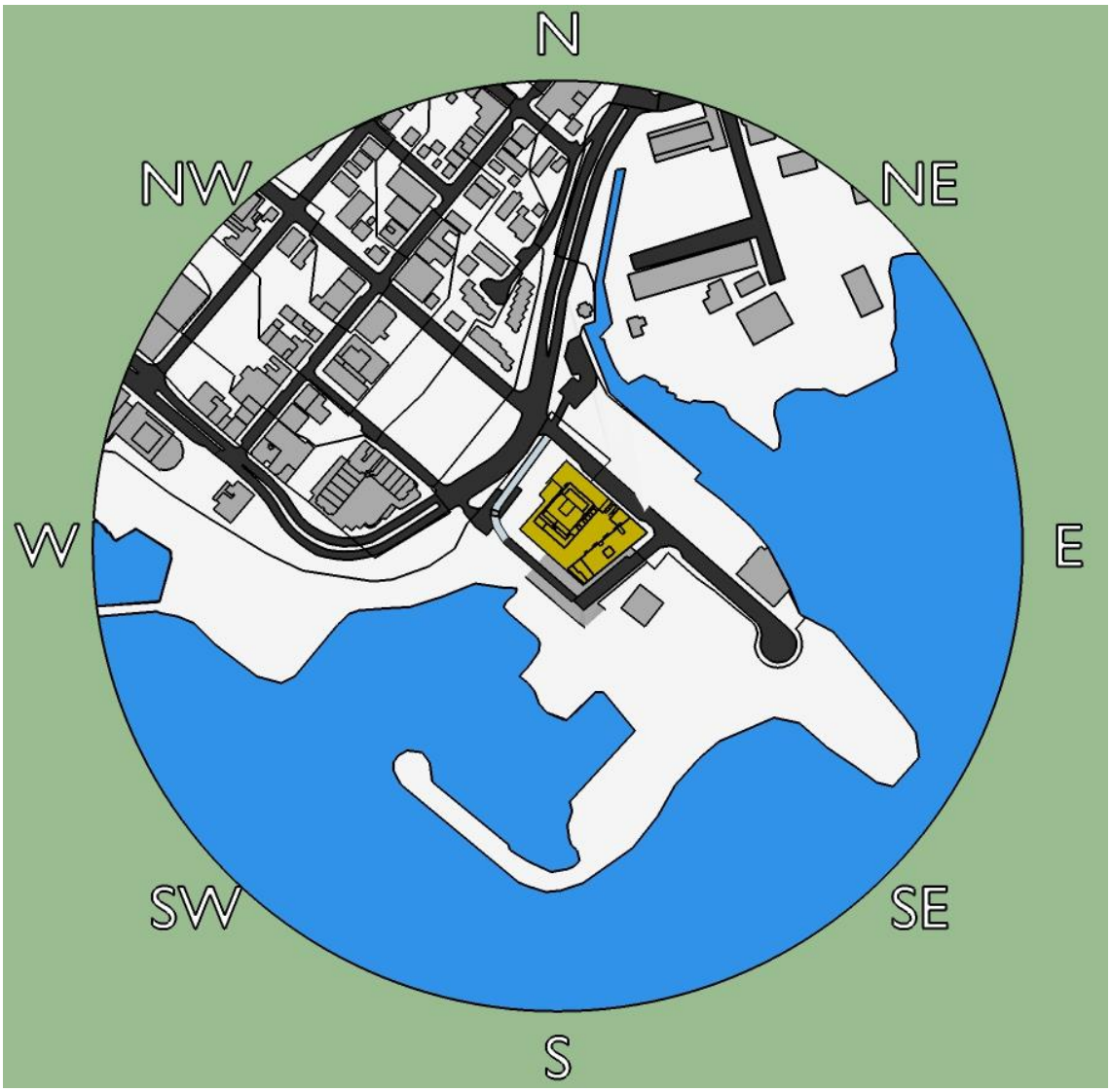

Figure 2b: Proximity Model Plan for the Proposed Site Conditions

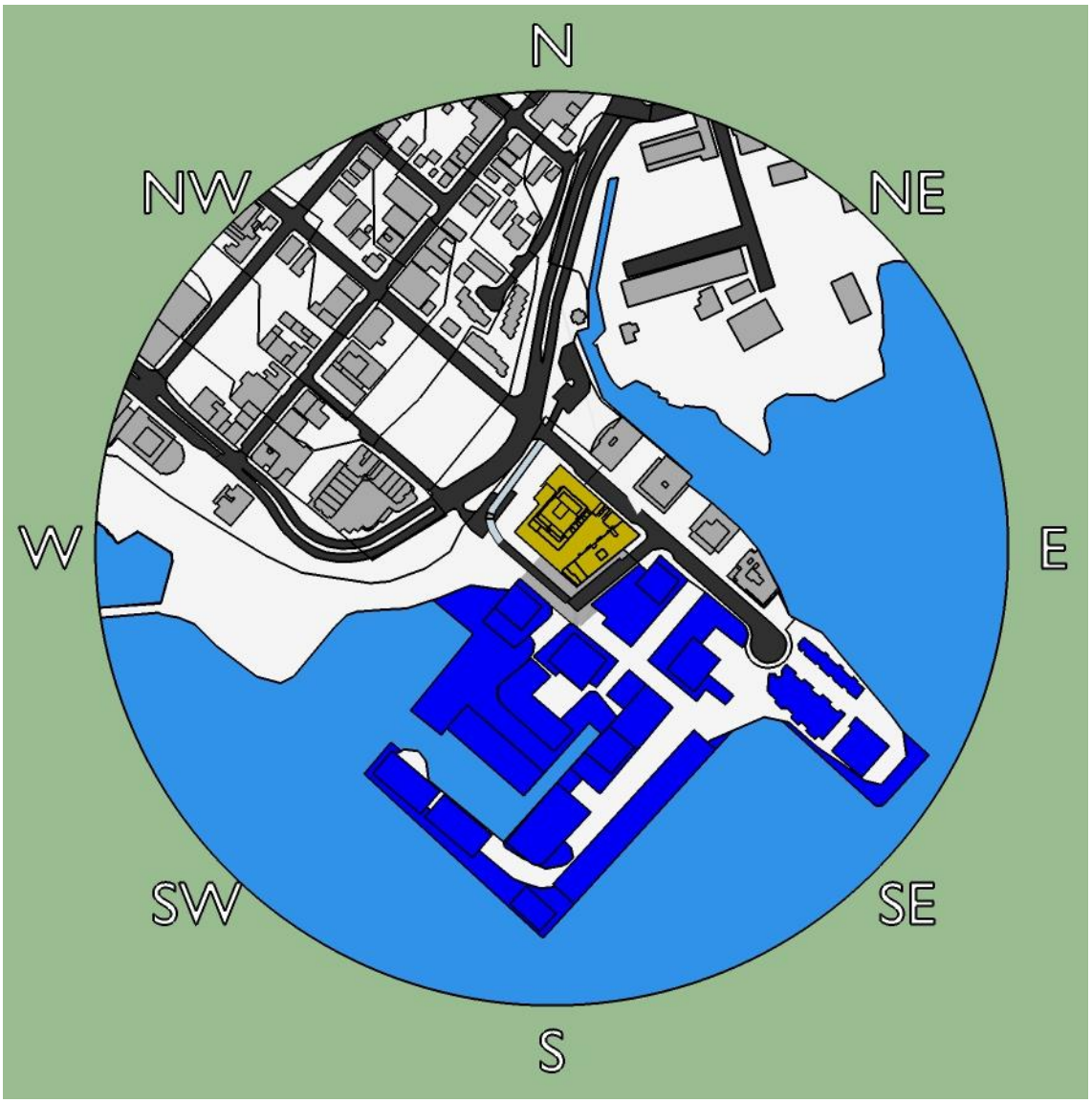

Figure 2c: Proximity Model Plan for the Future Site Conditions

3 BOUNDARY LAYER WIND PROFILES AT THE SITE

The roughness of the surface of the earth has the effect of slowing down the wind near the ground. This effect is observed up to the boundary layer height, which can range between 500m to 3km above the earth's surface depending on the roughness of the surface (ie: oceans, open farmland, etc). Within this range the prevailing wind forms a boundary layer wind profile.

Various wind codes and standards and other publications classify various types of boundary layer wind flows depending on the surface roughness z_0. Descriptions of typical boundary layer wind profiles, based on Deaves & Harris (1978), are summarised as follows:

- Flat terrain (0.002m < z_0 < 0.003m). Examples include inland water bodies such as lakes, dams, rivers, etc, and the open ocean.
- Semi-open terrain (0.006m < z_0 < 0.01m). Examples include flat deserts and plains.
- Open terrain (0.02m < z_0 < 0.03m). Examples include grassy fields, semi-flat plains, and open farmland (without buildings or trees).
- Semi-suburban/semi-forest terrain (0.06m < z_0 < 0.1m). Examples include farmland with scattered trees and buildings and very low-density suburban areas.
- Suburban/forest terrain (0.2m < z_0 < 0.3m). Examples include suburban areas of towns and areas with dense vegetation such as forests, bushland, etc.
- Semi-urban terrain (0.6m < z_0 < 1.0m). Examples include centres of small cities, industrial parks, etc.
- Urban terrain (2.0m < z_0 < 3.0m). Examples include centres of large cities with many high-rise towers, and also areas with many closely spaced mid-rise buildings.

The boundary layer wind profile does not change instantly due to changes in the terrain roughness. It can take many kilometres (at least 100km) of a constant surface roughness for the boundary layer wind profile to achieve a state of equilibrium. Hence an analysis of the effect of changes in the upwind terrain roughness is necessary to determine an accurate boundary layer wind profile at the development site location.

For this study this has been undertaken based on the method given in ESDU-82026:2002. An aerial image showing the surrounding terrain is presented in Figure 3 for a range of 5.0km and 50km from the edge of the proximity model used for the wind tunnel study. The resulting mean and gust terrain and height multipliers at the site location are presented in Table 1, referenced to the study reference height (which is approximately half of the height of the subject development since typically we are most interested in the wind effects at the ground plane). Note that the proximity model accounts for the effect of the near field topographic effects as well as the influence of the local built forms. Details of the boundary layer wind profiles at the site are combined with the regional wind model (see Section 4) to determine the site wind speeds.

Table 1: Approaching Boundary Layer Wind Profile Analysis Summary (at the study reference height)

Wind Sector (degrees)	Terrain and Height Multiplier			Turbulence Intensity	Equivalent Terrain Category
	$k_{tr,T=1hr}$ *(hourly)*	$k_{tr,T=10min}$ *(10min)*	$k_{tr,T=3s}$ *(3sec)*	I_v	*(AS/NZS1170.2:2011 naming convention)*
0	0.66	0.70	1.09	0.214	3.0
30	0.66	0.70	1.09	0.214	3.0
60	0.66	0.70	1.09	0.214	3.0
90	0.72	0.75	1.12	0.191	2.7
120	0.74	0.78	1.14	0.180	2.5
150	0.90	0.93	1.24	0.126	1.3
180	0.84	0.87	1.20	0.146	1.9
210	0.78	0.82	1.17	0.166	2.3
240	0.72	0.76	1.13	0.187	2.6
270	0.74	0.78	1.14	0.181	2.5
300	0.72	0.76	1.13	0.189	2.6
330	0.66	0.70	1.09	0.214	3.0

For each of the 36 wind directions tested in this study, the approaching boundary layer wind profiles modelled in the wind tunnel closely matched the profiles listed in Table 1. Plots of the boundary layer wind profiles used for the wind tunnel testing are presented in Appendix D of this report.

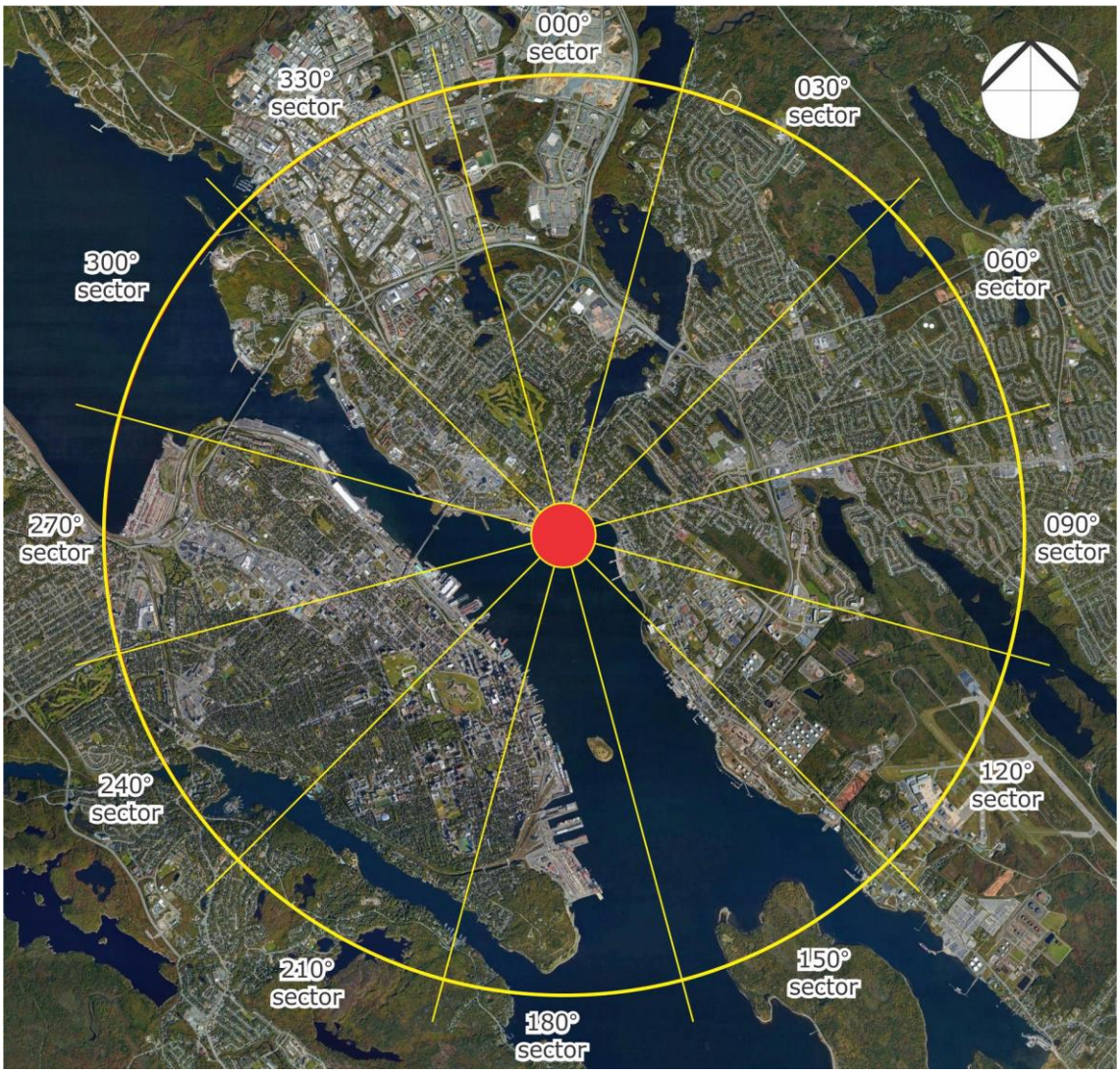

Figure 3a: Aerial Image of the Surrounding Terrain
(radius of 5.0km from the edge of the proximity model, which is coloured red)

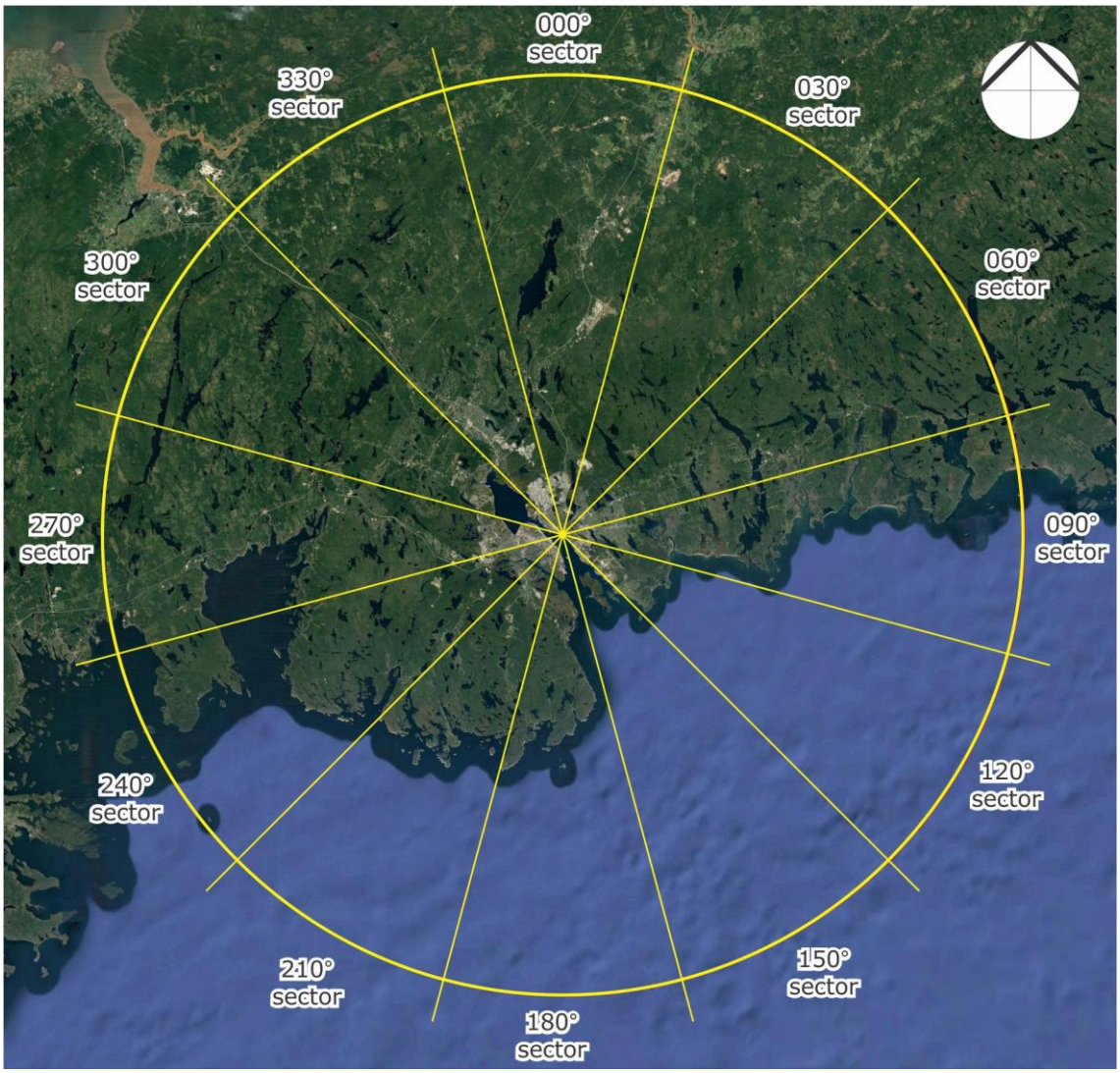

Figure 3b: Aerial Image of the Surrounding Terrain (radius of 50km)

4 REGIONAL WIND MODEL

The regional wind model used in this study was determined from an analysis of measured directional mean wind speeds obtained at the meteorological recording station located at Shearwater Airport in Dartmouth, Nova Scotia. Data was collected from 1971 to 2004 between 6am to 11pm and corrected so that it represents wind speeds over standard open terrain at a height of 10m above ground for each wind direction. From this analysis, directional probabilities of exceedance and directional wind speeds for the region are determined. The directional wind speeds are summarised in Table 2 and are illustrated along with corresponding directional frequencies of occurrence in Figure 4a. The analysis indicates that the strongest winds of the region are mainly governed by the winds from the north-westerly and south-westerly quadrants, which are also the most frequently occurring winds for the region. The easterly winds are the next strongest and frequent winds of the region.

The recurrence intervals examined in this study are for exceedances of 20% (per 90-degree sector) for the pedestrian comfort criteria using Gust-Equivalent Mean (GEM) wind speeds, and annual maximum wind speeds (per 10 degree sector) for the pedestrian safety criterion. Note that the 20% probability wind speeds presented in Table 2 are only used for the directional plots presented in Figure 4a and are not used for the integration of the probabilities.

Seasonal analysis of the wind data has also been carried out to account for the distinct differences in pedestrian outdoor activity during different seasons throughout the year between the hours of 0600 and 2300. For the current analysis, the data has been grouped into two seasons: summer (May to October) and winter (November to April). The directional probabilities of exceedance and directional wind speeds for the two seasons are presented in Figure 4b. Note that the overall wind pattern for the summer and winter seasons are similar to the average wind pattern depicted in Figure 4a. However, the north-westerly winds are more frequent for the winter season whereas the south-westerly winds are more frequent for the summer season.

Table 2: Directional Wind Speeds

(hourly means, referenced to 10m above ground in standard open terrain)

Wind Direction	20% Exceedance (m/s)	Annual Maximum (m/s)
0 (North)	5.7	12.1
10	5.3	11.7
20	5.1	10.9
30	4.6	10.5
40	3.6	10.2
50	2.5	10.1
60	2.8	10.4
70	3.2	11.1
80	4.7	11.9
90 (East)	4.3	12.3
100	4.3	11.9
110	4.4	10.9
120	3.3	10.3
130	3.5	10.1
140	2.9	10.3
150	2.6	10.6
160	2.9	10.8
170	3.9	10.9
180 (South)	3.9	11.1
190	4.2	11.5
200	4.5	12.1
210	4.9	12.6
220	5.0	12.7
230	4.6	12.5
240	4.8	11.8
250	4.8	11.7
260	5.4	12.0
270 (West)	5.5	12.6
280	5.9	13.2
290	6.4	13.2
300	6.5	13.1
310	6.3	12.9
320	6.1	12.3
330	5.9	12.2
340	5.8	12.1
350	5.7	12.4

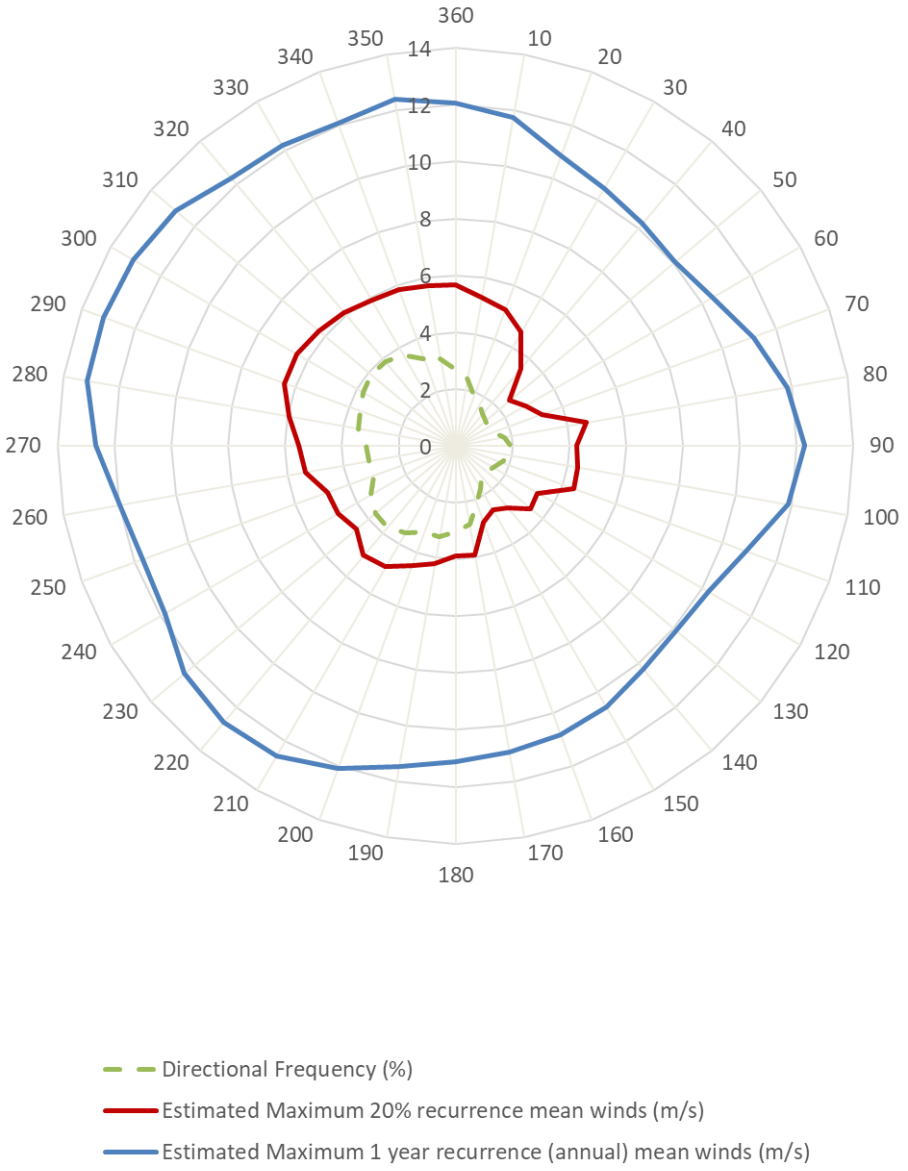

Figure 4a: Annual and 20% Exceedance Hourly Mean Wind Speeds, and Frequencies of Occurrence for the Dartmouth Region (referenced to 10m above ground in standard open terrain)

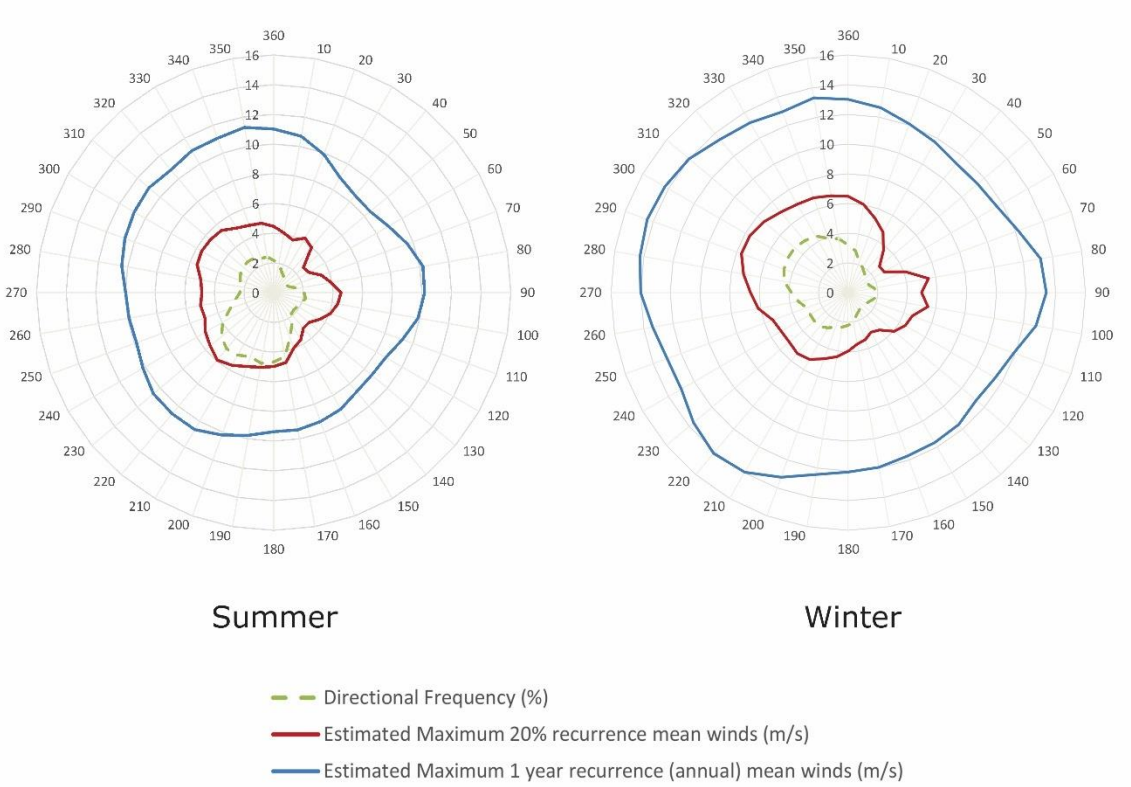

Figure 4b: Annual and 20% Exceedance Hourly Mean Wind Speeds, and Frequencies of Occurrence for the Dartmouth Region for the Summer (Nov-Apr) and Winter Seasons (May-Oct) between 0600 and 2300 (referenced to 10m above ground in standard open terrain)

5 PEDESTRIAN WIND COMFORT AND SAFETY

The acceptability of wind conditions of an area is determined by comparing the measured wind speeds against an appropriate criterion. This section outlines how the measured wind speeds were obtained, the criteria considered for the development, as well as the critical trafficable areas that were assessed and their corresponding criteria designation.

5.1 Measured Wind Speeds

Wind speeds were measured using Dantec hot-wire probe anemometers, positioned to monitor wind conditions at critical outdoor trafficable areas of the development at a full-scale height of 1.5m at the measurement point. The reference mean free-stream wind speed is also measured in the wind tunnel at a full-scale height of 200m and 3m upstream of the study model.

Measurements were acquired for 36 wind directions at 10-degree increments using a sample rate of 1,024Hz. The full methodology of determining the wind speed measurements at the site from the Dantec Hot-wire probe anemometers is provided in Appendix B. Based on the results of the analysis of the boundary layer wind profiles at the site (see Section 3), and incorporating the regional wind model (see Section 4), the data sampling length of the wind tunnel test for each wind direction corresponds to a full-scale sample length ranging between 30 minutes and 1 hour. Research by A.W. Rofail and K.C.S. Kwok (1991) has shown that, in addition to the mean and standard deviation of the wind being stable for sample lengths of 15 minutes or more (full-scale), the peak value determined using the upcrossing method is stable for sample lengths of 30 minutes or more.

5.2 Wind Speed Criteria Used for This Study

For this study the measured wind conditions of the selected critical outdoor trafficable areas are compared against two sets of criteria; one for pedestrian safety, and one for pedestrian comfort. The safety criterion is applied to the annual maximum gust winds, and the comfort criteria is applied to Gust Equivalent Mean (GEM) winds. In accordance with ASCE (2003) and Regional Centre Land Use By-Law Package A (2019), the GEM wind speed is defined as follows:

$$GEM = max\left(\bar{V}, \frac{\hat{V}}{1.85}\right) \tag{5.1}$$

Where:

$\bar{V}$ is the mean wind speed.

$\hat{V}$ is the 3-second gust wind speed.

The measured wind conditions for the various critical outdoor trafficable areas within and around the subject development are compared against the Regional Centre Land Use By-Law Package A (2019). This requires an acceptance of both a safety limit criteria and wind comfort

be achieved for the various outdoor public areas (for hours between 0600 and 2300). The safety criteria states that the gust wind speed must not exceed 25m/s for more than 0.1% of the time from any given wind direction. Furthermore, the criteria for wind comfort is used in conjunction with a maximum GEM wind speed (defined above) and must not exceed more than 20% of the time (probability of exceedance) from all directions combined, measured between 6am and 11pm over the year. Note that the Gust-Equivalent Mean (GEM) criteria, has proven over time, and through field observations, to be the most reliable indicator of pedestrian comfort (Rofail, 2007). A more detailed comparison of published criteria has been provided in Appendix A.

The criteria considered in this study are summarised in Tables 3 and 4 for pedestrian comfort and safety, respectively. The results of the wind tunnel study are presented in the form of directional plots attached in Appendix C of this report. For each study point there is a plot of the GEM wind speeds using the comfort criteria, and a plot for the annual maximum gust wind speeds using the safety criterion.

Table 3: Comfort Criteria (from Regional Centre Land Use By-Law Package A (2019))

Classification	Description	Maximum 20% Exceedance GEM Wind Speed (m/s)
Sitting	Calm or light breezes suitable for outdoor restaurant uses, seating areas, and other amenities. (10km/h)	3.0
Standing	Gentle breezes suitable for main building entrances and bus stops where pedestrians may linger. (14km/h)	4.0
Strolling	Moderate winds appropriate for window shopping and strolling along a downtown street or park. (17km/h)	5.0
Walking	Relatively high speeds that can be tolerated if one's objective is to walk, run, or cycle without much lingering. (20km/h)	5.5

Table 4: Safety Criterion (from Regional Centre Land Use By-Law Package A (2019))

Classification	Description	Annual Maximum Gust Wind Speed (m/s)
Safety	Excessive gust speeds that can adversely affect a pedestrian's balance and footing. Wind mitigation is required. (90km/h)	25

Some exceptions may be permitted in the application of these wind performance standards. For instance, higher-than-desired wind speeds at outdoor seating areas and building entrances may be acceptable in winter months, due to reduced pedestrian usage, and for areas to which access can readily be controlled during adverse weather conditions.

No wind mitigation is required for existing uncomfortable or unsafe conditions that are not made worse by the proposed development.

5.3 Layout of Study Points

For this study, a total of 37 study point locations in the public realm were selected for analysis in the wind tunnel. The locations of the various study points tested for this study, as well as the target wind speed criteria for the various outdoor trafficable areas of the development, are presented in Figures 5 in the form of marked-up plans. It should be noted that only the most critical outdoor locations of the development have been selected for analysis.

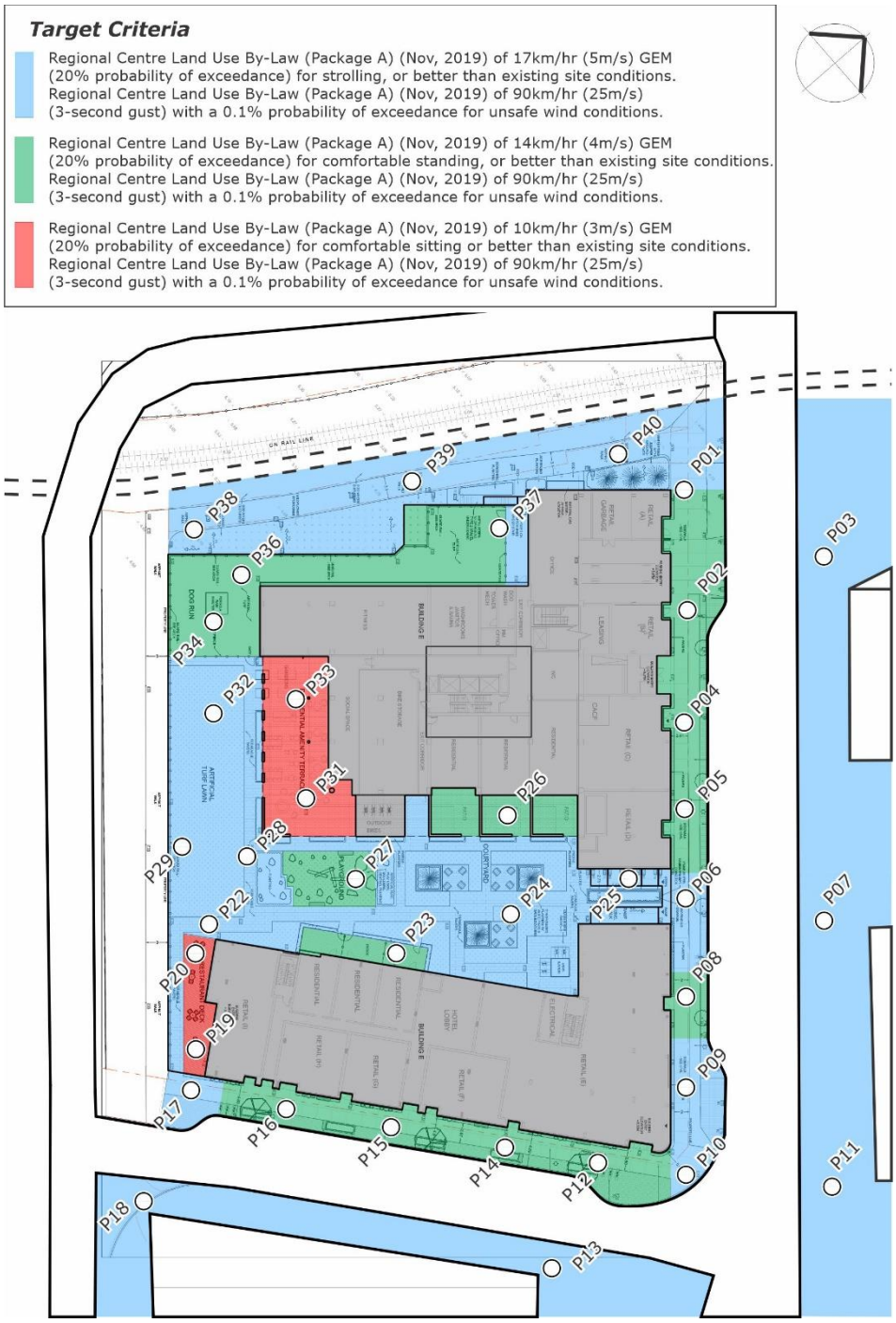

Figure 5a: Study Point Locations and Summer Target Wind Speed Criteria Parking Level 0 and Level 1

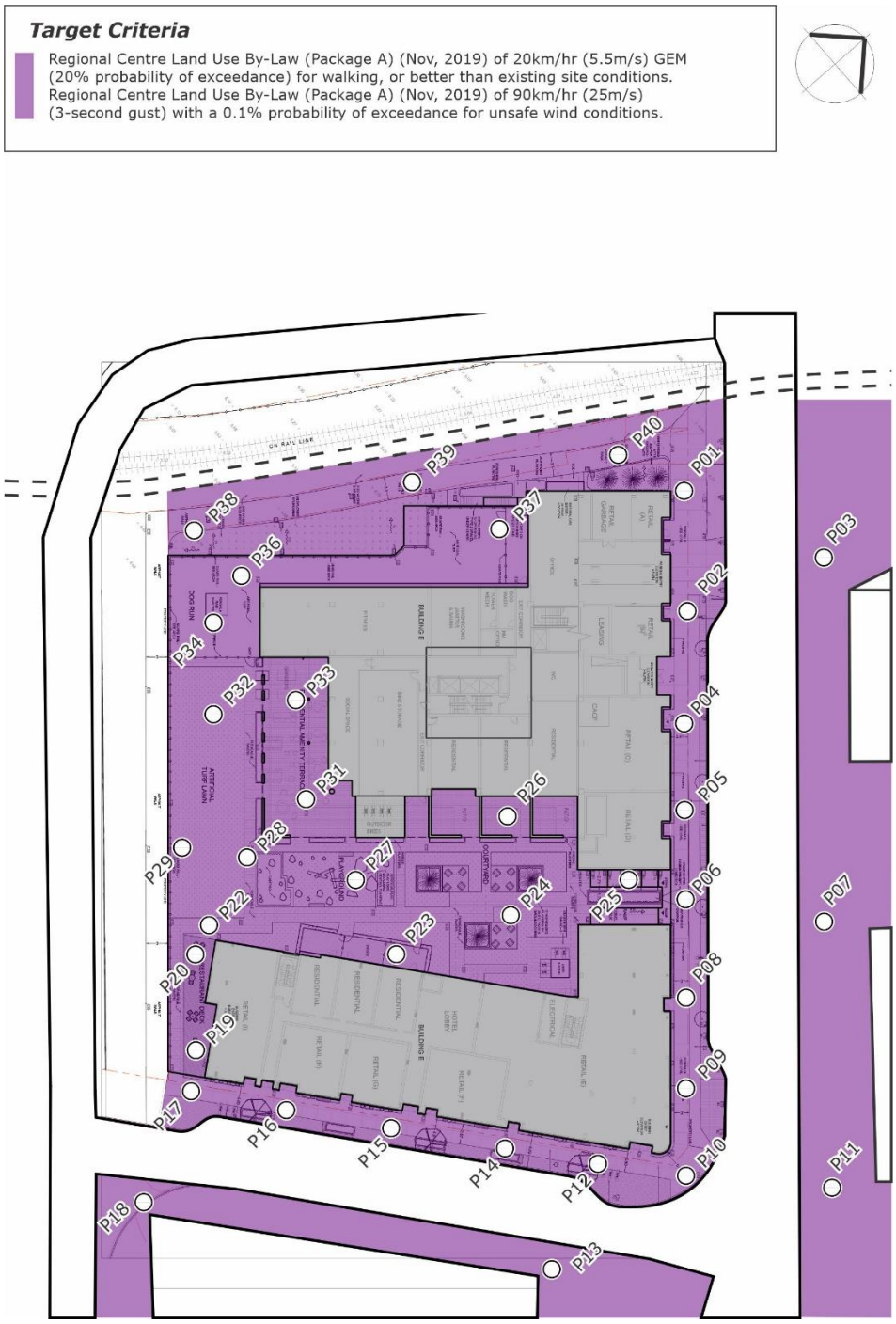

Figure 5b: Study Point Locations and Winter Target Wind Speed Criteria
Parking Level 0 and Level 1

6 RESULTS AND DISCUSSION

6.1 Initial Testing Results for Summer Season

The results of the wind tunnel study are presented in the form of directional plots in Appendix C.2 for all study points locations and summarised in Tables 5 and 6 for the Proposed and Future scenarios, respectively, for the summer season. The initial testing did not include the effect of treatments. The results are also shown as wind roses on marked-up plans in Figures 6 and 7 for the two scenarios. The target wind speed criteria that are also listed in Table 5 for each study point location, as well as presented in Figures 5.

The results of the study indicate that the wind conditions for the majority of ground level areas during the summer months will be safe for pedestrian use. There was also a noticeable improvement in wind conditions in the future scenario. However, some areas will experience strong winds which will exceed the relevant criteria for comfort. These conditions have also been compared to the existing conditions to assess the development's impact before and after completion.

Figure 6: Wind Tunnel Results (Summer) – Parking Level 0 and Level 1 Plan
Proposed Site Conditions (results shown without treatments applied)

Figure 7: Wind Tunnel Results (Summer) – Parking Level 0 and Level 1 Plan Future Site Conditions (results shown without treatments applied)

Table 5: Wind Tunnel Results Summary for the Proposed Site Conditions (Summer)

Study Point	GEM (20% exceedance)			Annual Gust			Final Result	Notes/Treatment
	Criterion (m/s)	Results (%)	Grade	Criterion (m/s)	Results (m/s)	Grade		
P01	4.0	47%	Fail	25	26	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
Existing		48%	Fail		16	Pass	Fail	
P02	4.0	35%	Fail	25	18	Pass	Fail	Better than or similar to Existing Conditions.
Existing		43%	Fail		20	Pass	Fail	
P03	5.0	28%	Fail	25	20	Pass	Fail	Better than or similar to Existing Conditions.
Existing		37%	Fail		24	Pass	Fail	
P04	4.0	52%	Fail	25	20	Pass	Fail	Better than or similar to Existing Conditions.
Existing		40%	Fail		22	Pass	Fail	
P05	4.0	49%	Fail	25	22	Pass	Fail	Better than or similar to Existing Conditions.
Existing		49%	Fail		24	Pass	Fail	
P06	5.0	44%	Fail	25	22	Pass	Fail	Better than or similar to Existing Conditions.
Existing		41%	Fail		23	Pass	Fail	
P07	5.0	49%	Fail	25	25	Pass	Fail	Better than or similar to Existing Conditions at P11.
Existing		39%	Fail		24	Pass	Fail	
P08	4.0	36%	Fail	25	20	Pass	Fail	Better than or similar to Existing Conditions.
Existing		47%	Fail		19	Pass	Fail	
P09	5.0	31%	Fail	25	22	Pass	Fail	Better than or similar to Existing Conditions.
Existing		29%	Fail		19	Pass	Fail	
P10	5.0	49%	Fail	25	23	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
Existing		16%	Pass		18	Pass	Pass	
P11	5.0	33%	Fail	25	25	Pass	Fail	Better than or similar to Existing Conditions.
Existing		42%	Fail		27	Fail	Fail	
P12	4.0	34%	Fail	25	20	Pass	Fail	Better than or similar to Existing Conditions.
Existing		50%	Fail		25	Pass	Fail	
P13	5.0	15%	Pass	25	17	Pass	Pass	-
Existing		46%	Fail		20	Pass	Fail	
P14	4.0	35%	Fail	25	19	Pass	Fail	Inclusion of proposed landscaping.
Existing		28%	Fail		18	Pass	Fail	
P15	4.0	39%	Fail	25	18	Pass	Fail	Better than or similar to Existing Conditions.
Existing		45%	Fail		20	Pass	Fail	
P16	4.0	37%	Fail	25	18	Pass	Fail	Better than or similar to Existing Conditions.
Existing		46%	Fail		19	Pass	Fail	
P17	5.0	30%	Fail	25	21	Pass	Fail	Inclusion of proposed landscaping.
Existing		19%	Pass		17	Pass	Pass	
P18	5.0	14%	Pass	25	18	Pass	Pass	-
Existing		13%	Pass		16	Pass	Pass	
P19	3.0	26%	Fail	25	13	Pass	Fail	Inclusion of operator controlled localised screening when in use.

Study Point	GEM (20% exceedance)			Annual Gust			Final Result	Notes/Treatment
	Criterion (m/s)	Results (%)	Grade	Criterion (m/s)	Results (m/s)	Grade		
P20	3.0	21%	Fail	25	11	Pass	Fail	Inclusion of operator controlled localised screening when in use.
P22	5.0	28%	Fail	25	21	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P23	4.0	42%	Fail	25	24	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P24	5.0	32%	Fail	25	19	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P25	5.0	46%	Fail	25	26	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P26	4.0	0%	Pass	25	7	Pass	Pass	-
P27	4.0	56%	Fail	25	21	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P28	5.0	27%	Fail	25	17	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P29	5.0	39%	Fail	25	27	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P31	3.0	47%	Fail	25	16	Pass	Fail	Inclusion of operator controlled localised screening when in use.
P32	5.0	41%	Fail	25	27	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P33	3.0	33%	Fail	25	14	Pass	Fail	Inclusion of operator controlled localised screening when in use.
P34	4.0	54%	Fail	25	25	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P36	4.0	55%	Fail	25	27	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P37	4.0	28%	Fail	25	16	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P38	5.0	18%	Pass	25	16	Pass	Pass	-
Existing		8%	Pass		14	Pass	Pass	
P39	5.0	46%	Fail	25	25	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
Existing		31%	Fail		19	Pass	Fail	
P40	5.0	24%	Fail	25	22	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
Existing		32%	Fail		19	Pass	Fail	

Table 6: Wind Tunnel Results Summary for the Future Site Conditions (Summer)

Study Point	GEM (20% exceedance)			Annual Gust			Final Result	Notes/Treatment
	Criterion (m/s)	Results (%)	Grade	Criterion (m/s)	Results (m/s)	Grade		
P01	4.0	41%	Fail	25	25	Pass	Fail	Better than or similar to Existing Conditions.
Existing		48%	Fail		16	Pass	Fail	
P02	4.0	26%	Fail	25	18	Pass	Fail	Better than or similar to Existing Conditions.
Existing		43%	Fail		20	Pass	Fail	
P03	5.0	20%	Pass	25	21	Pass	Pass	-
Existing		37%	Fail		24	Pass	Fail	
P04	4.0	47%	Fail	25	21	Pass	Fail	Better than or similar to Existing Conditions.
Existing		40%	Fail		22	Pass	Fail	
P05	4.0	48%	Fail	25	21	Pass	Fail	Better than or similar to Existing Conditions.
Existing		49%	Fail		24	Pass	Fail	
P06	5.0	38%	Fail	25	23	Pass	Fail	Better than or similar to Existing Conditions.
Existing		41%	Fail		23	Pass	Fail	
P07	5.0	41%	Fail	25	25	Pass	Fail	Better than or similar to Existing Conditions.
Existing		39%	Fail		24	Pass	Fail	
P08	4.0	34%	Fail	25	19	Pass	Fail	Better than or similar to Existing Conditions.
Existing		47%	Fail		19	Pass	Fail	
P09	5.0	22%	Fail	25	20	Pass	Fail	Better than or similar to Existing Conditions.
Existing		29%	Fail		19	Pass	Fail	
P10	5.0	29%	Fail	25	21	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
Existing		16%	Pass		18	Pass	Pass	
P11	5.0	31%	Fail	25	24	Pass	Fail	Better than or similar to Existing Conditions.
Existing		42%	Fail		27	Fail	Fail	
P12	4.0	41%	Fail	25	19	Pass	Fail	Better than or similar to Existing Conditions.
Existing		50%	Fail		25	Pass	Fail	
P13	5.0	33%	Fail	25	20	Pass	Fail	Better than or similar to Existing Conditions.
Existing		46%	Fail		20	Pass	Fail	
P14	4.0	43%	Fail	25	20	Pass	Fail	See Figure 10. To be mitigated through future development design.
Existing		28%	Fail		18	Pass	Fail	
P15	4.0	43%	Fail	25	22	Pass	Fail	Better than or similar to Existing Conditions.
Existing		45%	Fail		20	Pass	Fail	
P16	4.0	49%	Fail	25	20	Pass	Fail	Better than or similar to Existing Conditions.
Existing		46%	Fail		19	Pass	Fail	
P17	5.0	33%	Fail	25	20	Pass	Fail	See Figure 10. To be mitigated through future development design.
Existing		19%	Pass		17	Pass	Pass	
P18	5.0	11%	Pass	25	19	Pass	Pass	-
Existing		13%	Pass		16	Pass	Pass	
P19	3.0	29%	Fail	25	13	Pass	Fail	Inclusion of operator controlled localised screening when in use.

Study Point	GEM (20% exceedance)			Annual Gust			Final Result	Notes/Treatment
	Criterion (m/s)	Results (%)	Grade	Criterion (m/s)	Results (m/s)	Grade		
P20	3.0	15%	Pass	25	12	Pass	Pass	-
P22	5.0	16%	Pass	25	21	Pass	Pass	-
P23	4.0	35%	Fail	25	23	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P24	5.0	34%	Fail	25	20	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P25	5.0	42%	Fail	25	24	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P26	4.0	0%	Pass	25	7	Pass	Pass	-
P27	4.0	50%	Fail	25	19	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P28	5.0	35%	Fail	25	19	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P29	5.0	34%	Fail	25	23	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P31	3.0	26%	Fail	25	12	Pass	Fail	Inclusion of operator controlled localised screening when in use.
P32	5.0	38%	Fail	25	25	Pass	Fail	Inclusion of operator controlled localised screening when in use.
P33	3.0	18%	Pass	25	15	Pass	Pass	-
P34	4.0	48%	Fail	25	24	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P36	4.0	55%	Fail	25	25	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P37	4.0	26%	Fail	25	17	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P38	5.0	24%	Fail	25	17	Pass	Fail	See Figure 10. Mitigated with the inclusion of the future parkade.
Existing		8%	Pass		14	Pass	Pass	
P39	5.0	43%	Fail	25	22	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
Existing		31%	Fail		19	Pass	Fail	
P40	5.0	20%	Pass	25	21	Pass	Pass	-
Existing		32%	Fail		19	Pass	Fail	

6.2 Initial Testing Results for Winter Season

The results of the wind tunnel study are presented in the form of directional plots in Appendix C.3 for all study points locations and summarised in Tables 7 and 8 for the Proposed and Future scenarios, respectively, for the winter season. The initial testing did not include the effect of treatments. The results are also shown as wind roses on marked-up plans in Figures 8 and 9 for the two scenarios. The target wind speed criteria that are also listed in Table 5 for each study point location, as well as presented in Figures 5.

The results of the study indicate that the wind conditions for the ground level areas during the winter months are stronger than the summer months, and some areas will experience conditions which exceed the relevant criteria for comfort and/or safety. There was still a noticeable improvement in wind conditions in the future scenario. It is noted that the outdoor spaces tend not to be used for any activities other than objective walking, and therefore it was assessed primarily from a pedestrian safety point of view. These conditions have also been compared to the existing conditions to assess the development's impact before and after completion.

Figure 8: Wind Tunnel Results (Winter) – Parking Level 0 and Level 1 Plan Proposed Site Conditions (results shown without treatments applied)

Figure9: Wind Tunnel Results (Winter) – Parking Level 0 and Level 1 Plan Future Site Conditions (results shown without treatments applied)

Table 7: Wind Tunnel Results Summary for the Proposed Site Conditions (Winter)

Study Point	GEM (20% exceedance)			Annual Gust			Final Result	Notes/Treatment
	Criterion (m/s)	Results (%)	Grade	Criterion (m/s)	Results (m/s)	Grade		
P01	5.5	42%	Fail	25	37	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
Existing		32%	Fail		22	Pass	Fail	
P02	5.5	23%	Fail	25	23	Pass	Fail	Better than or similar to Existing Conditions.
Existing		35%	Fail		26	Fail	Fail	
P03	5.5	26%	Fail	25	26	Fail	Fail	Better than or similar to Existing Conditions.
Existing		30%	Fail		32	Fail	Fail	
P04	5.5	48%	Fail	25	29	Fail	Fail	Better than or similar to surrounding Existing Conditions.
Existing		37%	Fail		27	Fail	Fail	
P05	5.5	48%	Fail	25	29	Fail	Fail	Better than or similar to Existing Conditions.
Existing		41%	Fail		30	Fail	Fail	
P06	5.5	49%	Fail	25	26	Fail	Fail	Better than or similar to Existing Conditions.
Existing		43%	Fail		29	Fail	Fail	
P07	5.5	52%	Fail	25	35	Fail	Fail	Better than or similar to Existing Conditions at adjacent P11.
Existing		40%	Fail		31	Fail	Fail	
P08	5.5	37%	Fail	25	24	Pass	Fail	Better than or similar to Existing Conditions.
Existing		36%	Fail		25	Pass	Fail	
P09	5.5	43%	Fail	25	26	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
Existing		34%	Fail		25	Pass	Fail	
P10	5.5	51%	Fail	25	27	Fail	Fail	See Figure 10. Minor exceedance of safety limit. Inclusion of proposed landscaping
Existing		23%	Fail		23	Pass	Fail	
P11	5.5	38%	Fail	25	35	Fail	Fail	Better than or similar to Existing Conditions.
Existing		42%	Fail		36	Fail	Fail	
P12	5.5	18%	Pass	25	25	Pass	Pass	-
Existing		44%	Fail		31	Fail	Fail	
P13	5.5	20%	Pass	25	22	Pass	Pass	-
Existing		48%	Fail		26	Fail	Fail	
P14	5.5	18%	Pass	25	24	Pass	Pass	-
Existing		24%	Fail		22	Pass	Fail	
P15	5.5	22%	Fail	25	24	Pass	Fail	Better than or similar to Existing Conditions.
Existing		38%	Fail		25	Pass	Fail	
P16	5.5	20%	Pass	25	24	Pass	Pass	-
Existing		33%	Fail		24	Pass	Fail	
P17	5.5	26%	Fail	25	27	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
Existing		31%	Fail		23	Pass	Fail	
P18	5.5	21%	Fail	25	21	Pass	Fail	Better than or similar to Existing Conditions.
Existing		24%	Fail		22	Pass	Fail	
P19	5.5	8%	Pass	25	17	Pass	Pass	-

Study Point	GEM (20% exceedance)			Annual Gust			Final Result	Notes/Treatment
	Criterion (m/s)	Results (%)	Grade	Criterion (m/s)	Results (m/s)	Grade		
P20	5.5	2%	Pass	25	14	Pass	Pass	-
P22	5.5	38%	Fail	25	26	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P23	5.5	45%	Fail	25	31	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P24	5.5	44%	Fail	25	25	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P25	5.5	44%	Fail	25	35	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P26	5.5	0%	Pass	25	9	Pass	Pass	-
P27	5.5	51%	Fail	25	25	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P28	5.5	38%	Fail	25	22	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P29	5.5	47%	Fail	25	35	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P31	5.5	20%	Pass	25	21	Pass	Pass	-
P32	5.5	44%	Fail	25	34	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P33	5.5	7%	Pass	25	18	Pass	Pass	-
P34	5.5	50%	Fail	25	32	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P36	5.5	51%	Fail	25	34	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P37	5.5	14%	Pass	25	22	Pass	Pass	-
P38	5.5	32%	Fail	25	21	Pass	Fail	See Figure 10. Mitigated with the inclusion of the future parkade.
Existing		13%	Pass		18	Pass	Pass	
P39	5.5	46%	Fail	25	33	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
Existing		37%	Fail		23	Pass	Fail	
P40	5.5	35%	Fail	25	28	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
Existing		37%	Fail		24	Pass	Fail	

Table 8: Wind Tunnel Results Summary for the Future Site Conditions (Winter)

Study Point	GEM (20% exceedance)			Annual Gust			Final Result	Notes/Treatment
	Criterion (m/s)	Results (%)	Grade	Criterion (m/s)	Results (m/s)	Grade		
P01	5.5	39%	Fail	25	34	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
Existing		32%	Fail		22	Pass	Fail	
P02	5.5	19%	Pass	25	23	Pass	Pass	-
Existing		35%	Fail		26	Fail	Fail	
P03	5.5	19%	Pass	25	27	Fail	Fail	Better than or similar to Existing Conditions.
Existing		30%	Fail		32	Fail	Fail	
P04	5.5	46%	Fail	25	29	Fail	Fail	Better than or similar to surrounding Existing Conditions.
Existing		37%	Fail		27	Fail	Fail	
P05	5.5	45%	Fail	25	28	Fail	Fail	Better than or similar to Existing Conditions.
Existing		41%	Fail		30	Fail	Fail	
P06	5.5	46%	Fail	25	27	Fail	Fail	Better than or similar to Existing Conditions.
Existing		43%	Fail		29	Fail	Fail	
P07	5.5	44%	Fail	25	34	Fail	Fail	Better than or similar to Existing Conditions at adjacent P11.
Existing		40%	Fail		31	Fail	Fail	
P08	5.5	32%	Fail	25	23	Pass	Fail	Better than or similar to Existing Conditions.
Existing		36%	Fail		25	Pass	Fail	
P09	5.5	32%	Fail	25	24	Pass	Fail	Better than or similar to Existing Conditions.
Existing		34%	Fail		25	Pass	Fail	
P10	5.5	31%	Fail	25	28	Fail	Fail	See Figure 10. Minor exceedance of safety limit. Inclusion of proposed landscaping
Existing		23%	Fail		23	Pass	Fail	
P11	5.5	36%	Fail	25	34	Fail	Fail	Better than or similar to Existing Conditions.
Existing		42%	Fail		36	Fail	Fail	
P12	5.5	24%	Fail	25	25	Pass	Fail	Better than or similar to Existing Conditions.
Existing		44%	Fail		31	Fail	Fail	
P13	5.5	33%	Fail	25	26	Fail	Fail	Better than or similar to Existing Conditions.
Existing		48%	Fail		26	Fail	Fail	
P14	5.5	26%	Fail	25	27	Fail	Fail	See Figure 10. To be mitigated through future development design.
Existing		24%	Fail		22	Pass	Fail	
P15	5.5	28%	Fail	25	29	Fail	Fail	See Figure 10. To be mitigated through future development design.
Existing		38%	Fail		25	Pass	Fail	
P16	5.5	37%	Fail	25	27	Fail	Fail	See Figure 10. To be mitigated through future development design.
Existing		33%	Fail		24	Pass	Fail	
P17	5.5	39%	Fail	25	25	Pass	Fail	See Figure 10. To be mitigated through future development design.
Existing		31%	Fail		23	Pass	Fail	
P18	5.5	18%	Pass	25	24	Pass	Pass	-
Existing		24%	Fail		22	Pass	Fail	

Study Point	GEM (20% exceedance)			Annual Gust			Final Result	Notes/Treatment
	Criterion (m/s)	Results (%)	Grade	Criterion (m/s)	Results (m/s)	Grade		
P19	5.5	10%	Pass	25	18	Pass	Pass	-
P20	5.5	2%	Pass	25	14	Pass	Pass	-
P22	5.5	27%	Fail	25	25	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P23	5.5	41%	Fail	25	29	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P24	5.5	44%	Fail	25	25	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P25	5.5	42%	Fail	25	33	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P26	5.5	0%	Pass	25	9	Pass	Pass	-
P27	5.5	41%	Fail	25	22	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P28	5.5	44%	Fail	25	24	Pass	Fail	See Figure 10. Inclusion of proposed landscaping
P29	5.5	41%	Fail	25	30	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P31	5.5	5%	Pass	25	15	Pass	Pass	-
P32	5.5	44%	Fail	25	32	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P33	5.5	6%	Pass	25	20	Pass	Pass	-
P34	5.5	44%	Fail	25	32	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P36	5.5	50%	Fail	25	32	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
P37	5.5	14%	Pass	25	21	Pass	Pass	
P38	5.5	35%	Fail	25	22	Pass	Fail	See Figure 10. Mitigated with the inclusion of the future parkade.
Existing		13%	Pass		18	Pass	Pass	
P39	5.5	43%	Fail	25	28	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
Existing		37%	Fail		23	Pass	Fail	
P40	5.5	31%	Fail	25	27	Fail	Fail	See Figure 10. Inclusion of proposed landscaping
Existing		37%	Fail		24	Pass	Fail	

6.3 Treatment Optimisation Testing Results

Treatment optimisation testing was undertaken to examine the effect of different treatments on the wind conditions at selected critical locations. The tested treatment scheme and results summary is shown in Appendix C.1.

Note that these treatments were tested in the wind tunnel to design and optimise the treatment strategy. These are not the final suggested treatments. The final suggested treatments are presented in Section 6.4.

6.4 Conclusion and Suggested Treatments

Based on an assessment of the both the results of the initial testing (Section 6.1 and 6.2) and treatment optimisation testing (Section 6.3), it should be noted that the existing wind conditions are generally strong already due to the site's overall exposure to the prevailing winds. The inclusion of the development has had the effect of creating better conditions in some areas, while shifting the existing prevailing winds to other areas. Some additional treatments are suggested to be included in the final design of the development to further improve conditions.

It has been shown that it is possible to ameliorate the impact of the development on the existing wind conditions noting that the modelling of the existing conditions show some areas already experience strong wind conditions. The necessity, size and extent of the treatment strategy is subject to the location's intended use and existing conditions, and potential adaptation to the local wind conditions, given that this area is coastal and thus is already exposed to relatively strong winds than would not be expected in a built-up city environment.

The following set of in-principle treatment suggestions, as shown in Figure 10, and additionally, the inclusion of proposed densely foliating landscaping in the proposed locations within and around the site, is expected to satisfy the criteria in the public realm, and/or maintain wind conditions similar to the existing wind conditions. The proposed landscaping within and around the site and/or management of outdoor spaces is expected to further minimise the effect of any uncomfortable winds.

In conclusion, wind mitigation is required for locations that exceed the safety criterion and are also worse than the existing conditions (as per the Regional Centre Land Use By-Law Package A (2019)).

It is recommended that the suggested treatments, shown in Figure 10, are implemented into the building design to mitigate wind conditions exceeding the safety criterion. The proposed landscaping within and around the site and/or management of outdoor spaces is expected to further minimise any uncomfortable winds.

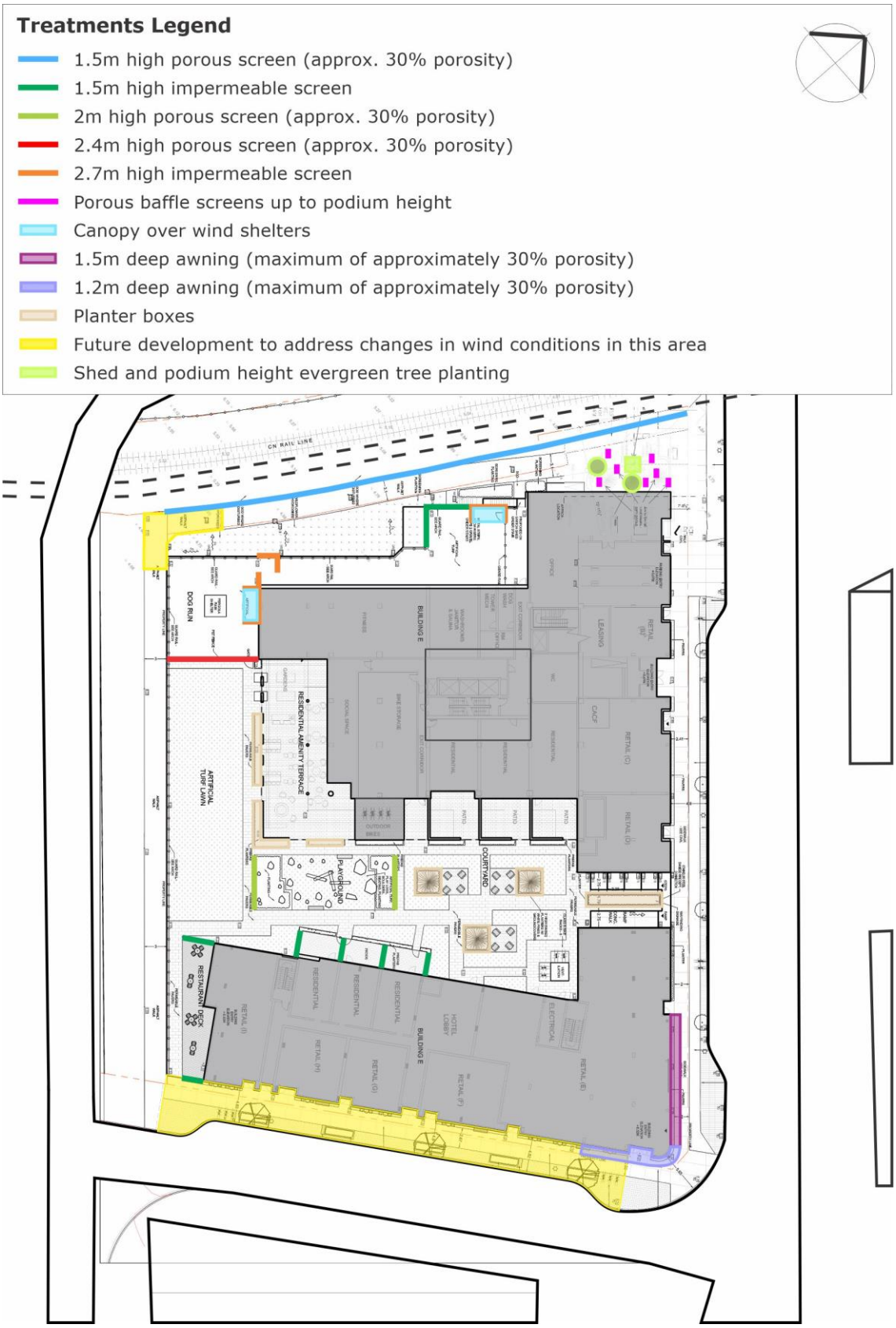

Figure 10: Suggested Treatments (for Safety Criterion Exceedances)

7 REFERENCES

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APPENDIX A PUBLISHED ENVIRONMENTAL CRITERIA

A.1 Wind Effects on People

The acceptability of wind in an area is dependent upon the use of the area. For example, people walking or window-shopping will tolerate higher wind speeds than those seated at an outdoor restaurant. Quantifying wind comfort has been the subject of much research and many researchers, such as A.G. Davenport, T.V. Lawson, W.H. Melbourne, and A.D. Penwarden, have published criteria for pedestrian comfort for pedestrians in outdoor spaces for various types of activities. This section discusses and compares the various published criteria.

A.1.1 A.D. Penwarden (1973) Criteria for Mean Wind Speeds

A.D. Penwarden (1973) developed a modified version of the Beaufort scale which describes the effects of various wind intensities on people. Table A.1 presents the modified Beaufort scale. Note that the effects listed in this table refers to wind conditions occurring frequently over the averaging time (a probability of occurrence exceeding 5%). Higher ranges of wind speeds can be tolerated for rarer events.

Table A.1: Summary of Wind Effects on People (A.D. Penwarden, 1973)

Type of Winds	Beaufort Number	Hourly Mean Wind Speed (m/s)	Effects
Calm	0	0 - 0.25	
Calm, light air	1	0 25 - 1.55	No noticeable wind
Light breeze	2	1.55 - 3.35	Wind felt on face
Gentle breeze	3	3.35 - 5.45	Hair is disturbed, clothing flaps, newspapers difficult to read
Moderate breeze	4	5.45 - 7.95	Raises dust, dry soil and loose paper, hair disarranged
Fresh breeze	5	7.95 – 10.75	Force of wind felt on body, danger of stumbling
Strong breeze	6	10.75 – 13.85	Umbrellas used with difficulty, hair blown straight, difficult to walk steadily, wind noise on ears unpleasant
Near gale	7	13.85 – 17.15	Inconvenience felt when walking
Gale	8	17.15 - 20.75	Generally impedes progress, difficulty balancing in gusts
Strong gale	9	20.75 – 24.45	People blown over

A.1.2 A.G. Davenport (1972) Criteria for Mean Wind Speeds

A.G. Davenport (1972) also determined a set of criteria in terms of the Beaufort scale and for various return periods. Table A.2 presents a summary of the criteria based on a probability of exceedance of 5%.

Table A.2: Criteria by A.G. Davenport (1972)

Classification	Activities	5% exceedance Mean Wind Speed (m/s)
Walking Fast	Acceptable for walking, main public accessways.	7.5 - 10.0
Strolling, Skating	Slow walking, etc.	5.5 - 7.5
Short Exposure Activities	Generally acceptable for walking & short duration stationary activities such as window-shopping, standing or sitting in plazas.	3.5 - 5.5
Long Exposure Activities	Generally acceptable for long duration stationary activities such as in outdoor restaurants & theatres and in parks.	0 - 3.5

A.1.3 T.V. Lawson (1975) Criteria for Mean Wind Speeds

In 1973, T.V. Lawson, while referring to the Beaufort wind speeds of A.D. Penwarden (1973) (as listed in Table A.1), quoted that a Beaufort 4 wind speed would be acceptable if it is not exceeded for more than 4% of the time, and that a Beaufort 6 wind speed would be unacceptable if it is exceeded more than 2% of the time. Later, in 1975, T.V. Lawson presented a set of criteria very similar to those presented in A.G. Davenport (1972) (as listed in Table A.2). These criteria are presented in Table A.3 and Table A.4 for safety and comfort respectively.

Table A.3: Safety Criteria by T.V. Lawson (1975)

Classification	Activities	Annual Mean Wind Speed (m/s)
Safety (all weather areas)	Accessible by the general public.	0 – 15
Safety (fair weather areas)	Private areas, balconies/terraces, etc.	0 – 20

Table A.4: Comfort Criteria by T.V. Lawson (1975)

Classification	Activities	5% exceedance Mean Wind Speed (m/s)
Business Walking	Objective Walking from A to B.	8 - 10
Pedestrian Walking	Slow walking, etc.	6 - 8
Short Exposure Activities	Pedestrian standing or sitting for short times.	4 – 6
Long Exposure Activities	Pedestrian sitting for a long duration.	0 - 4

A.1.4 W.H. Melbourne (1978) Criteria for Gust Wind Speeds

W.H. Melbourne (1978) introduced a set of criteria for the assessment of environmental wind conditions that were developed for a temperature range of 10°C to 30°C and for people suitably dressed for outdoor conditions. These criteria are presented in Table A.5, and are based on maximum gust wind speeds with a probability of exceedance of once per year.

Table A.5: Criteria by W.H. Melbourne (1978)

Classification	Human Activities	Annual Gust Wind Speed (m/s)
Limit for Safety	Completely unacceptable: people likely to get blown over.	23
Marginal	Unacceptable as main public accessways.	16 - 23
Comfortable Walking	Acceptable for walking, main public accessways	13 - 16
Short Exposure Activities	Generally acceptable for walking & short duration stationary activities such as window-shopping, standing or sitting in plazas.	10 - 13
Long Exposure Activities	Generally acceptable for long duration stationary activities such as in outdoor restaurants & theatres and in parks.	0 - 10

A.2 Comparison of the Published Wind Speed Criteria

W.H. Melbourne (1978) presented a comparison of the criteria of various researchers on a probabilistic basis. Figure A.1 presents the results of this comparison, and indicates that the criteria of W.H. Melbourne (1978) are comparatively quite conservative. This conclusion was also observed by A.W. Rofail (2007) when undertaking on-site remedial studies. The results of A.W. Rofail (2007) concluded that the criteria by W.H. Melbourne (1978) generally overstates the wind effects in a typical urban setting due to the assumption of a fixed 15% turbulence intensity for all areas. It was observed in A.W. Rofail (2007) that the 15% turbulence intensity assumption is not real and that the turbulence intensities at 1.5m above ground is at least 20% and in a suburban or urban setting is generally in the range of 30% to 60%.

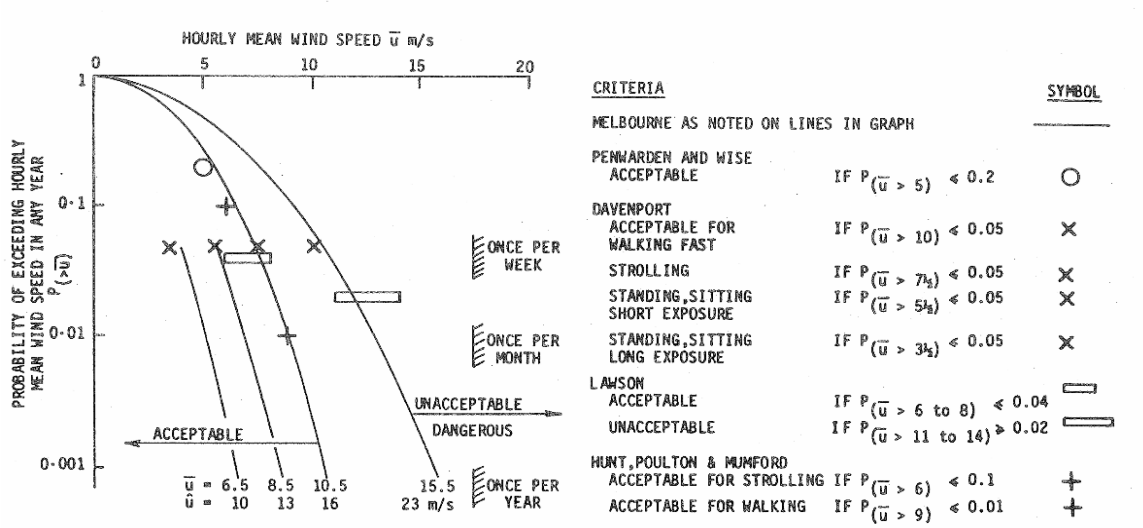

Figure A.1: Comparison of Various Mean and Gust Wind Environment Criteria, assuming 15% turbulence and a Gust Factor of 1.5 (W.H. Melbourne, 1978)

A.3 References relating to Pedestrian Comfort Criteria

Davenport, A.G., 1972, "An approach to human comfort criteria for environmental conditions". Colloquium on Building Climatology, Stockholm.

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APPENDIX B DATA ACQUISITION

The wind tunnel testing procedures for this study were based on the guidelines set out in the Australasian Wind Engineering Society Quality Assurance Manual (AWES-QAM-1-2019), ASCE 7-16 (Chapter C31), and CTBUH (2013).

The wind speed measurements for the wind tunnel study were acquired as coefficients by Dantec hot-wire anemometers and converted to full-scale wind speeds using details of the regional wind climate obtained from an analysis of directional wind speed recordings from the local meteorological recording station(s).

B.1 Measurement of the Velocity Coefficients

The study model and proximity model were setup within the wind tunnel which was configured to the appropriate boundary layer profile, and the wind velocity measurements were monitored using Dantec hot-wire probe anemometers at selected critical outdoor locations. The anemometers were positioned at each study location at a full-scale height of approximately 1.5m above ground/slab level. The support of the probe was mounted such that the probe wire was vertical as much as possible to ensure that the measured wind speeds are independent of wind direction along the horizontal plane. In addition, care was taken in the alignment of the probe wire and in avoiding wall-heating effects.

Wind speed measurements were made in the wind tunnel for 36 wind directions, at 10° increments. The output from the hot-wire probes was obtained using a National Instruments 12-bit data acquisition card. The data was acquired for each wind direction using a sample rate of 1024Hz. The sample length was determined to produce a full-scale sample time that is sufficient for this type of study.

The mean, gust and standard deviation velocity coefficients were measured in the wind tunnel. The gust velocity coefficients were also derived for each wind direction from by the following relation:

$$\hat{C}_V = \bar{C}_V + g \cdot \sigma_{C_V} \qquad \text{B.1}$$

Where:

$\hat{C}_V$ is the gust coefficient.

$\bar{C}_V$ is the mean coefficient.

g is the peak factor, taken as 3.0 for a 3s gust and 3.4 for a 0.5s gust.

σ_{C_V} is the standard deviation of coefficient measurement.

B.2 Calculation of the Full-Scale Results

The full-scale results determine if the wind conditions at a study location satisfy the designated criteria of that location. More specifically, the full-scale results need to determine the probability of exceedance of a given wind speed at a study location. To determine the probability of exceedance, the measured velocity coefficients were combined with a statistical model of the local wind climate that relates wind speed to a probability of exceedance. Details of the wind climate model are outlined in Section 4 of the main report.

The statistical model of the wind climate includes the impact of wind directionality as any local variations in wind speed or frequency with wind direction. This is important as the wind directions that produce the highest wind speed events for a region may not coincide with the most wind exposed direction at the site.

The methodology adopted for the derivation of the full-scale results for the maximum gust and the GEM wind speeds are outlined in the following sub-sections.

B.2.1 Maximum Gust Wind Speeds

The full-scale maximum gust wind speed at each study point location is derived from the measured coefficient using the following relationship:

$$V_{study} = V_{ref,RH}\left(\frac{k_{200m,tr,T=1hr}}{k_{RH,tr,T=1hr}}\right)C_V \qquad \text{B.2}$$

Where:

V_{study} is the full-scale wind speed at the study point location, in m/s.

$V_{ref,RH}$ is the full-scale reference wind speed, measured 3m upstream at the study reference height. This value is determined by combining the directional wind speed data for the region (detailed in Section 4) and the upwind terrain and height multipliers for the site (detailed in Section 3).

$k_{200m,tr,T=1hr}$ is the standard deviation of the wind speed.

$k_{RH,tr,T=1hr}$ is the hourly mean terrain and height multiplier at the study reference height (see Section 3).

C_V is the velocity coefficient measurement obtained from the hot-wire anemometer, which is derived from the following relationship:

$$C_V = \frac{C_{V,study}}{C_{V,200m}} \qquad \text{B.3}$$

Where:

$C_{V,study}$ is the coefficient measurement obtained from the hot-wire anemometer at the study point location.

$C_{V,200m}$ is the coefficient measurement obtained from the hot-wire anemometer at the free-stream reference location at 200m height upwind of the model in the wind tunnel.

The value of $\mathrm{V_{ref,RH}}$ varies with each prevailing wind direction. Wind directions where there is a high probability that a strong wind will occur have a higher directional wind speed than other directions. To determine the directional wind speeds, a probability level must be assigned for each wind direction. These probability levels are set following the approach used in AS/NZS1170.2:2011, which assumes that the major contributions to the combined probability of exceedance of a typical load effect comes from only two 45 degree sectors.

B.2.2 Maximum Gust-Equivalent Mean Wind Speeds

The contribution to the probability of exceedance of a specified wind speed (ie: the desired wind speed for pedestrian comfort, as per the criteria) was calculated for each wind direction. These contributions are then combined over all wind directions to calculate the total probability of exceedance of the specified wind speed. To calculate the probability of exceedance for a specified wind speed a statistical wind climate model was used to describe the relationship between directional wind speeds and the probability of exceedance. A detailed description of the methodology is given by T.V. Lawson (1980).

The criteria used in this study is referenced to a probability of exceedance of 5% of a specified wind speed.

B.3 References relating to Data Acquisition

American Society of Civil Engineers (ASCE), ASCE-7-16, 2016, "Minimum Design Loads for Buildings and Other Structures".

Australasian Wind Engineering Society, QAM-1, 2019, "Quality Assurance Manual: Wind Engineering Studies of Buildings", edited by Rofail A.W., *et al*.

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APPENDIX C DIRECTIONAL PLOTS OF WIND TUNNEL RESULTS

C.1 Treatment Optimisation Testing Results

Figure C.1.A: Details of Tested Treatments (Not Final Recommendations)

Proposed Scenario Results (Summer)

Note: Points with no data already meet the safety limit, are similar to existing or involve an alternative solution involving the future development.

Figure C.1.B: Details of Tested Treatments (Not Final Recommendations)

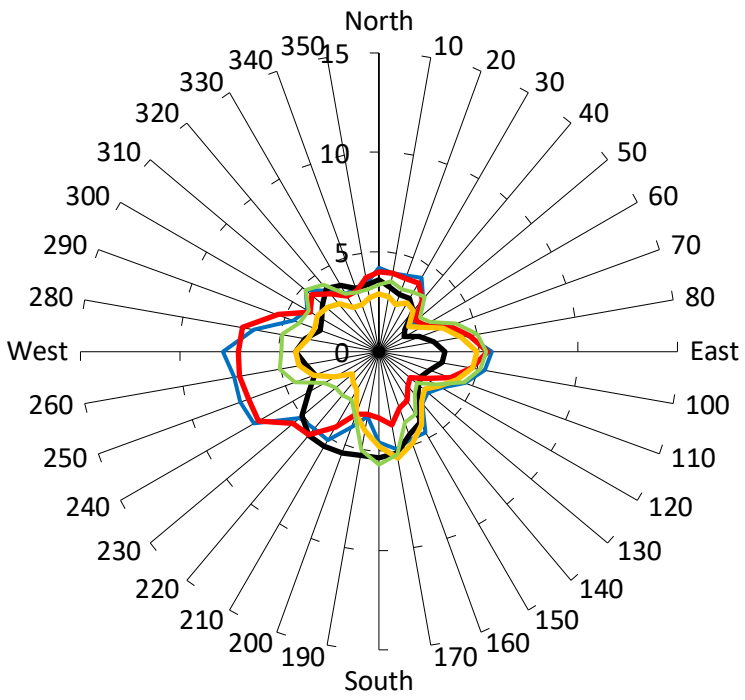
Proposed Scenario Results (Winter)

Note: Points with no data already meet the safety limit, are similar to existing or involve an alternative solution involving the future development.

C.2 Summer Criteria Directional Plots

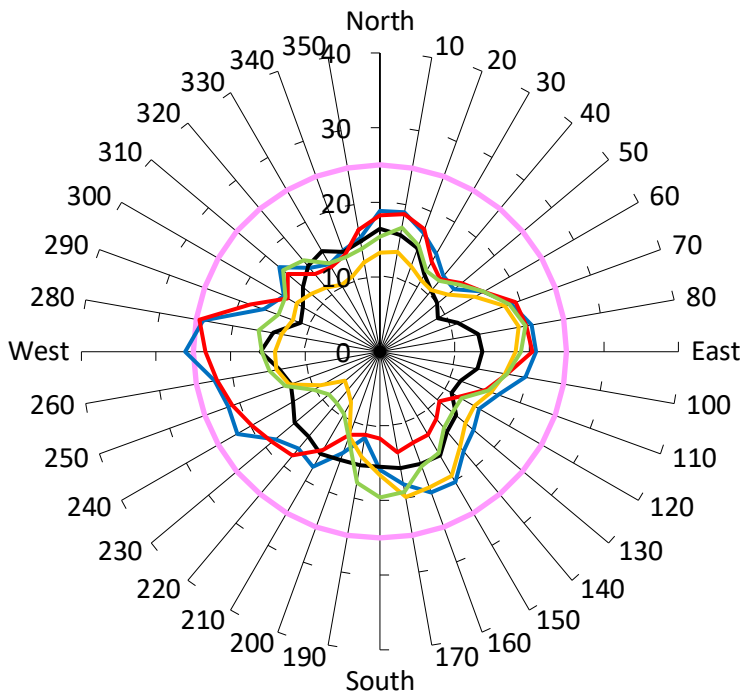
Results for P01

Gust Equivalent Mean (m/s)



Comfort Criteria: 4m/s with 20% probability of exceedence

Maximum Gust (m/s)

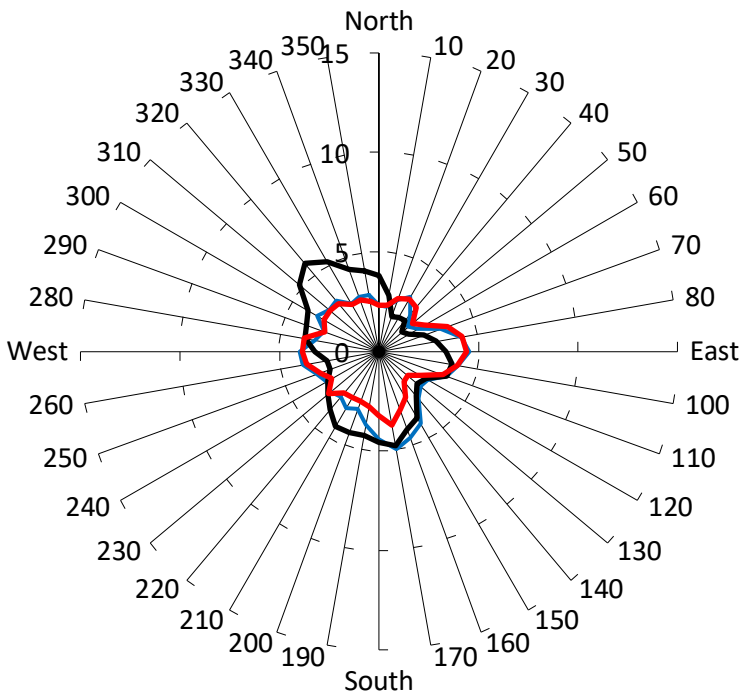


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Standing Activities (14km/h, 4m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	47%	26
Existing site conditions. No vegetation or other treatments.	48%	16
With proposed development and future surrounds case. No vegetation or other treatments.	46%	25
WE191-07 Proposed Case with inclusion of treatments (rev0)	37%	20
WE191-06 Future Case with inclusion of 6 full-height wind blades	45%	20

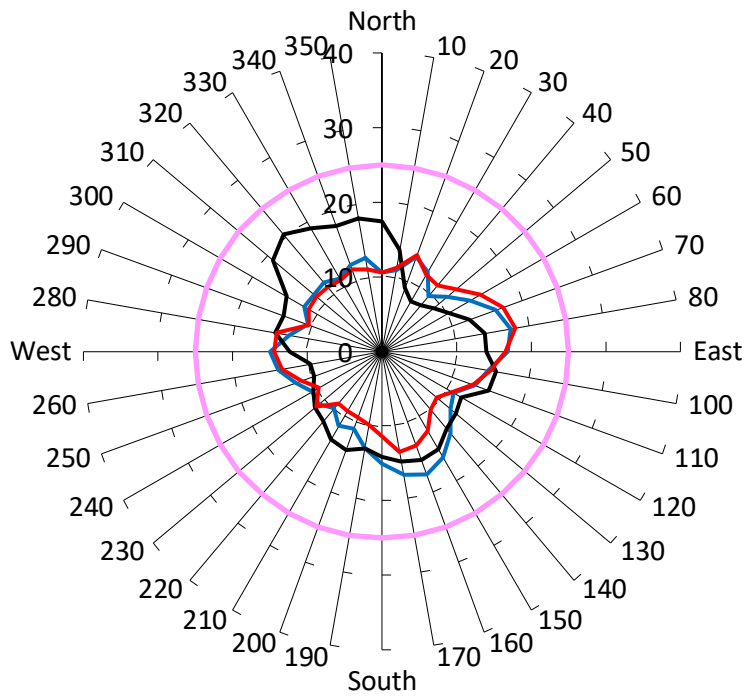
Results for P02

Gust Equivalent Mean (m/s)



Comfort Criteria: 4m/s with 20% probability of exceedence

Maximum Gust (m/s)

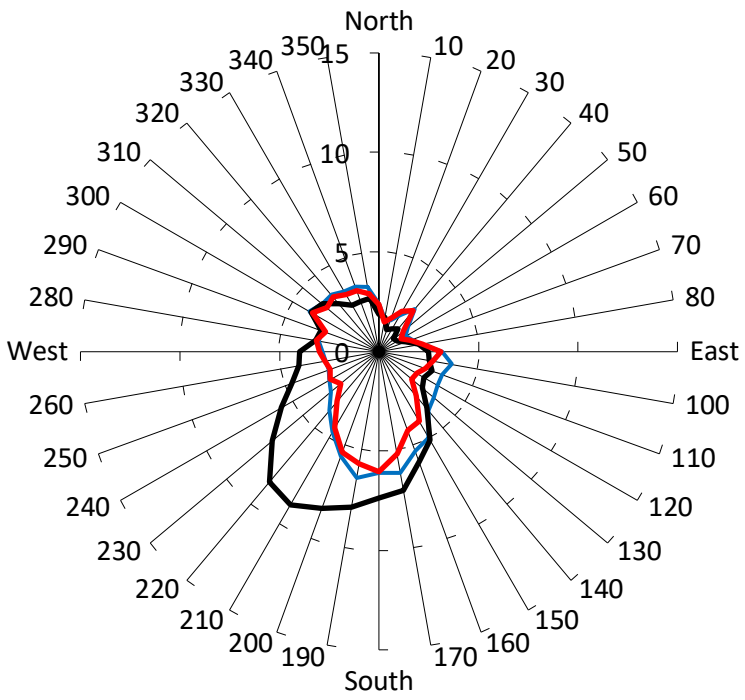


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Standing Activities (14km/h, 4m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	35%	18
Existing site conditions. No vegetation or other treatments.	43%	20
With proposed development and future surrounds case. No vegetation or other treatments.	26%	18

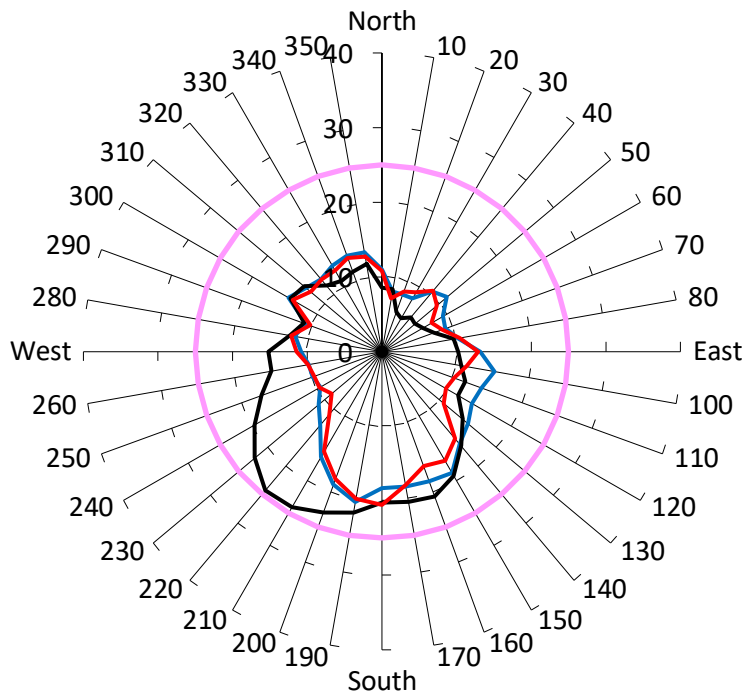
Results for P03

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

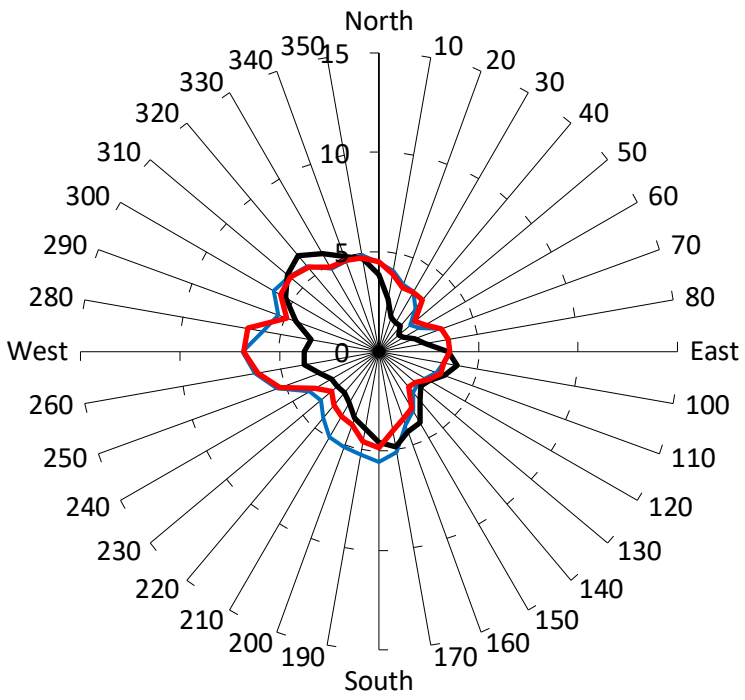


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	28%	20
Existing site conditions. No vegetation or other treatments.	37%	24
With proposed development and future surrounds case. No vegetation or other treatments.	20%	21

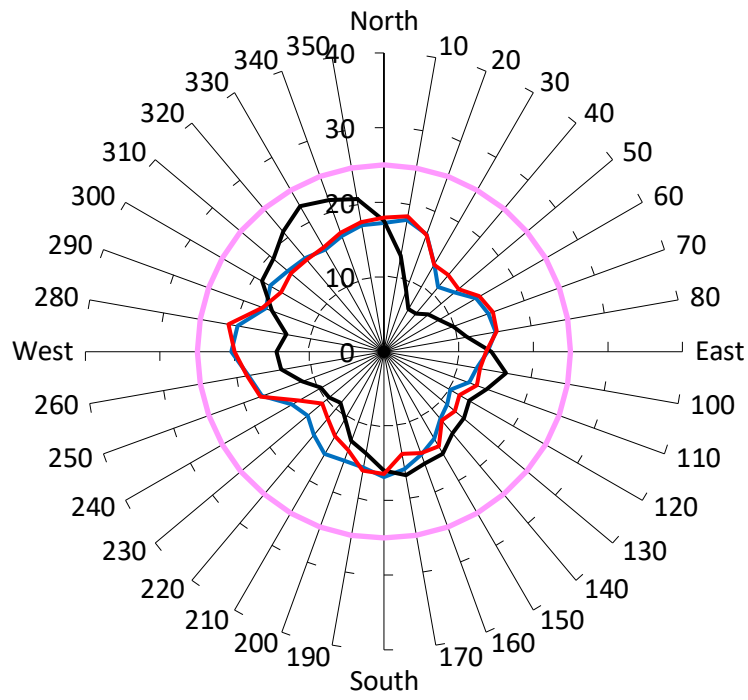
Results for P04

Gust Equivalent Mean (m/s)



Comfort Criteria: 4m/s with 20% probability of exceedence

Maximum Gust (m/s)

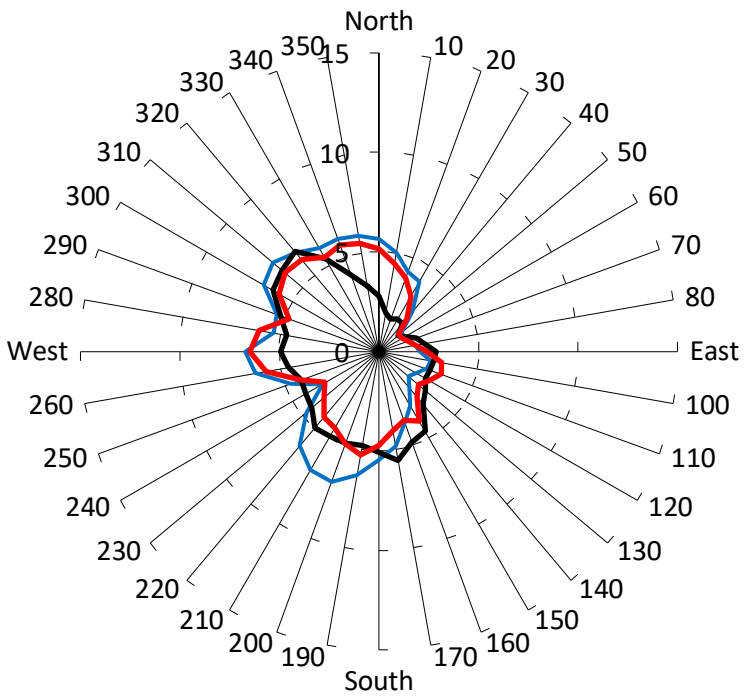


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Standing Activities (14km/h, 4m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	52%	20
Existing site conditions. No vegetation or other treatments.	40%	22
With proposed development and future surrounds case. No vegetation or other treatments.	47%	21

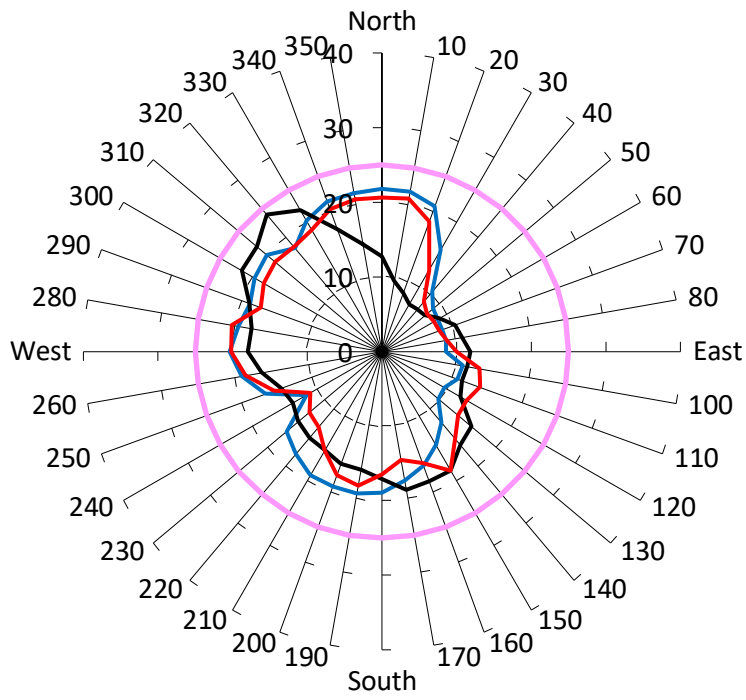
Results for P05

Gust Equivalent Mean (m/s)



Comfort Criteria: 4m/s with 20% probability of exceedence

Maximum Gust (m/s)

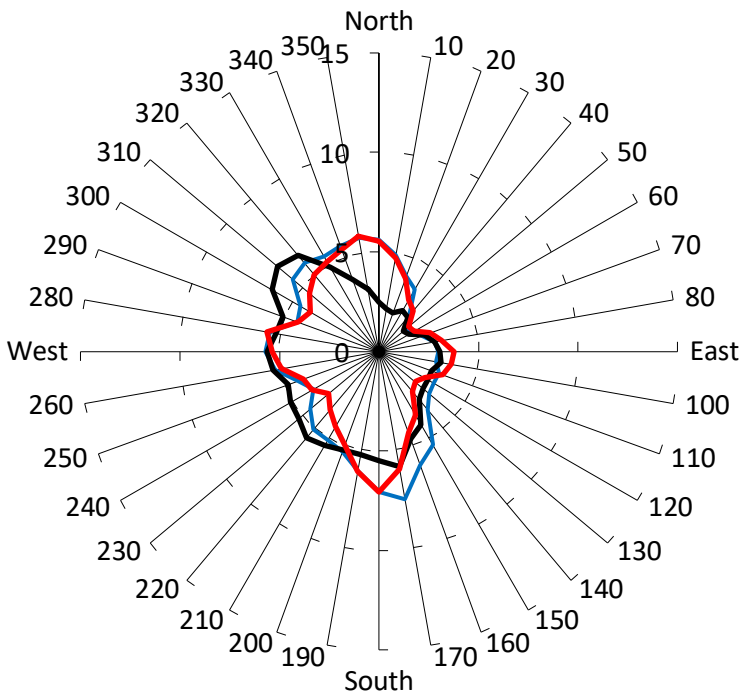


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Standing Activities (14km/h, 4m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	49%	22
Existing site conditions. No vegetation or other treatments.	49%	24
With proposed development and future surrounds case. No vegetation or other treatments.	48%	21

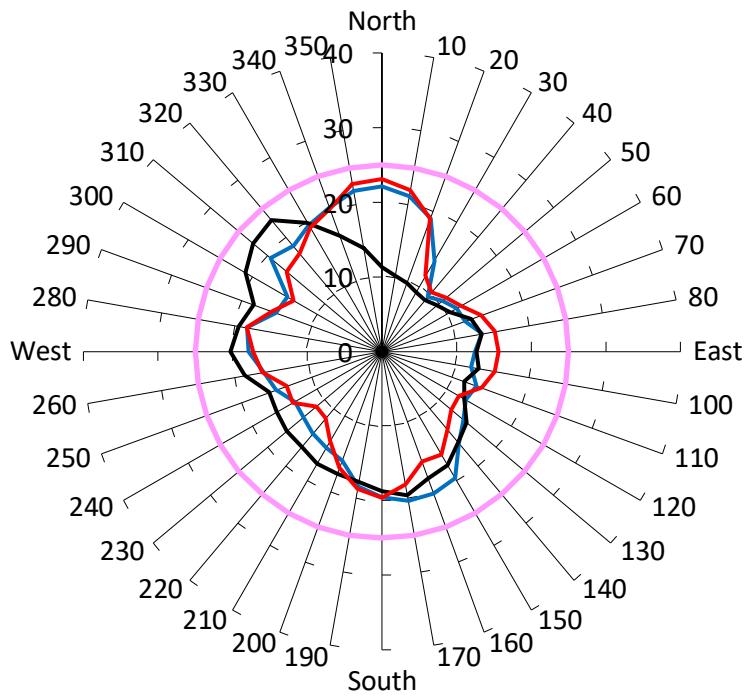
Results for P06

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

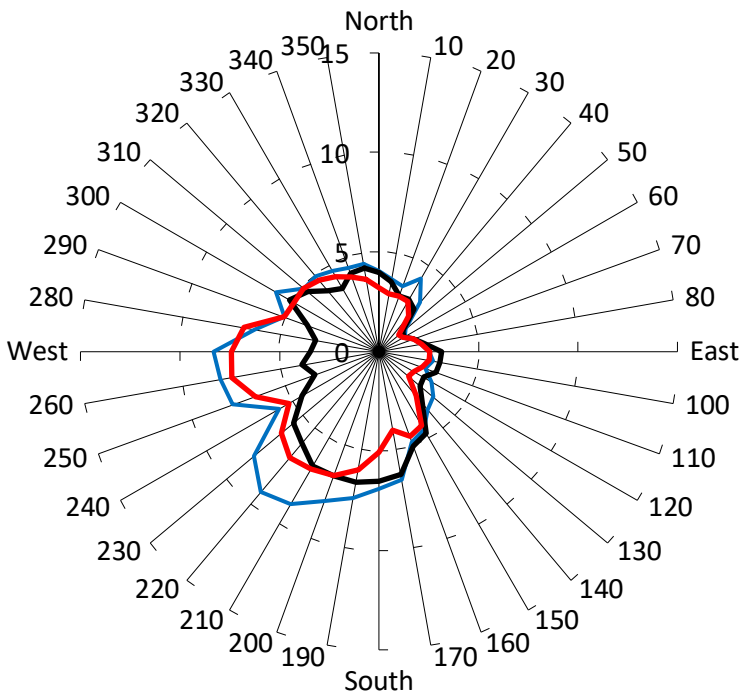


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	44%	22
Existing site conditions. No vegetation or other treatments.	41%	23
With proposed development and future surrounds case. No vegetation or other treatments.	38%	23

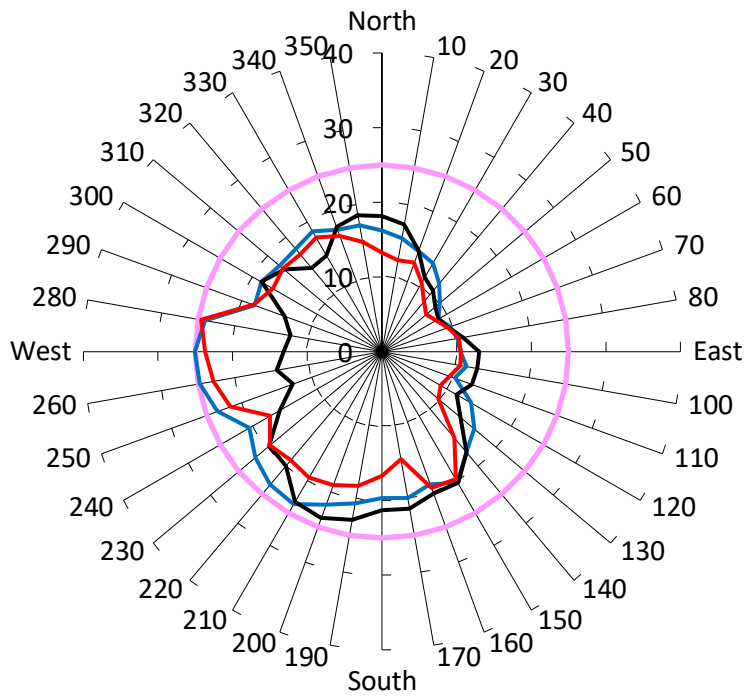
Results for P07

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

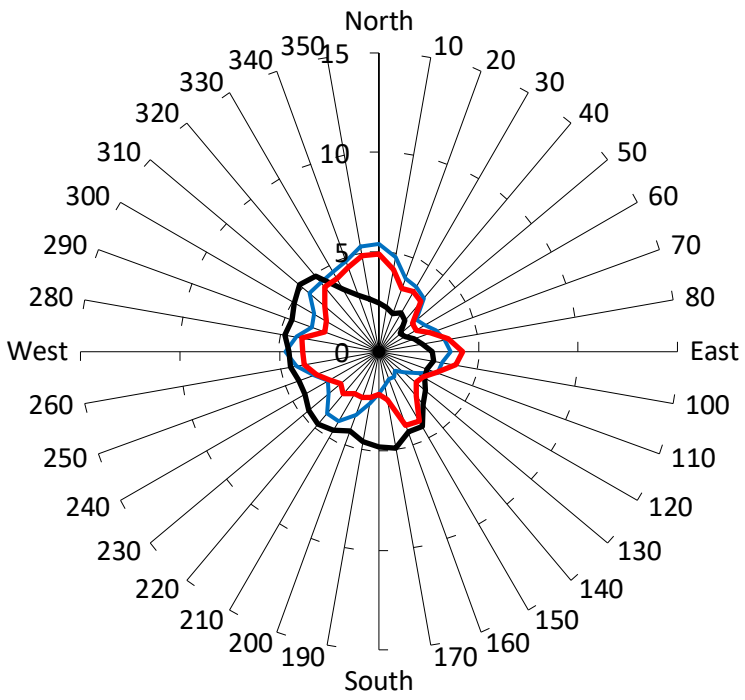


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	49%	25
Existing site conditions. No vegetation or other treatments.	39%	24
With proposed development and future surrounds case. No vegetation or other treatments.	41%	25

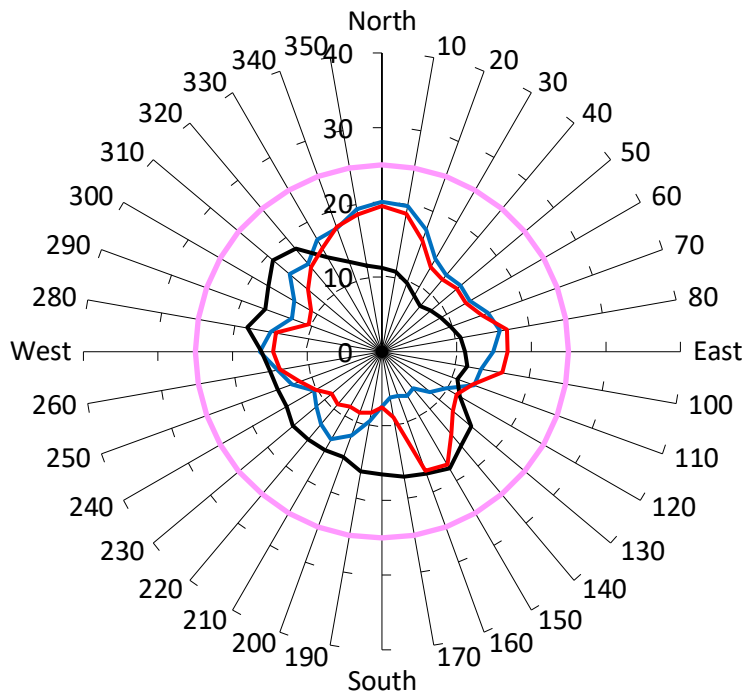
Results for P08

Gust Equivalent Mean (m/s)



Comfort Criteria: 4m/s with 20% probability of exceedence

Maximum Gust (m/s)

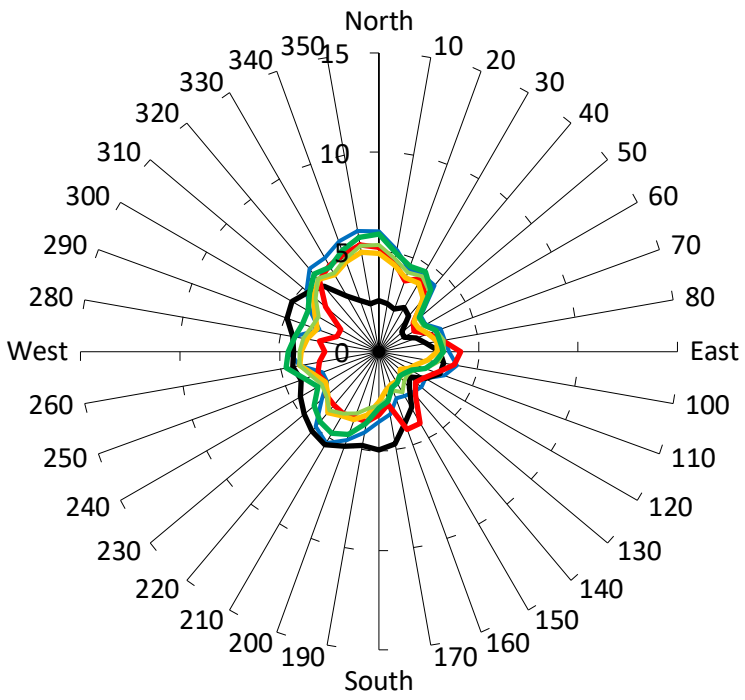


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Standing Activities (14km/h, 4m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	36%	20
Existing site conditions. No vegetation or other treatments.	47%	19
With proposed development and future surrounds case. No vegetation or other treatments.	34%	19

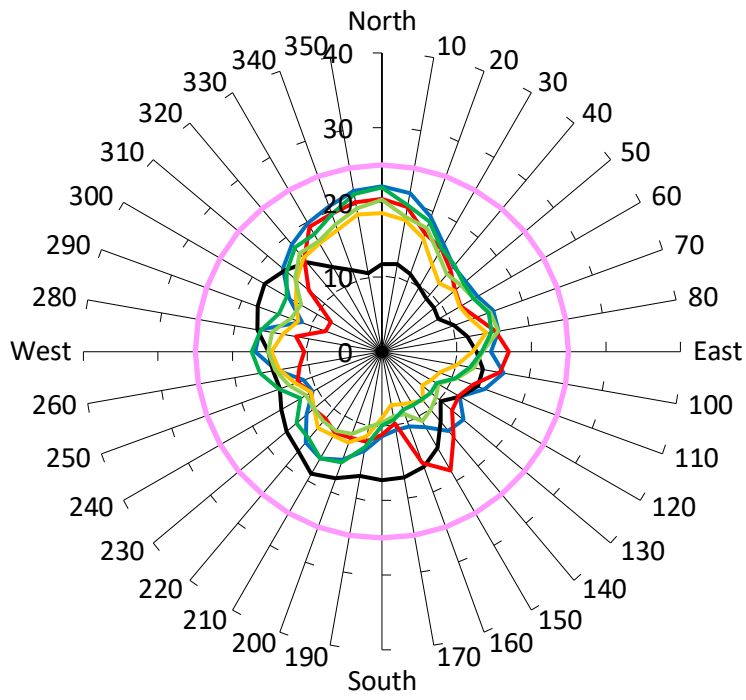
Results for P09

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

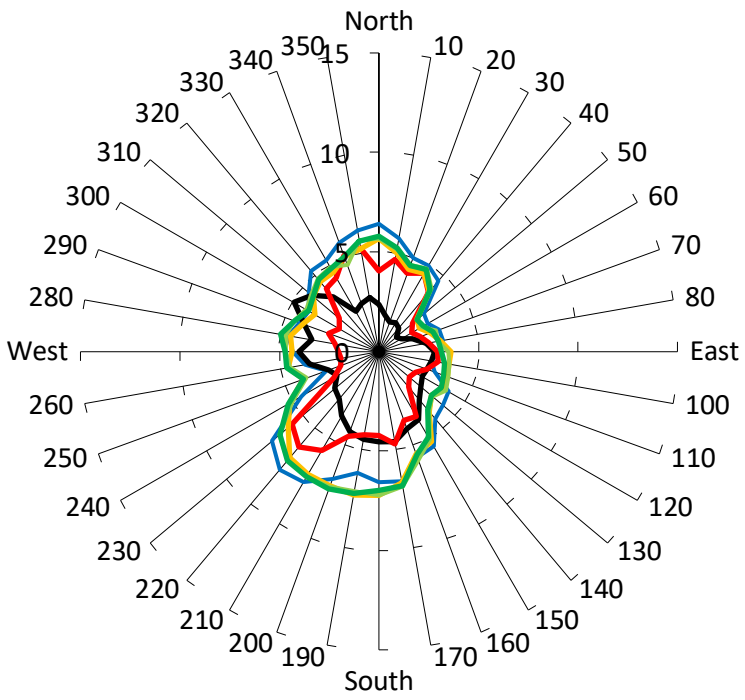


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	31%	22
Existing site conditions. No vegetation or other treatments.	29%	19
With proposed development and future surrounds case. No vegetation or other treatments.	22%	20
WE191-07 Proposed Case with inclusion of treatments (rev0) (2.0m wide awning)	20%	19
WE191-07 Proposed Case with inclusion of treatments (rev0) (1.5m wide awning)	22%	20
WE191-07 Proposed Case with inclusion of treatments (rev0) (1.2m wide awning)	29%	22

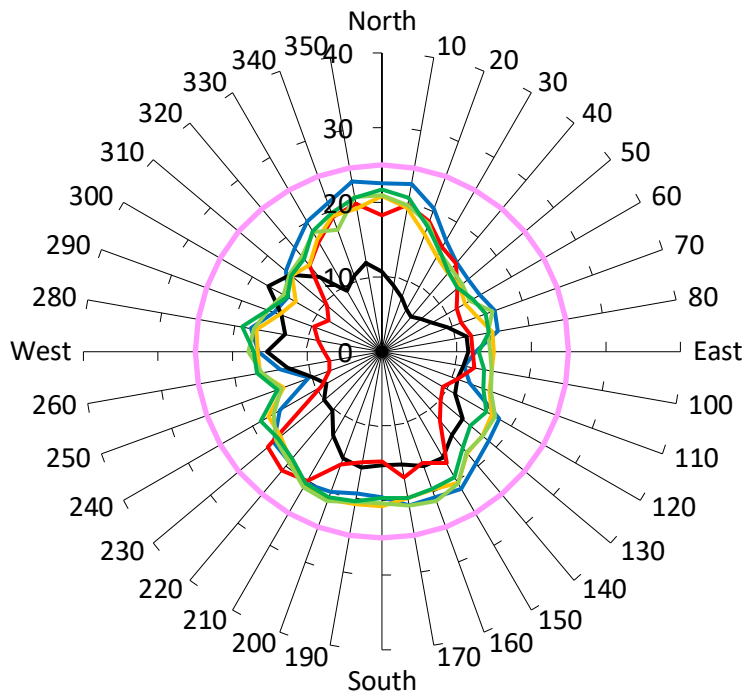
Results for P10

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

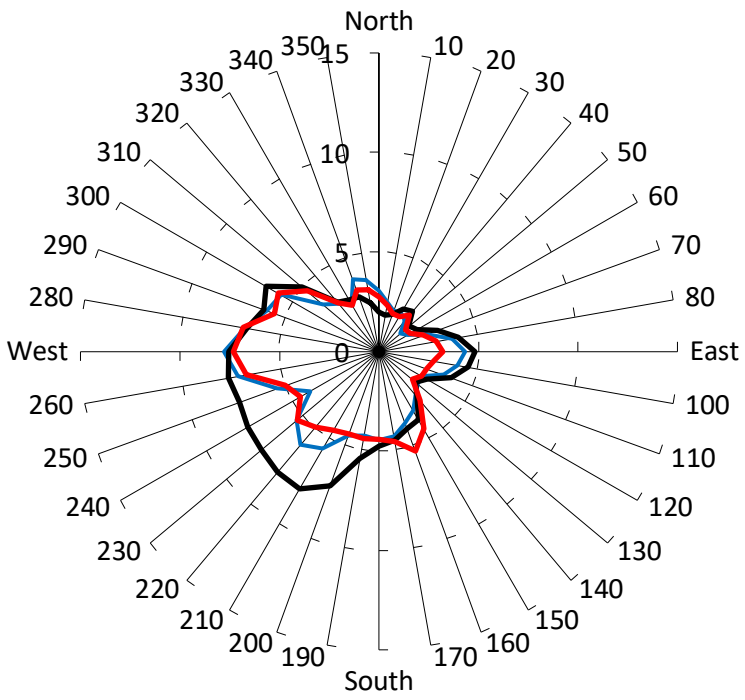


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	49%	23
Existing site conditions. No vegetation or other treatments.	16%	18
With proposed development and future surrounds case. No vegetation or other treatments.	29%	21
WE191-07 Proposed Case with inclusion of treatments (rev0) (2.0m wide awning)	48%	21
WE191-07 Proposed Case with inclusion of treatments (rev0) (1.5m wide awning)	49%	21
WE191-07 Proposed Case with inclusion of treatments (rev0) (1.2m wide awning)	49%	22

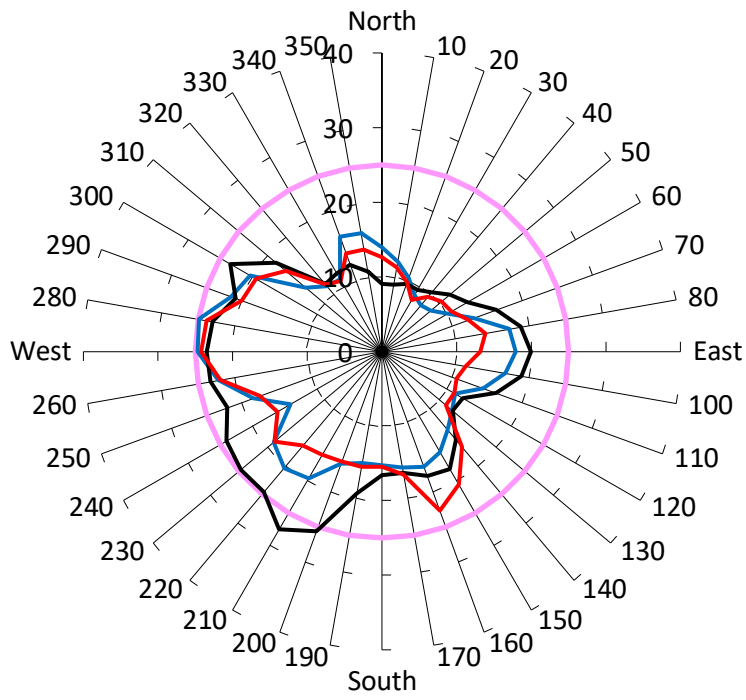
Results for P11

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

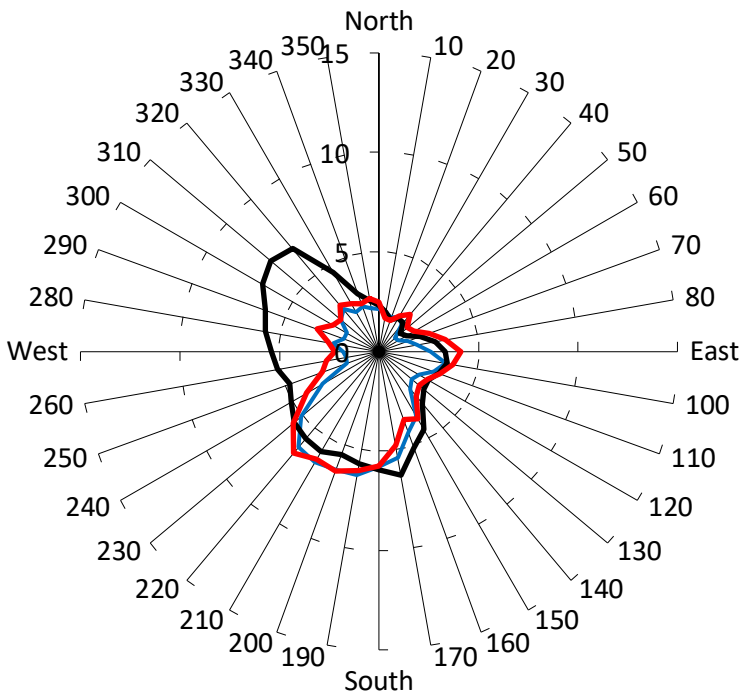


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	33%	25
Existing site conditions. No vegetation or other treatments.	42%	27
With proposed development and future surrounds case. No vegetation or other treatments.	31%	24

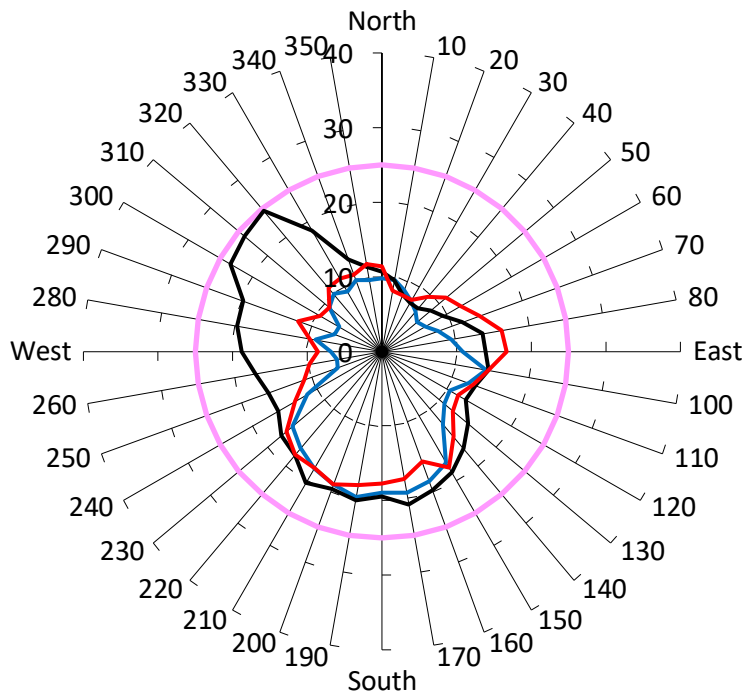
Results for P12

Gust Equivalent Mean (m/s)



Comfort Criteria: 4m/s with 20% probability of exceedence

Maximum Gust (m/s)

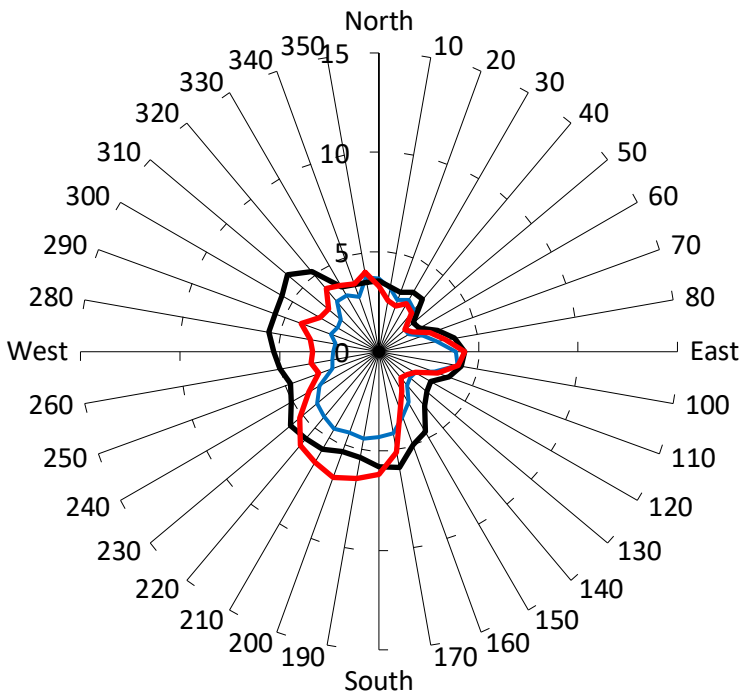


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Standing Activities (14km/h, 4m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	34%	20
Existing site conditions. No vegetation or other treatments.	50%	25
With proposed development and future surrounds case. No vegetation or other treatments.	41%	19

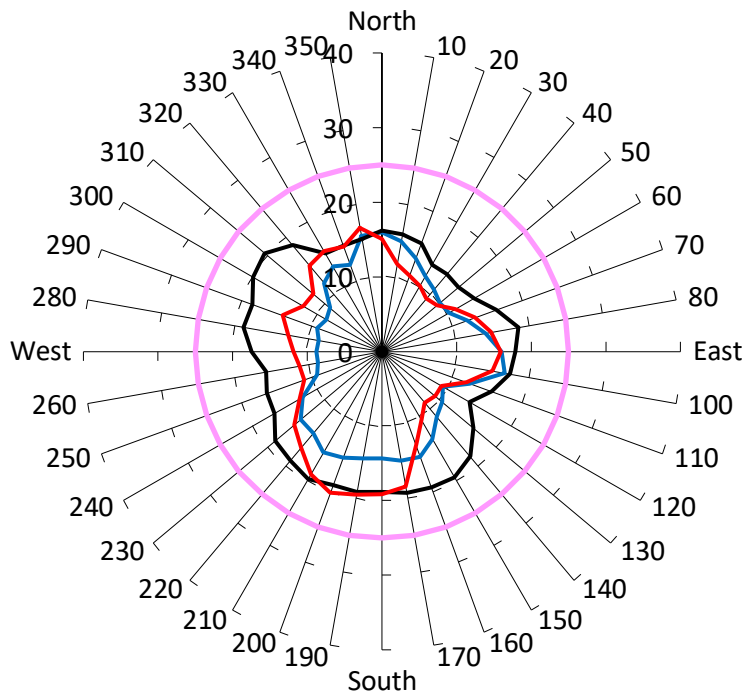
Results for P13

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

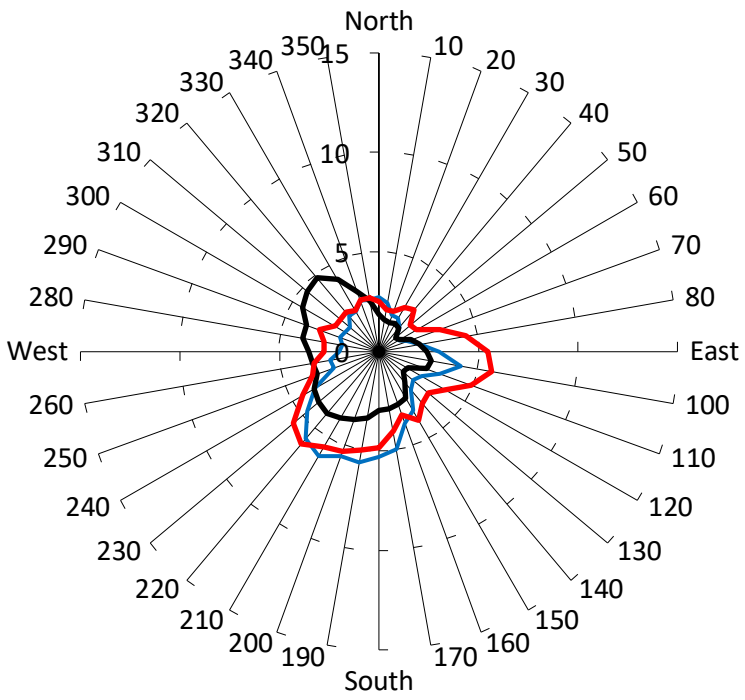


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	15%	17
Existing site conditions. No vegetation or other treatments.	46%	20
With proposed development and future surrounds case. No vegetation or other treatments.	33%	20

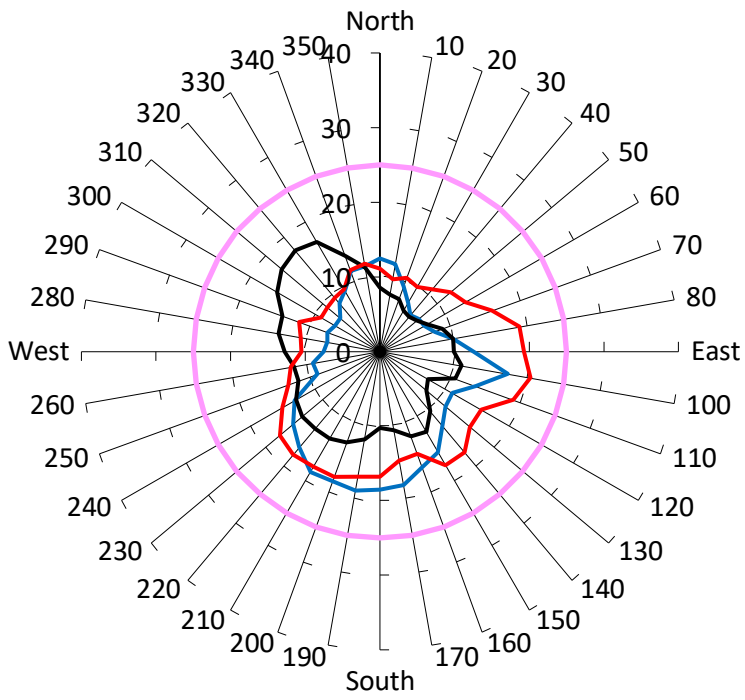
Results for P14

Gust Equivalent Mean (m/s)



Comfort Criteria: 4m/s with 20% probability of exceedence

Maximum Gust (m/s)

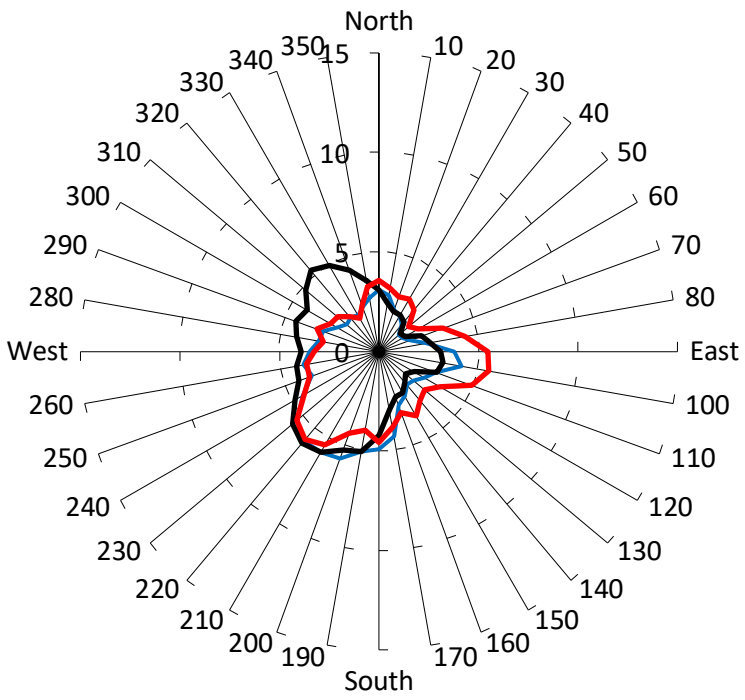


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Standing Activities (14km/h, 4m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	35%	19
Existing site conditions. No vegetation or other treatments.	28%	18
With proposed development and future surrounds case. No vegetation or other treatments.	43%	20

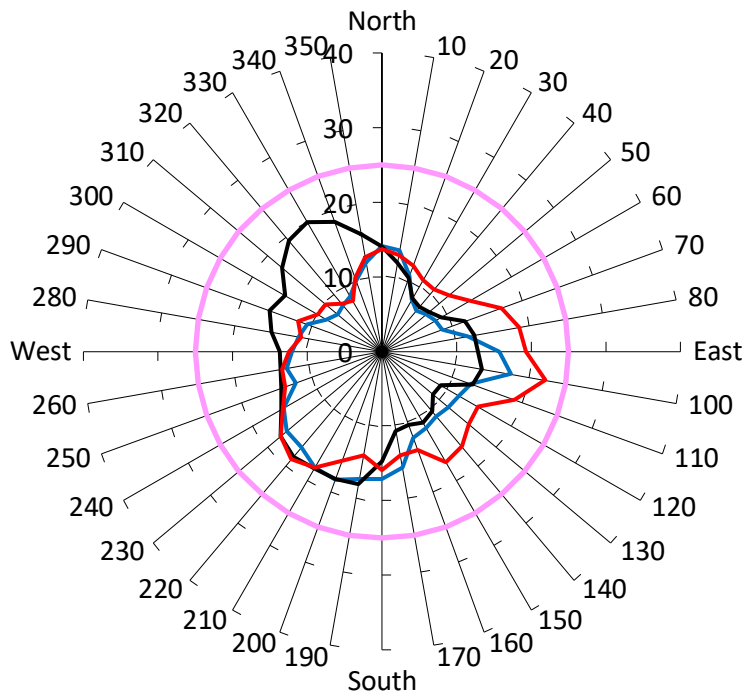
Results for P15

Gust Equivalent Mean (m/s)



Comfort Criteria: 4m/s with 20% probability of exceedence

Maximum Gust (m/s)

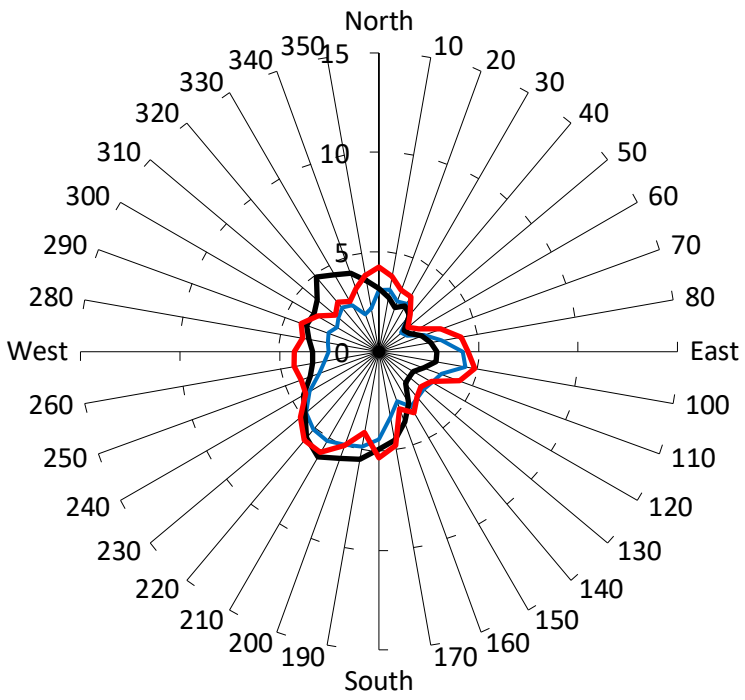


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Standing Activities (14km/h, 4m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	39%	18
Existing site conditions. No vegetation or other treatments.	45%	20
With proposed development and future surrounds case. No vegetation or other treatments.	43%	22

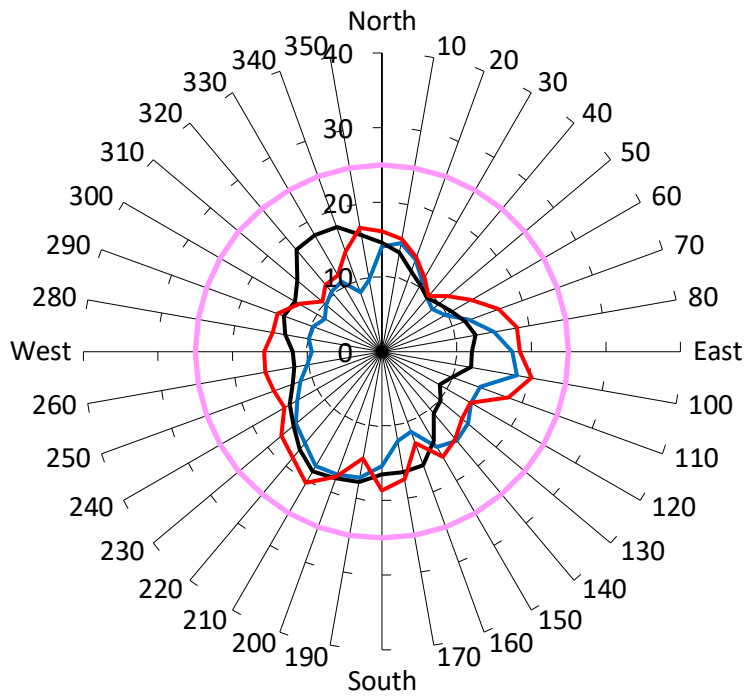
Results for P16

Gust Equivalent Mean (m/s)



Comfort Criteria: 4m/s with 20% probability of exceedence

Maximum Gust (m/s)

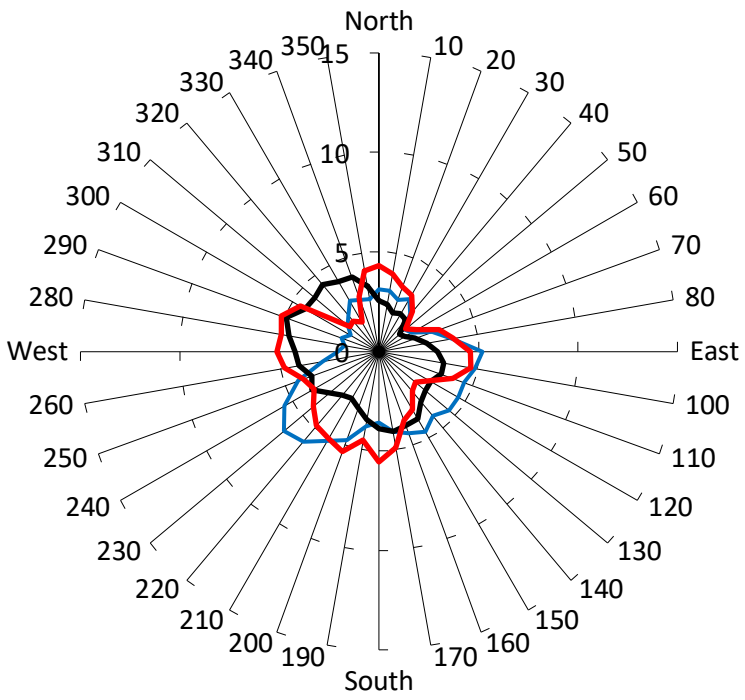


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Standing Activities (14km/h, 4m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	37%	18
Existing site conditions. No vegetation or other treatments.	46%	19
With proposed development and future surrounds case. No vegetation or other treatments.	49%	20

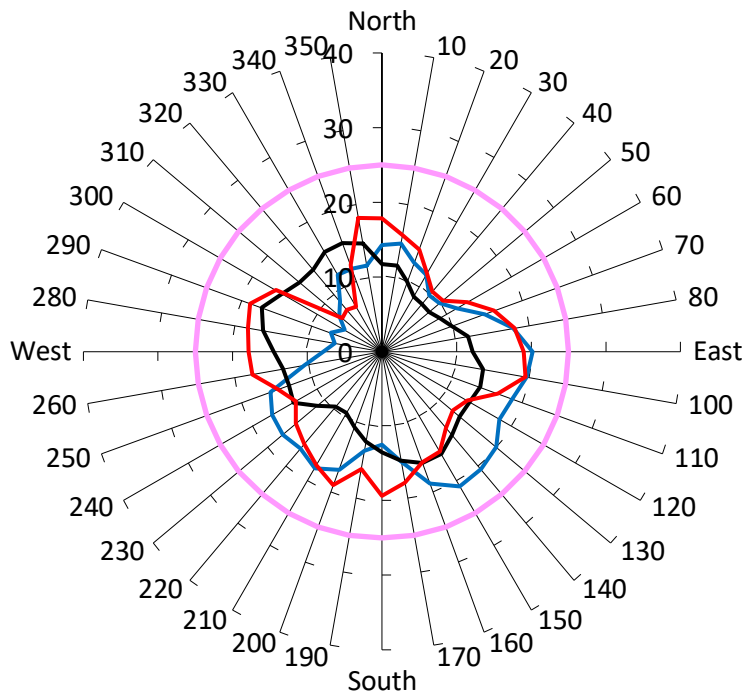
Results for P17

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

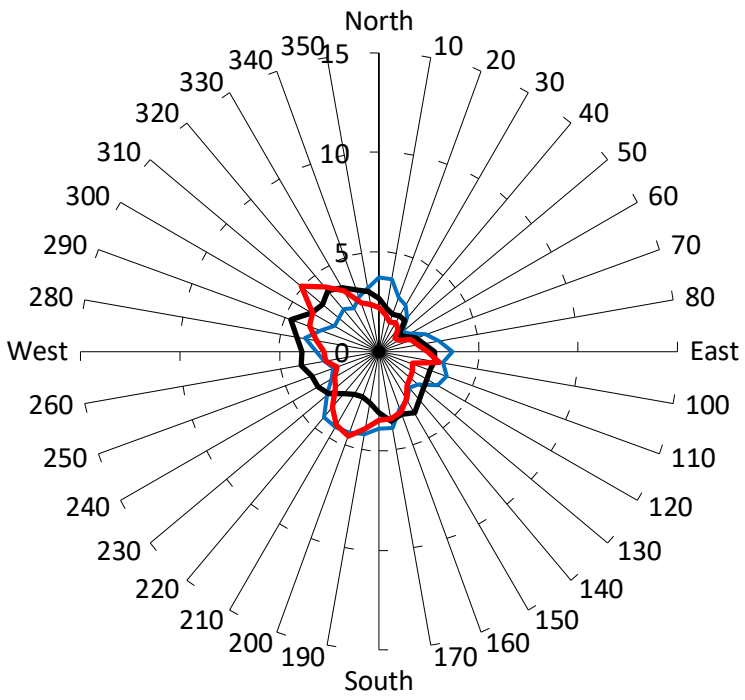


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	30%	21
Existing site conditions. No vegetation or other treatments.	19%	17
With proposed development and future surrounds case. No vegetation or other treatments.	33%	20

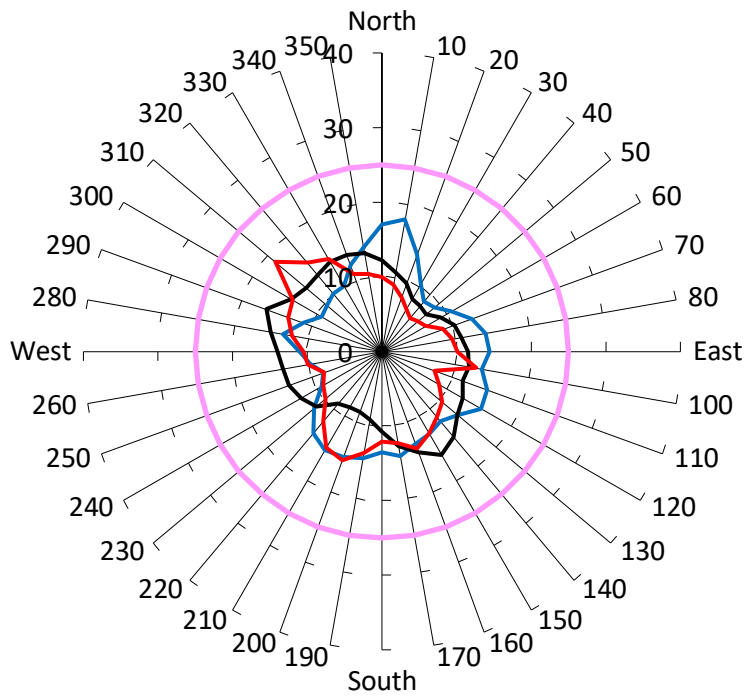
Results for P18

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

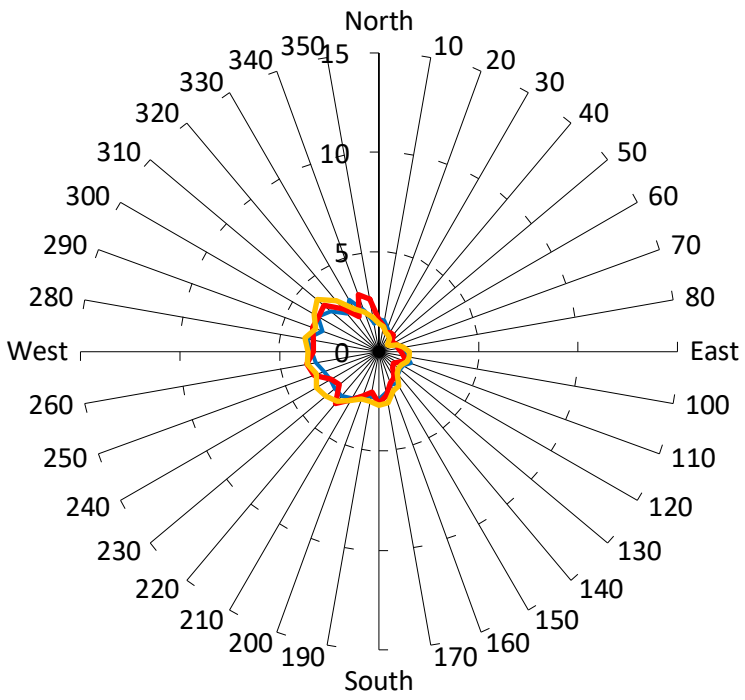


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	14%	18
Existing site conditions. No vegetation or other treatments.	13%	16
With proposed development and future surrounds case. No vegetation or other treatments.	11%	19

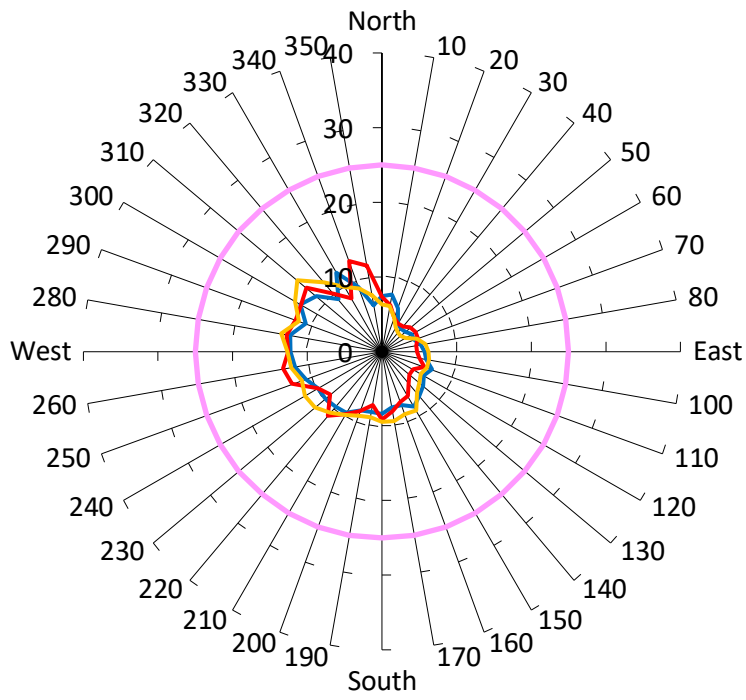
Results for P19

Gust Equivalent Mean (m/s)



Comfort Criteria: 3m/s with 20% probability of exceedence

Maximum Gust (m/s)

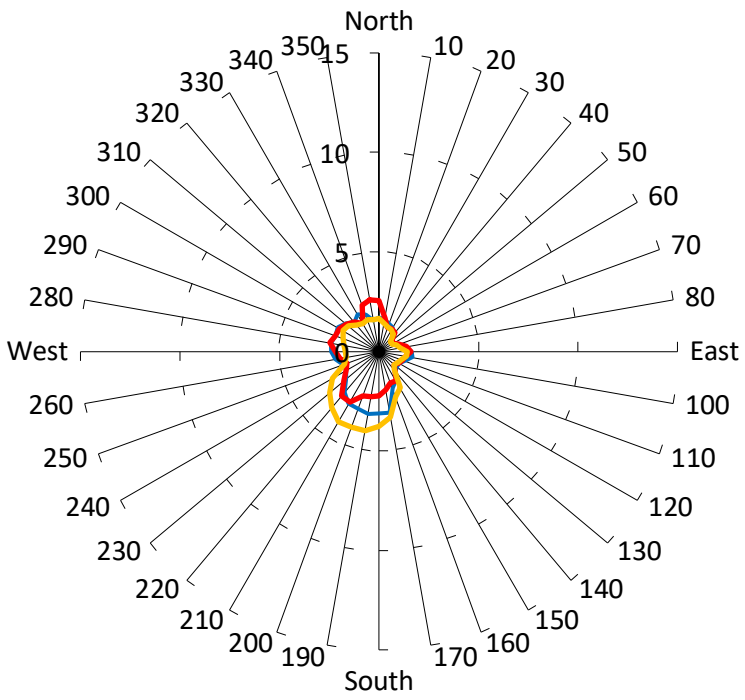


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Sitting Activities (10km/h, 3m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	26%	13
With proposed development and future surrounds case. No vegetation or other treatments.	29%	13
WE191-07 Proposed Case with inclusion of treatments (rev0)	33%	15

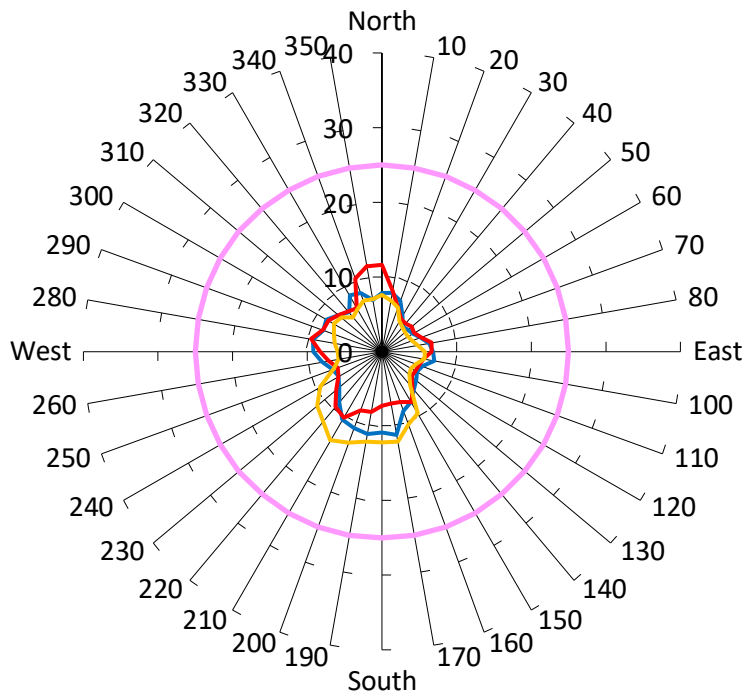
Results for P20

Gust Equivalent Mean (m/s)



Comfort Criteria: 3m/s with 20% probability of exceedence

Maximum Gust (m/s)

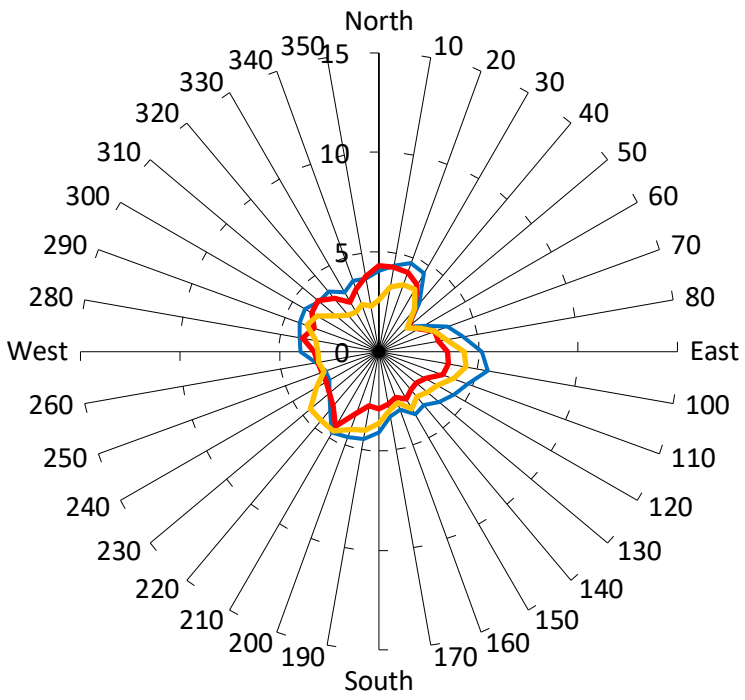


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Sitting Activities (10km/h, 3m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	21%	11
With proposed development and future surrounds case. No vegetation or other treatments.	15%	12
WE191-07 Proposed Case with inclusion of treatments (rev0)	29%	14

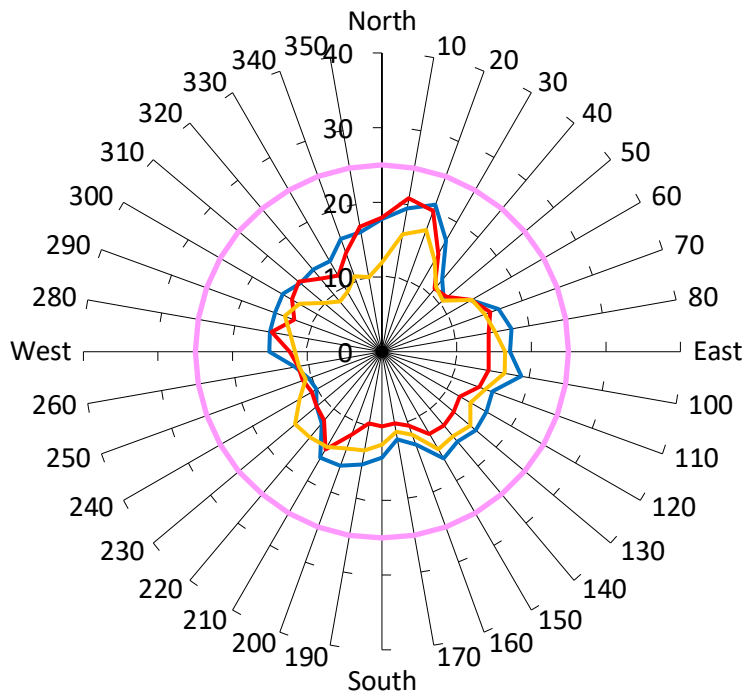
Results for P22

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

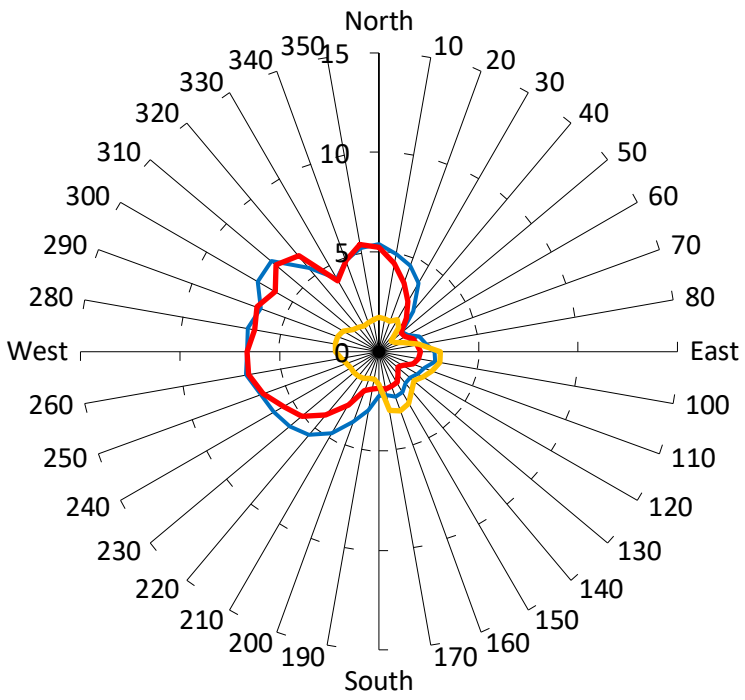


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	28%	21
With proposed development and future surrounds case. No vegetation or other treatments.	16%	21
WE191-07 Proposed Case with inclusion of treatments (rev0)	18%	17

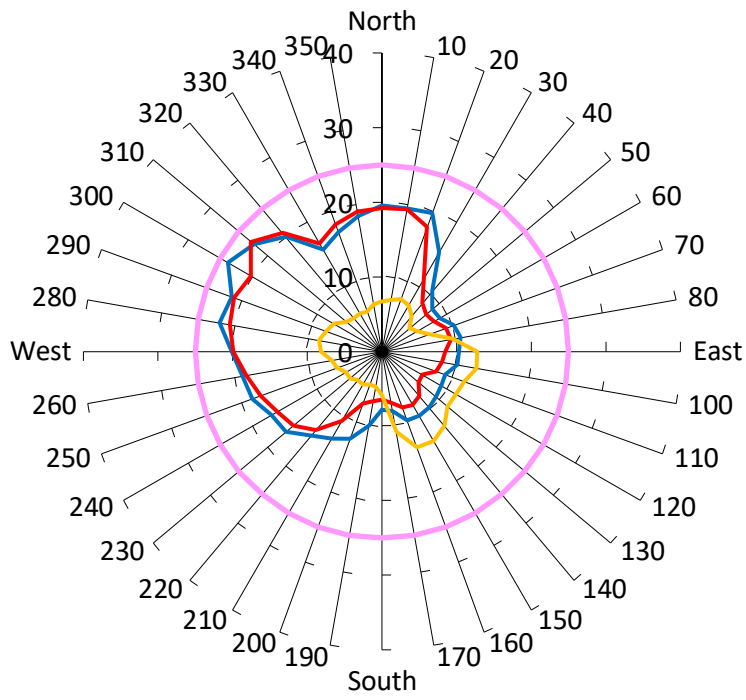
Results for P23

Gust Equivalent Mean (m/s)



Comfort Criteria: 4m/s with 20% probability of exceedence

Maximum Gust (m/s)

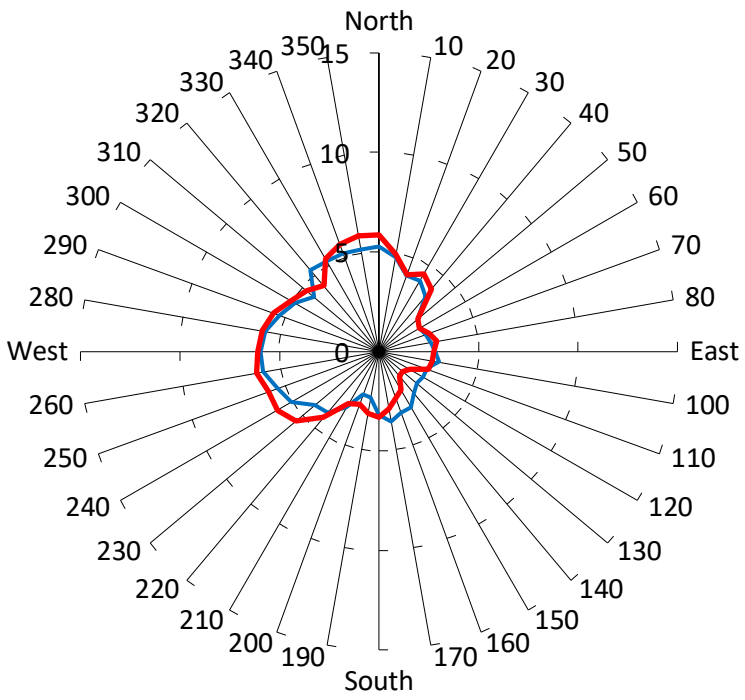


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Standing Activities (14km/h, 4m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	42%	24
With proposed development and future surrounds case. No vegetation or other treatments.	35%	23
WE191-07 Proposed Case with inclusion of treatments (rev0)	7%	14

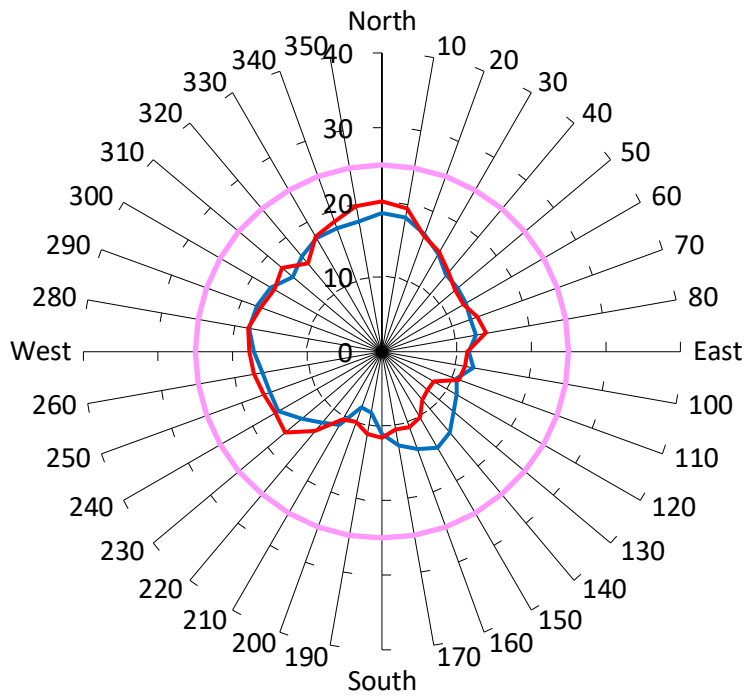
Results for P24

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

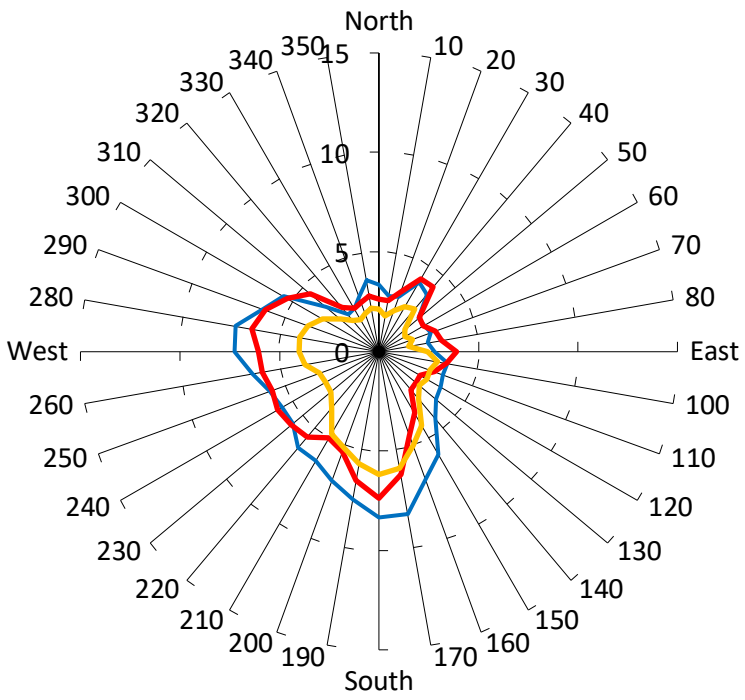


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	32%	19
With proposed development and future surrounds case. No vegetation or other treatments.	34%	20

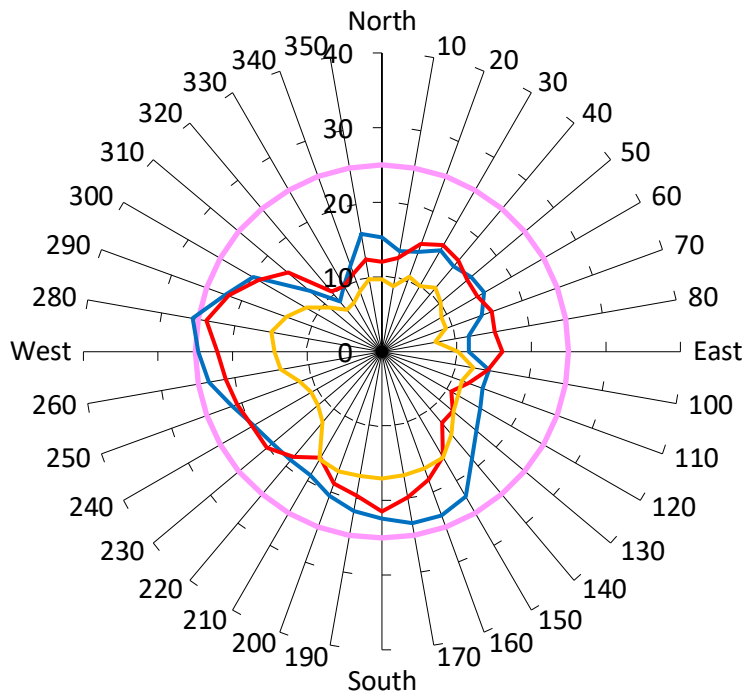
Results for P25

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

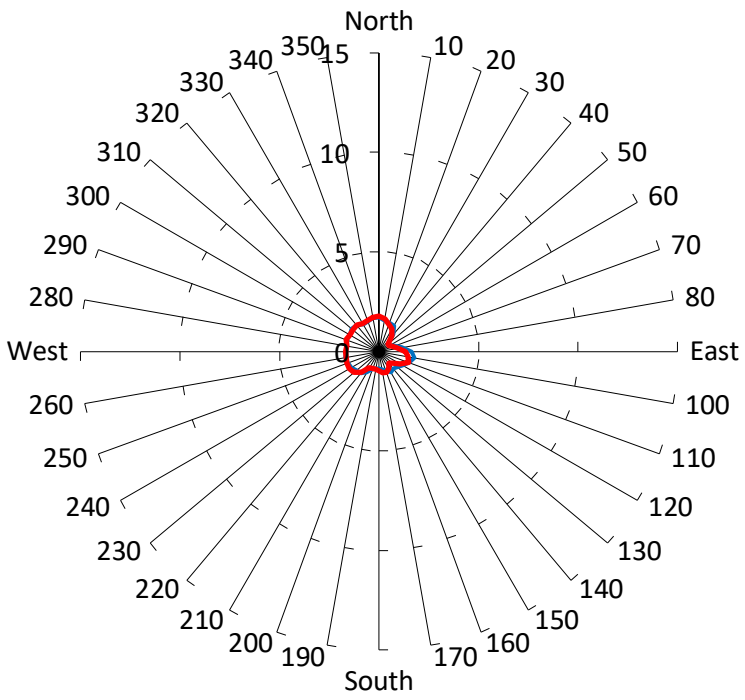


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	46%	26
With proposed development and future surrounds case. No vegetation or other treatments.	42%	24
WE191-07 Proposed Case with inclusion of treatments (rev0)	23%	17

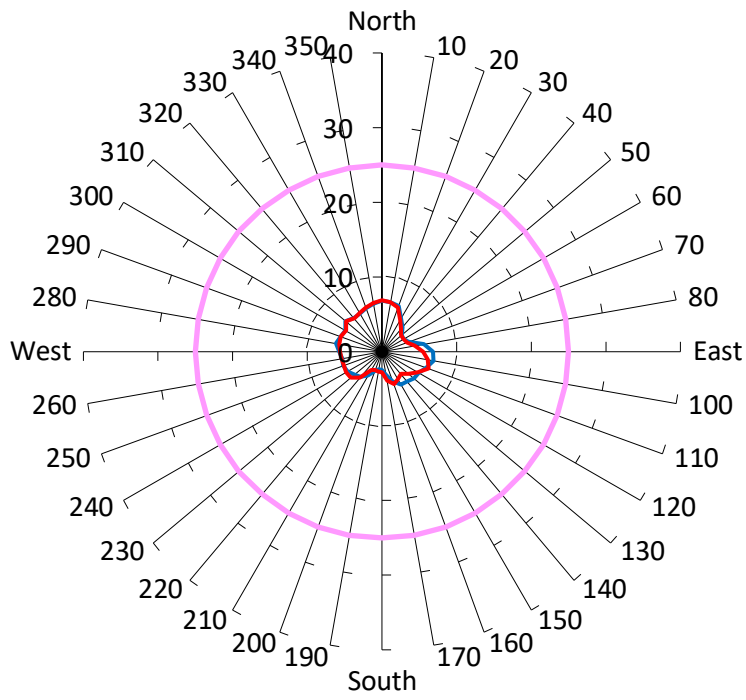
Results for P26

Gust Equivalent Mean (m/s)



Comfort Criteria: 4m/s with 20% probability of exceedence

Maximum Gust (m/s)

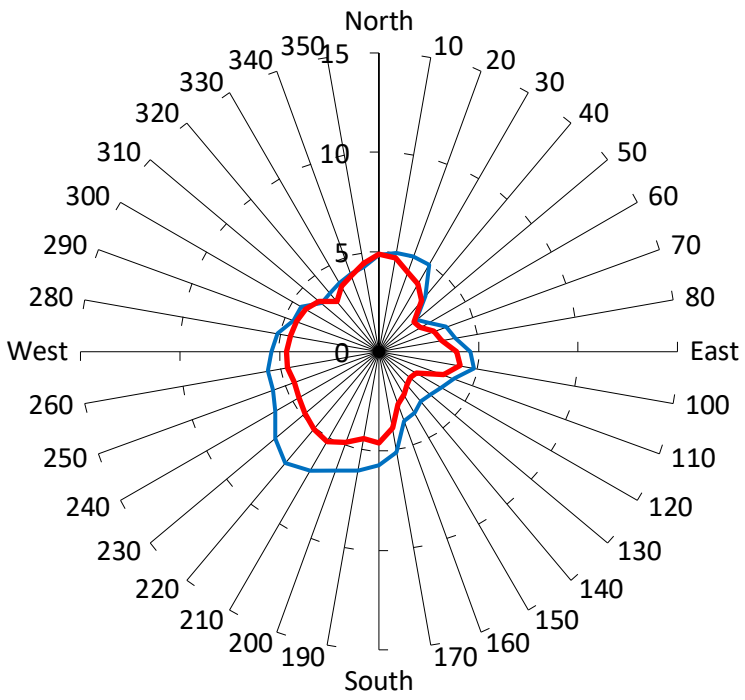


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Standing Activities (14km/h, 4m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	0%	7
With proposed development and future surrounds case. No vegetation or other treatments.	0%	7

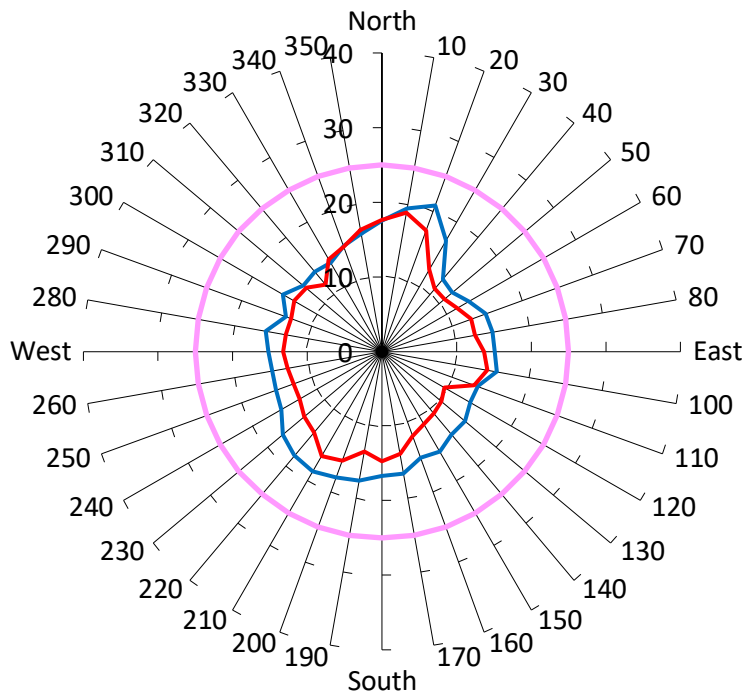
Results for P27

Gust Equivalent Mean (m/s)



Comfort Criteria: 4m/s with 20% probability of exceedence

Maximum Gust (m/s)

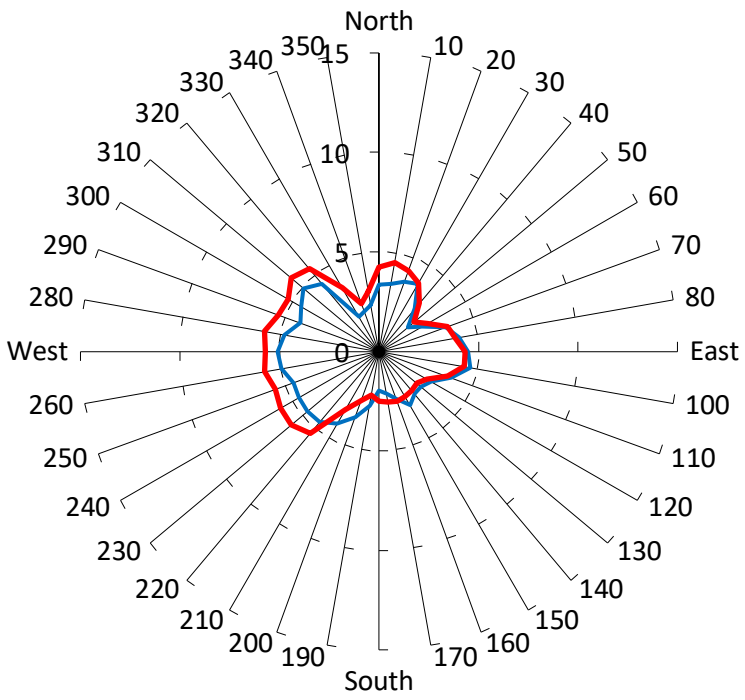


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Standing Activities (14km/h, 4m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	56%	21
With proposed development and future surrounds case. No vegetation or other treatments.	50%	19

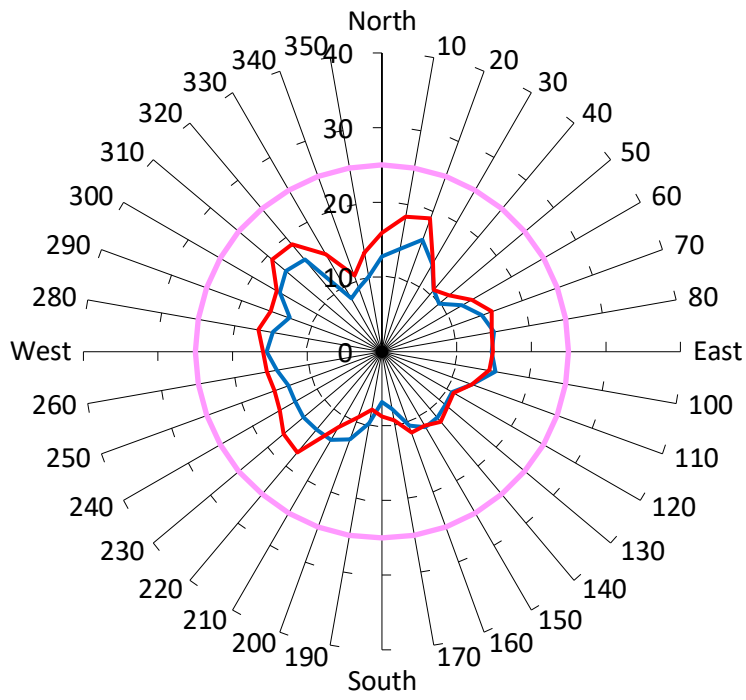
Results for P28

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

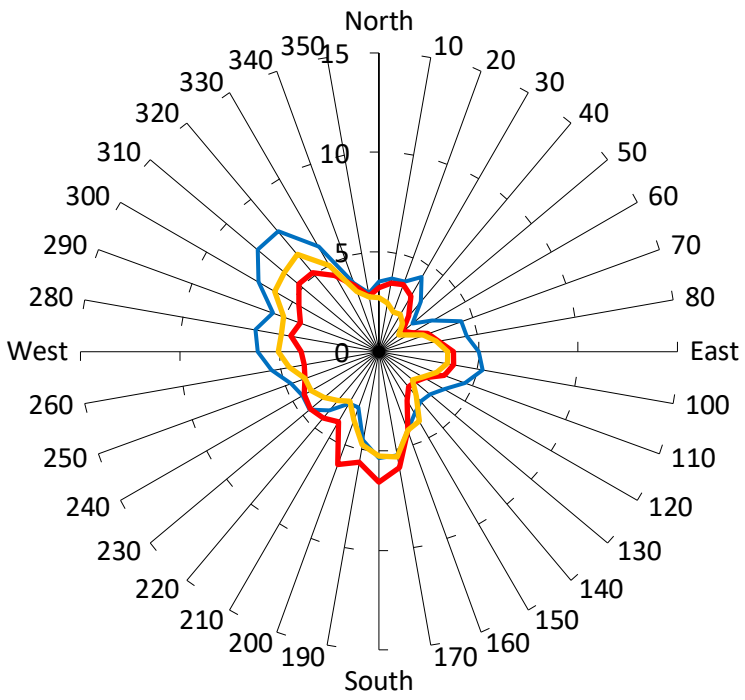


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	27%	17
With proposed development and future surrounds case. No vegetation or other treatments.	35%	19

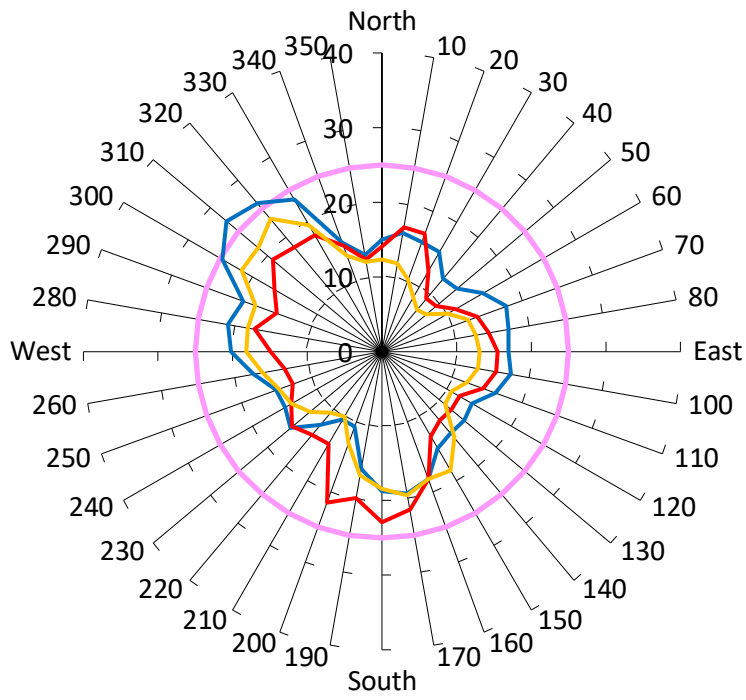
Results for P29

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

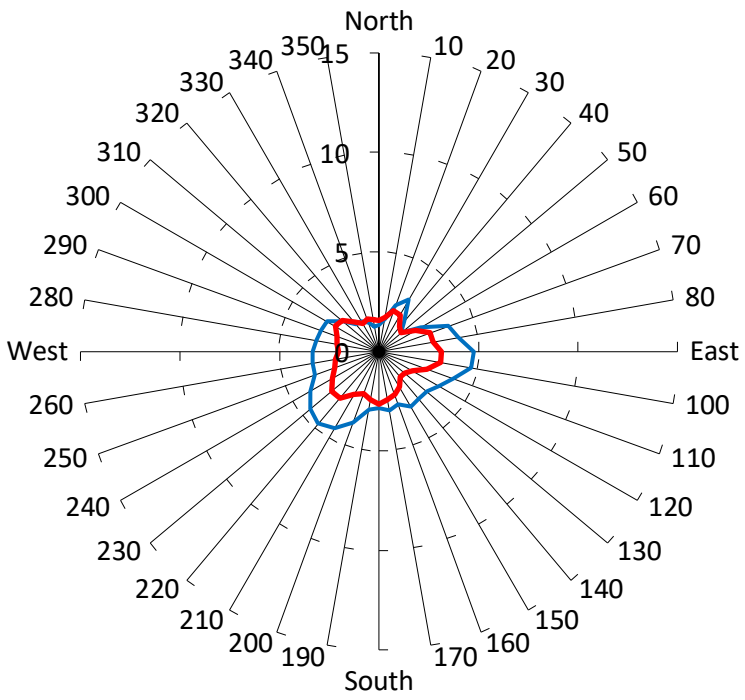


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	39%	27
With proposed development and future surrounds case. No vegetation or other treatments.	34%	23
WE191-07 Proposed Case with inclusion of treatments (rev0)	29%	23

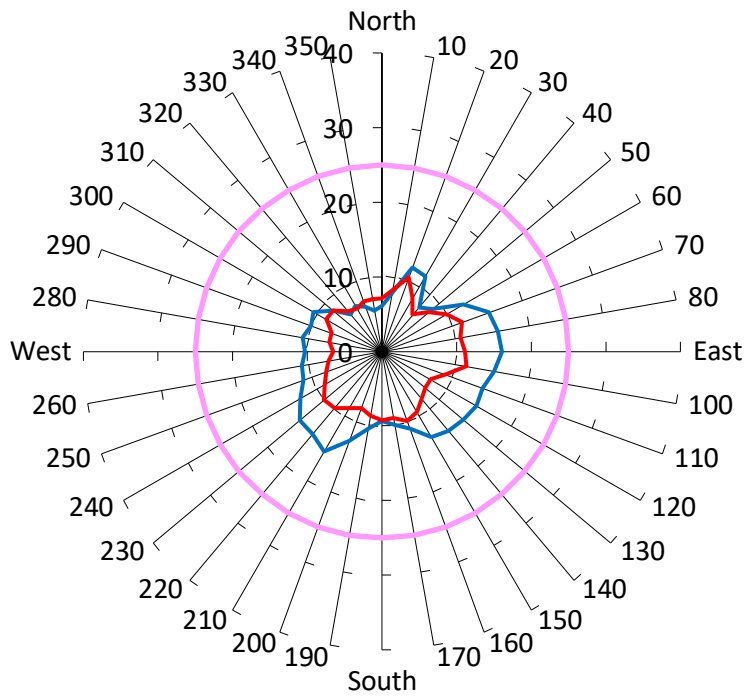
Results for P31

Gust Equivalent Mean (m/s)



Comfort Criteria: 3m/s with 20% probability of exceedence

Maximum Gust (m/s)

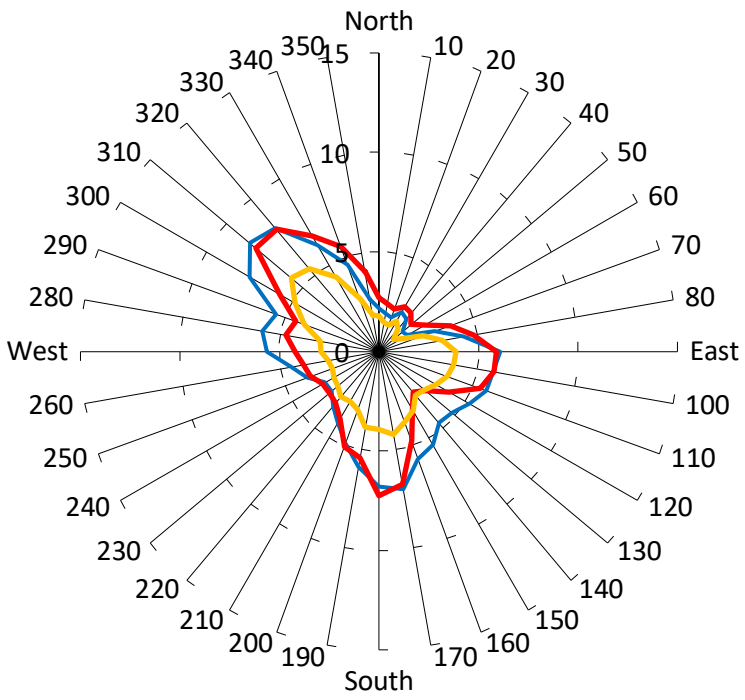


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Sitting Activities (10km/h, 3m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	47%	16
With proposed development and future surrounds case. No vegetation or other treatments.	26%	12

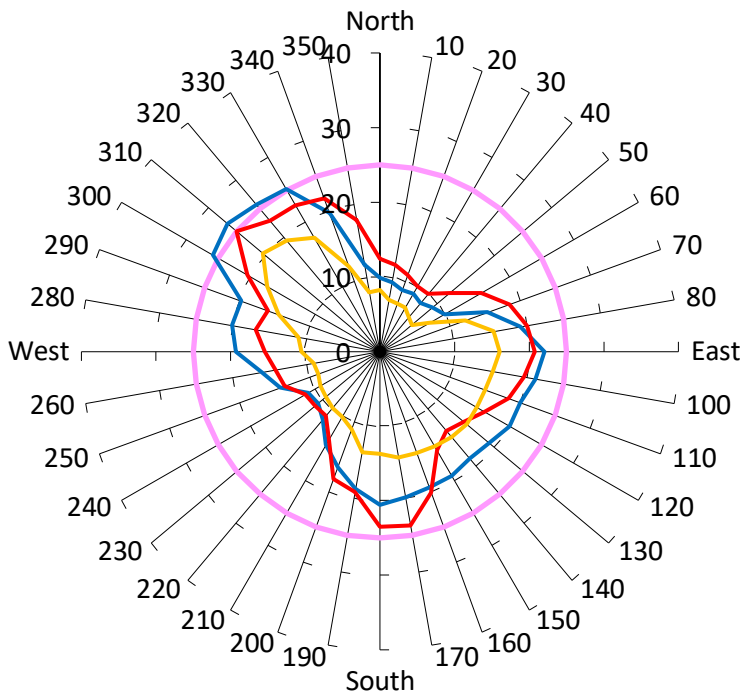
Results for P32

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

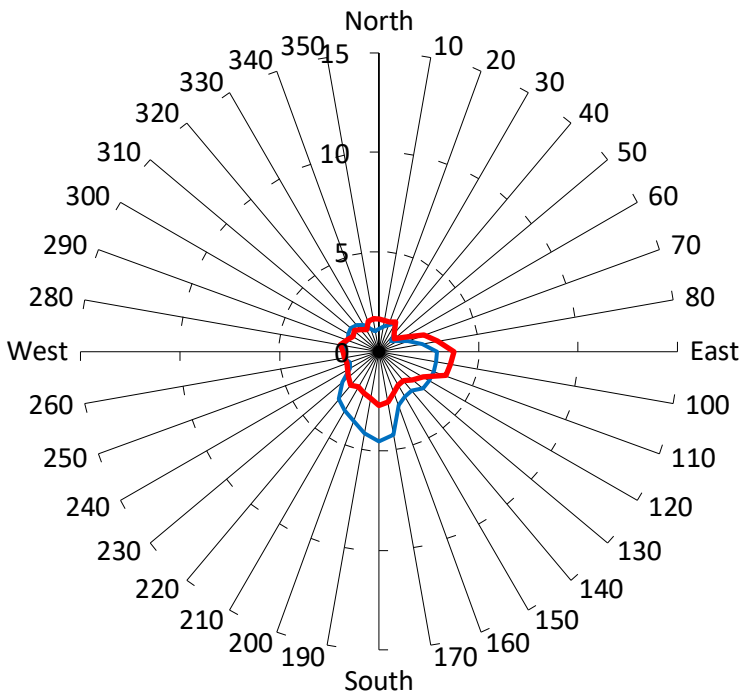


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	41%	27
With proposed development and future surrounds case. No vegetation or other treatments.	38%	25
WE191-07 Proposed Case with inclusion of treatments (rev0)	17%	20

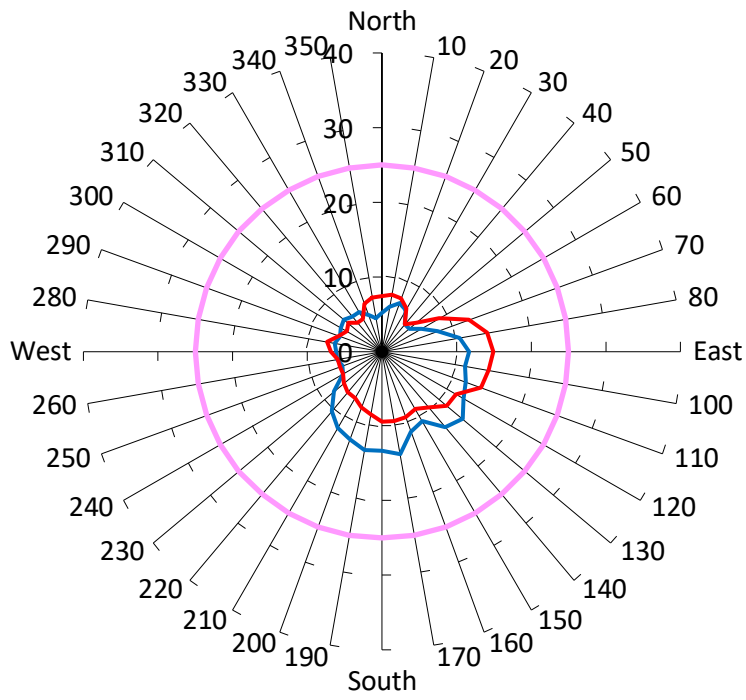
Results for P33

Gust Equivalent Mean (m/s)



Comfort Criteria: 3m/s with 20% probability of exceedence

Maximum Gust (m/s)

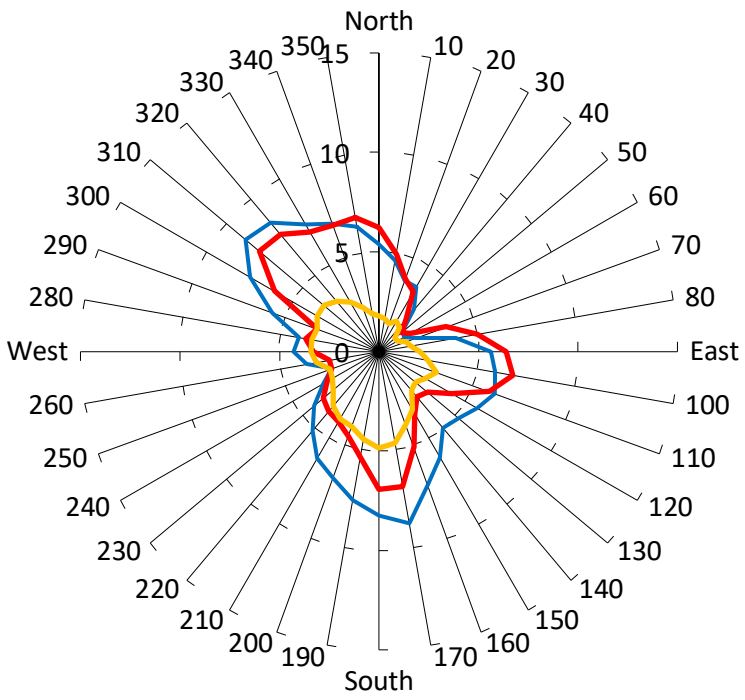


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Sitting Activities (10km/h, 3m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	33%	14
With proposed development and future surrounds case. No vegetation or other treatments.	18%	15

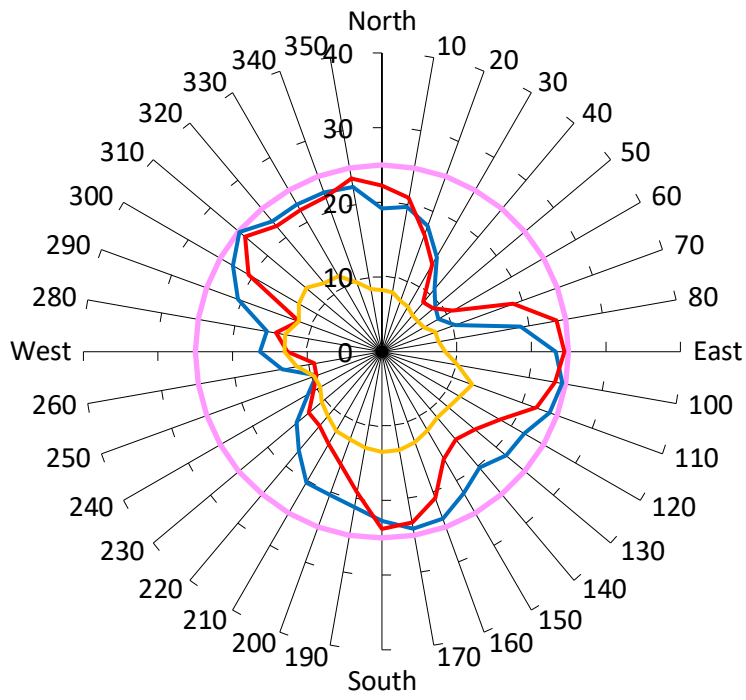
Results for P34

Gust Equivalent Mean (m/s)



Comfort Criteria: 4m/s with 20% probability of exceedence

Maximum Gust (m/s)

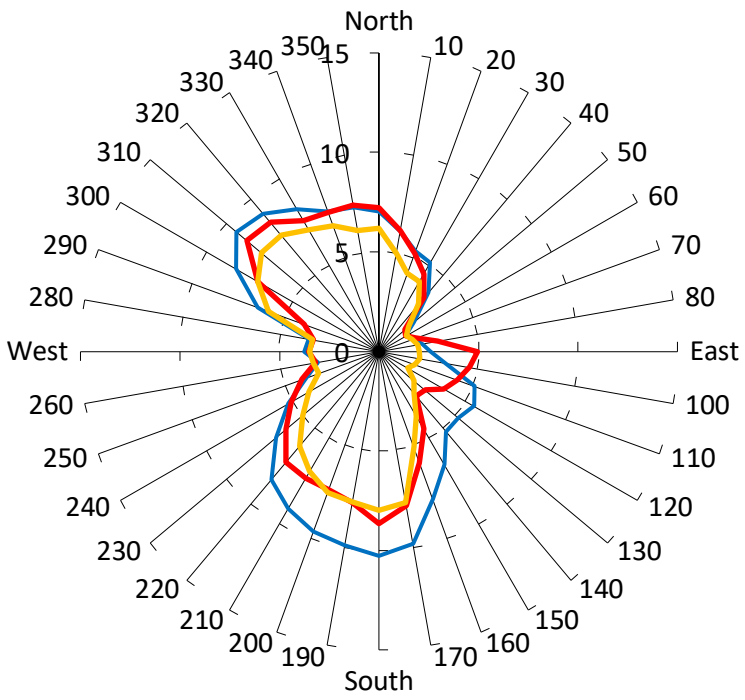


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Standing Activities (14km/h, 4m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	54%	25
With proposed development and future surrounds case. No vegetation or other treatments.	48%	24
WE191-07 Proposed Case with inclusion of treatments (rev0)	29%	13

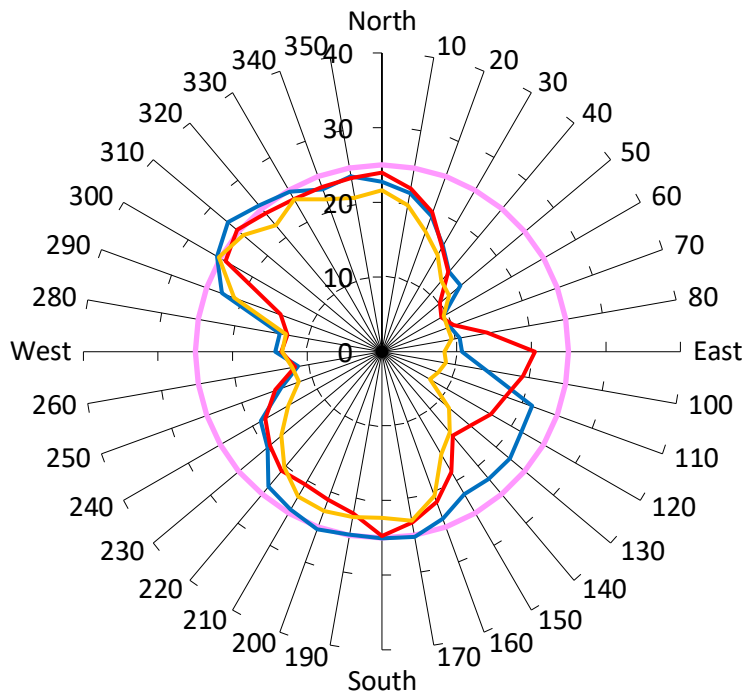
Results for P36

Gust Equivalent Mean (m/s)



Comfort Criteria: 4m/s with 20% probability of exceedence

Maximum Gust (m/s)

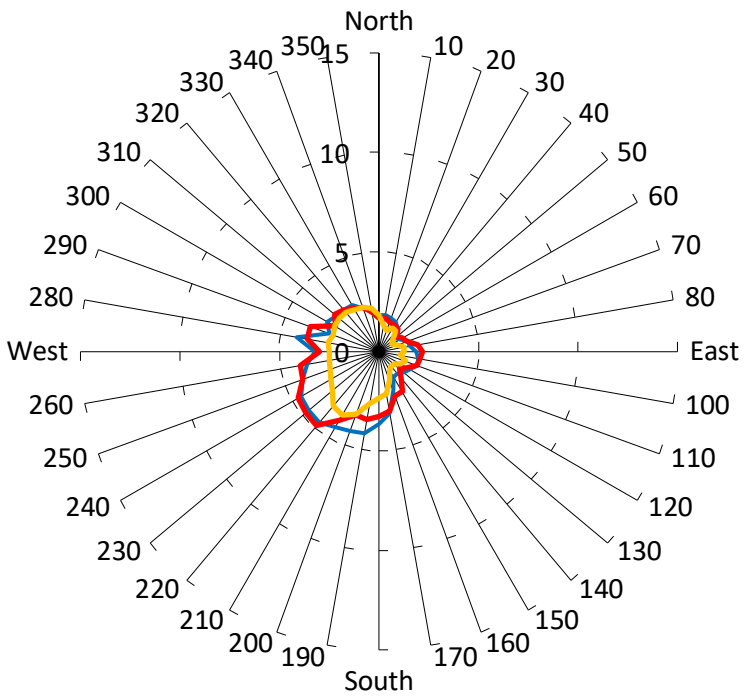


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Standing Activities (14km/h, 4m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	55%	27
With proposed development and future surrounds case. No vegetation or other treatments.	55%	25
WE191-07 Proposed Case with inclusion of treatments (rev0)	49%	25

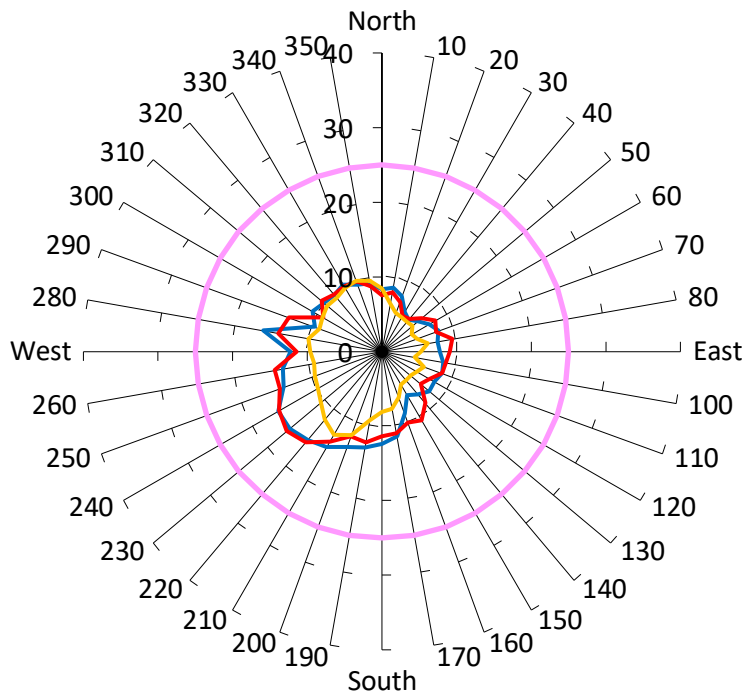
Results for P37

Gust Equivalent Mean (m/s)



Comfort Criteria: 4m/s with 20% probability of exceedence

Maximum Gust (m/s)

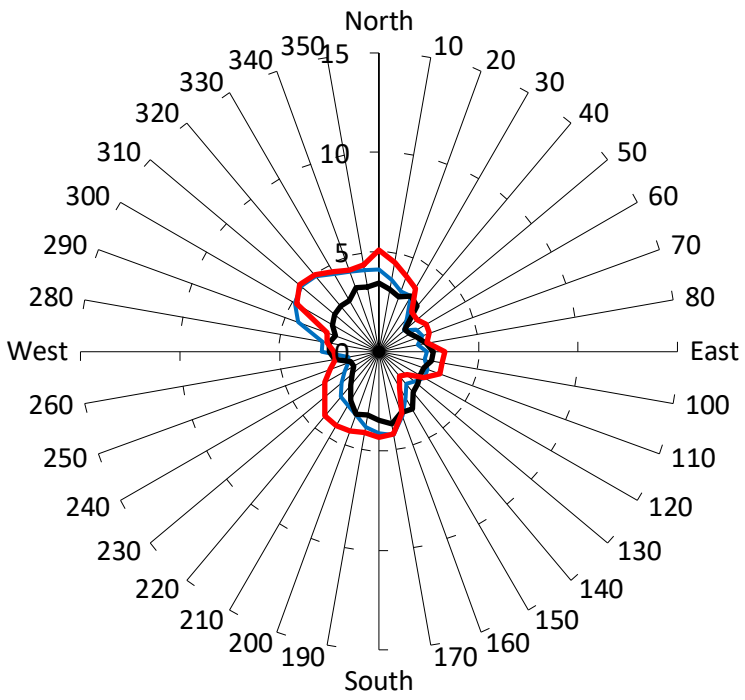


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Comfortable Standing Activities (14km/h, 4m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	28%	16
With proposed development and future surrounds case. No vegetation or other treatments.	26%	17
WE191-07 Proposed Case with inclusion of treatments (rev0)	8%	13

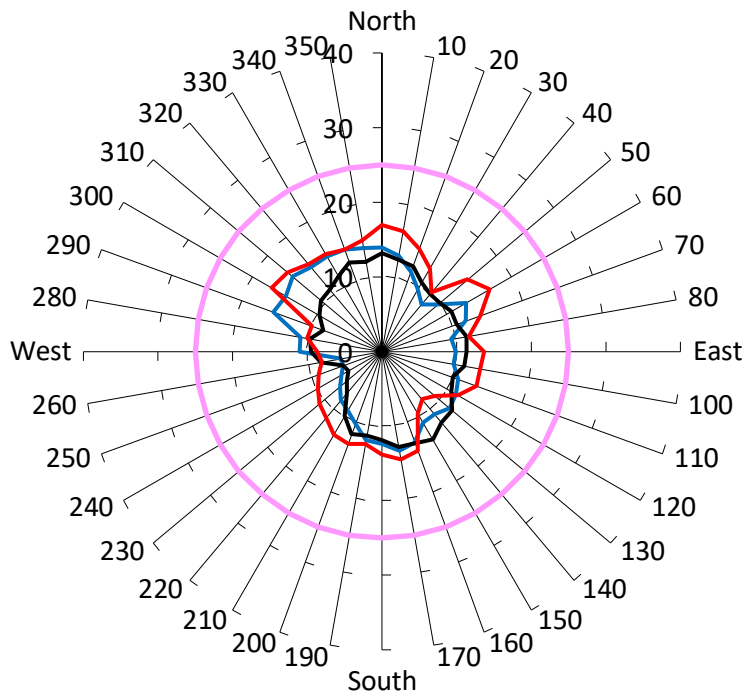
Results for P38

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

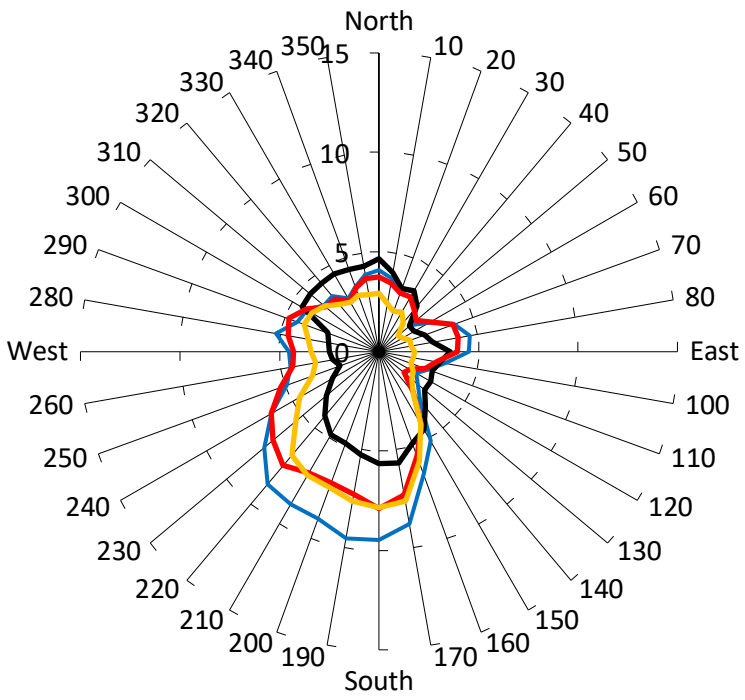


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	18%	16
Existing site conditions. No vegetation or other treatments.	8%	14
With proposed development and future surrounds case. No vegetation or other treatments.	24%	17

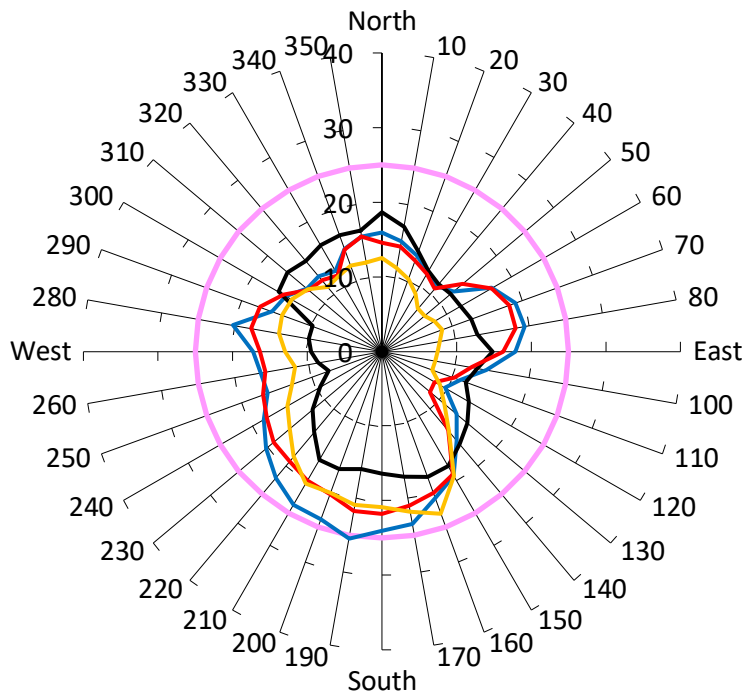
Results for P39

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)

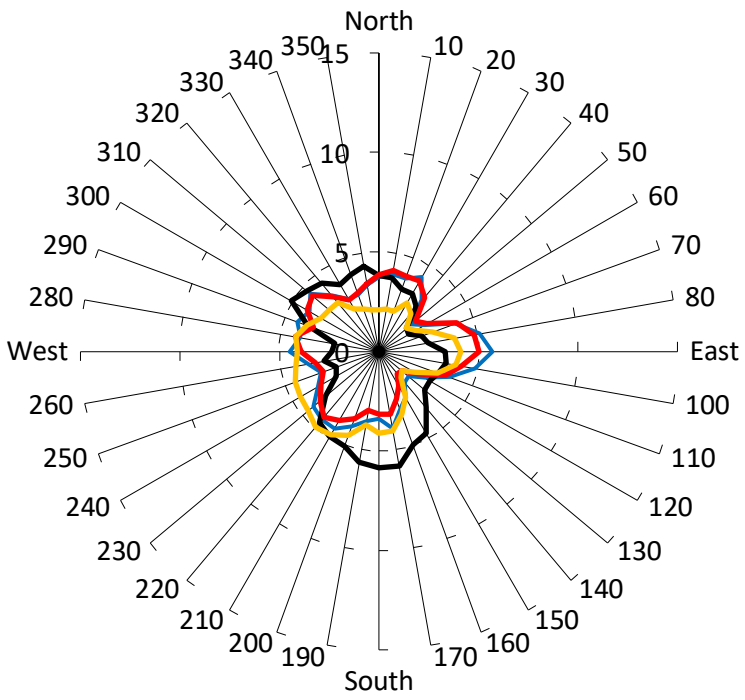


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	46%	25
Existing site conditions. No vegetation or other treatments.	31%	19
With proposed development and future surrounds case. No vegetation or other treatments.	43%	22
WE191-07 Proposed Case with inclusion of treatments (rev0)	33%	23

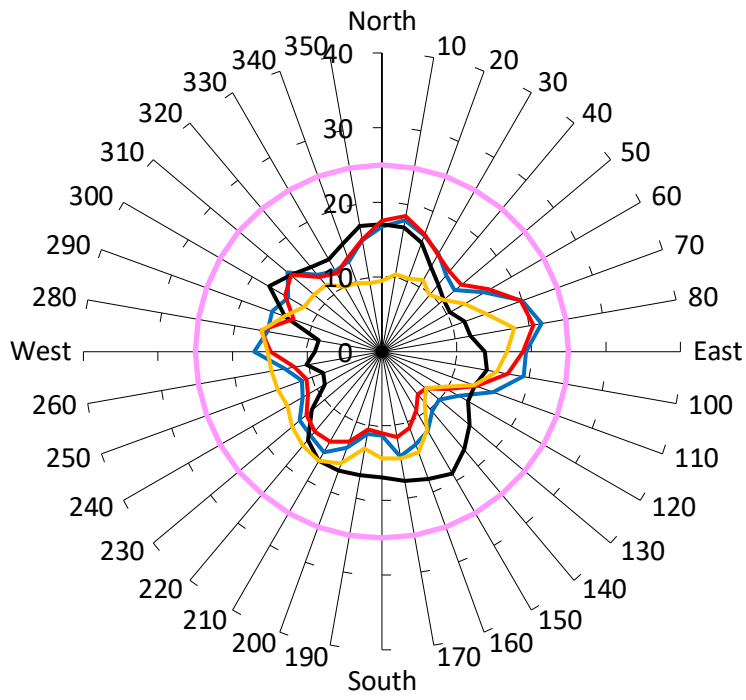
Results for P40

Gust Equivalent Mean (m/s)



Comfort Criteria: 5m/s with 20% probability of exceedence

Maximum Gust (m/s)



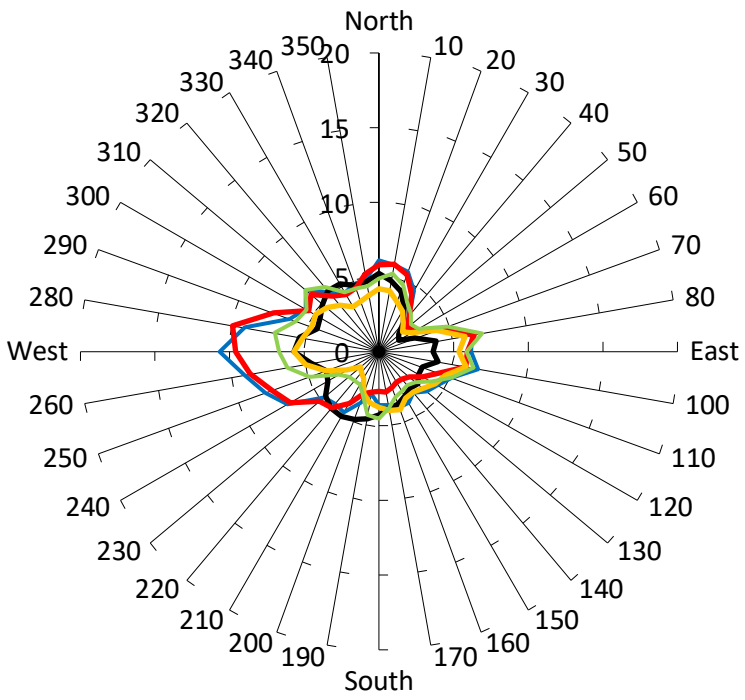
Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Strolling Activities (17km/h, 5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	24%	22
Existing site conditions. No vegetation or other treatments.	32%	19
With proposed development and future surrounds case. No vegetation or other treatments.	20%	21
WE191-07 Proposed Case with inclusion of treatments (rev0)	20%	18

C.3 Winter Criteria Directional Plots

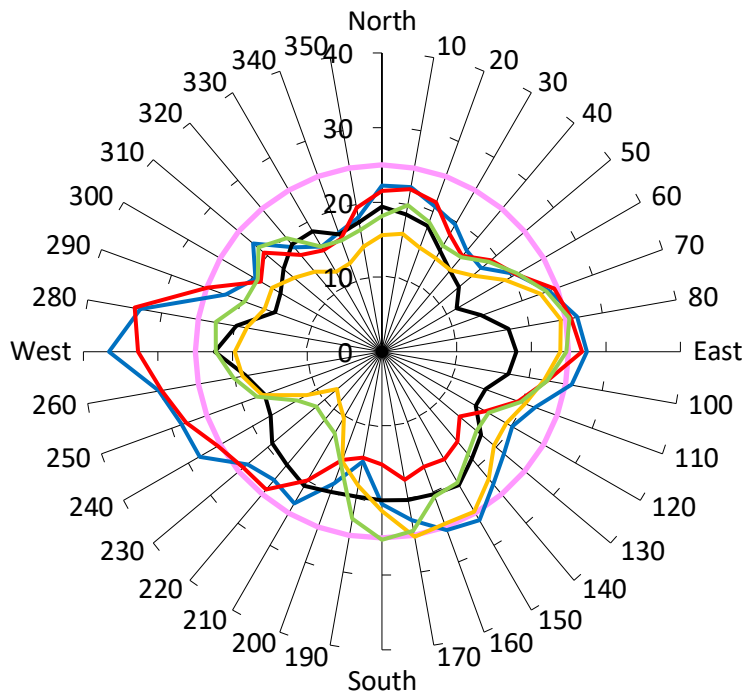
Results for P01

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

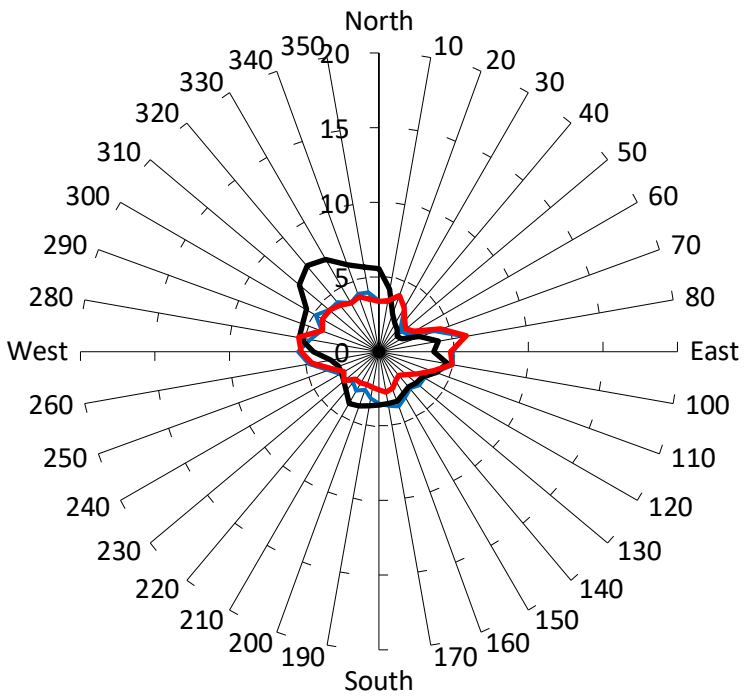


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	42%	37
Existing site conditions. No vegetation or other treatments.	32%	22
With proposed development and future surrounds case. No vegetation or other treatments.	42%	34
WE191-07 Proposed Case with inclusion of treatments (rev0)	26%	25
WE191-06 Future Case with inclusion of 6 full-height wind blades	39%	26

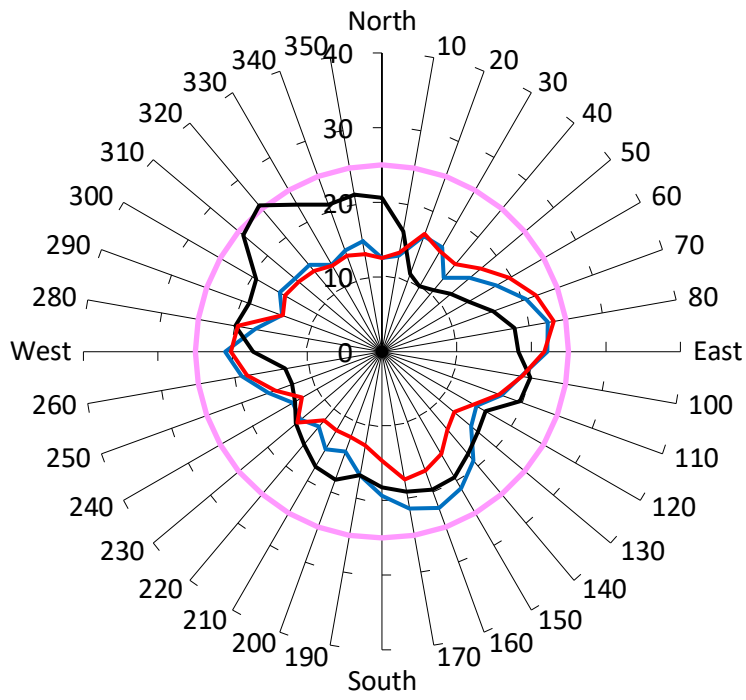
Results for P02

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

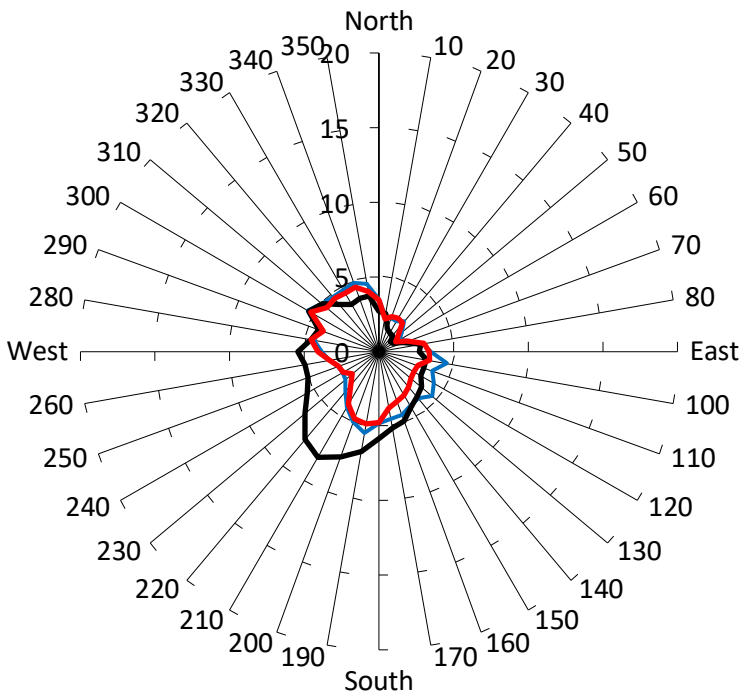


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	23%	23
Existing site conditions. No vegetation or other treatments.	35%	26
With proposed development and future surrounds case. No vegetation or other treatments.	19%	23

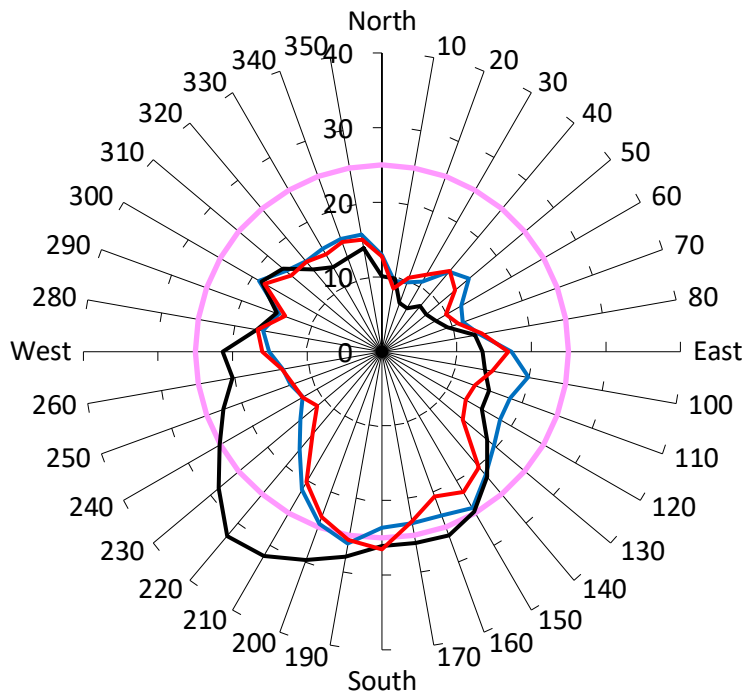
Results for P03

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

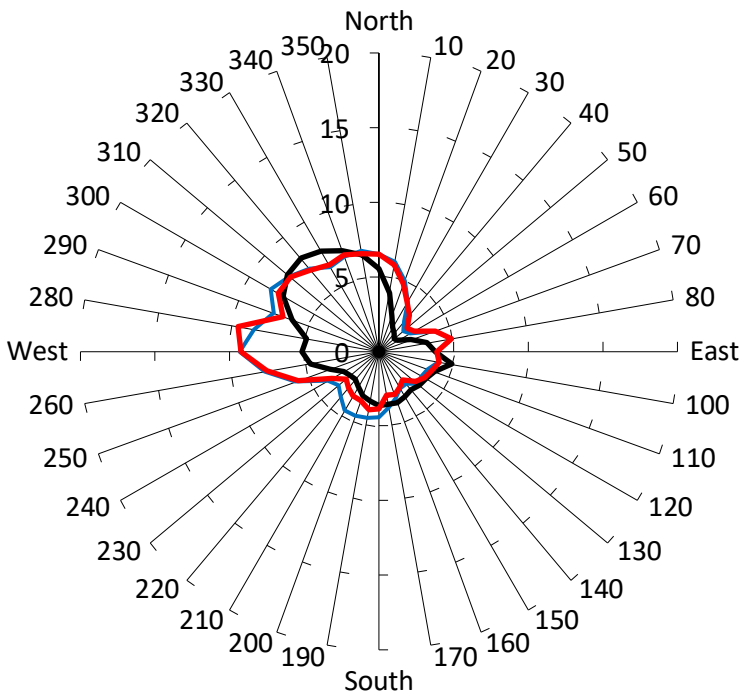


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	26%	26
Existing site conditions. No vegetation or other treatments.	30%	32
With proposed development and future surrounds case. No vegetation or other treatments.	19%	27

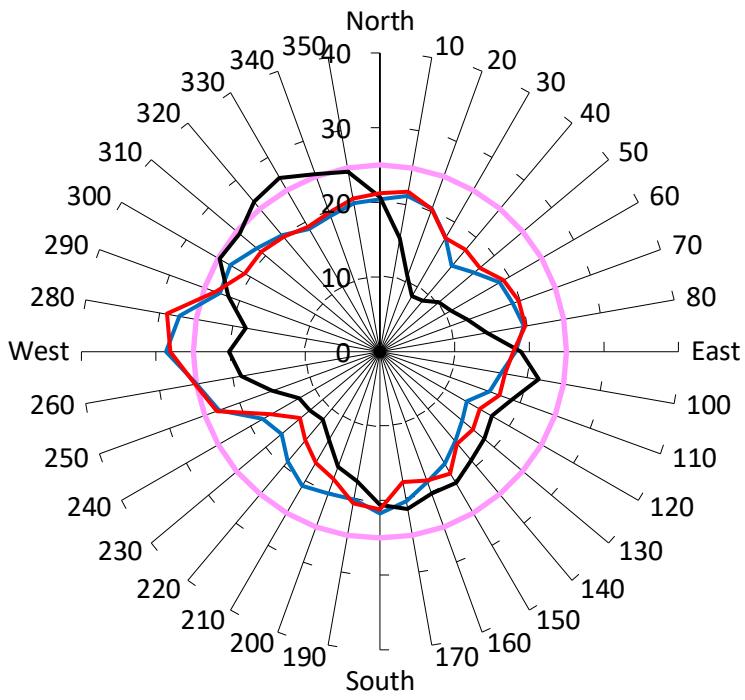
Results for P04

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

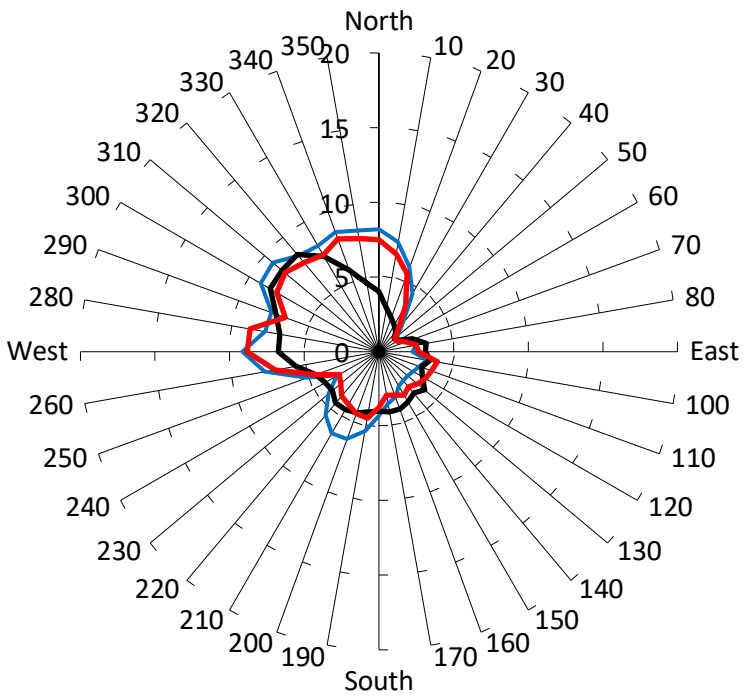


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	48%	29
Existing site conditions. No vegetation or other treatments.	37%	27
With proposed development and future surrounds case. No vegetation or other treatments.	46%	29

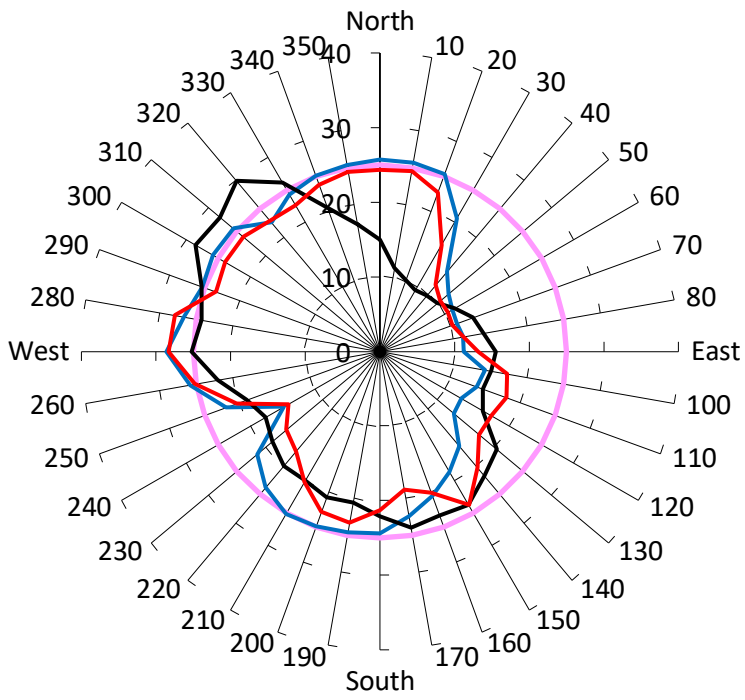
Results for P05

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

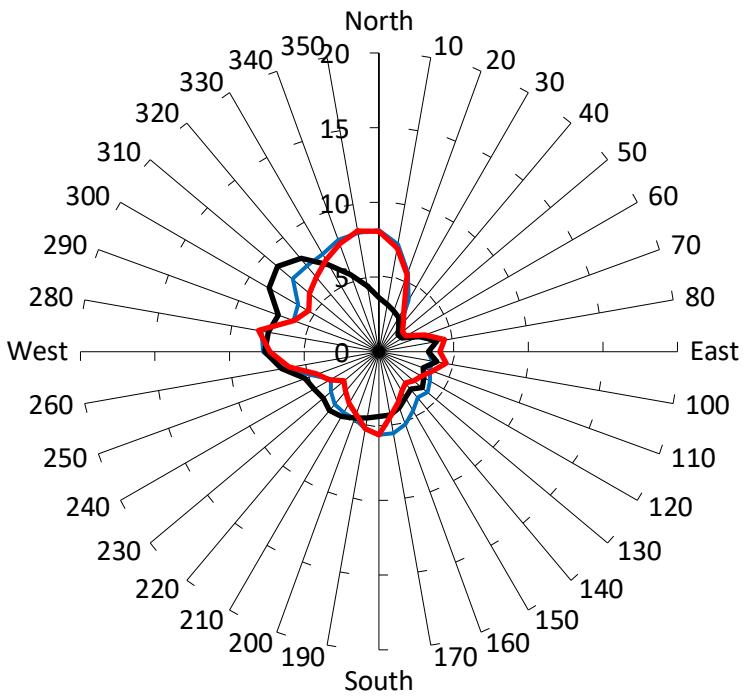


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	48%	29
Existing site conditions. No vegetation or other treatments.	41%	30
With proposed development and future surrounds case. No vegetation or other treatments.	45%	28

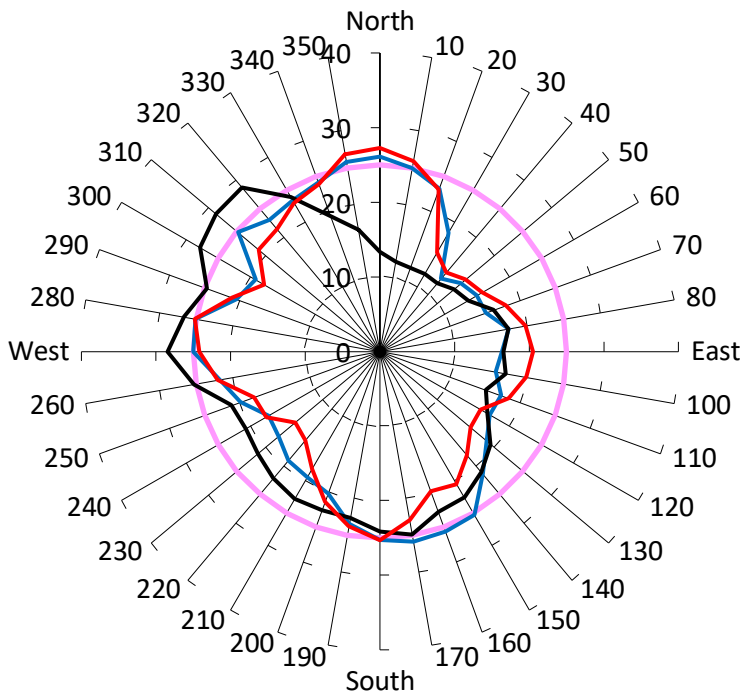
Results for P06

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

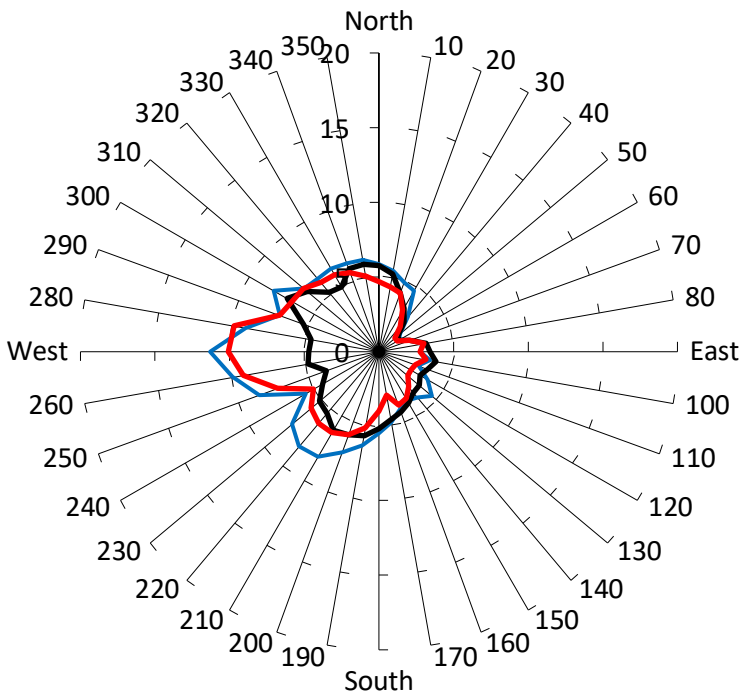


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	49%	26
Existing site conditions. No vegetation or other treatments.	43%	29
With proposed development and future surrounds case. No vegetation or other treatments.	46%	27

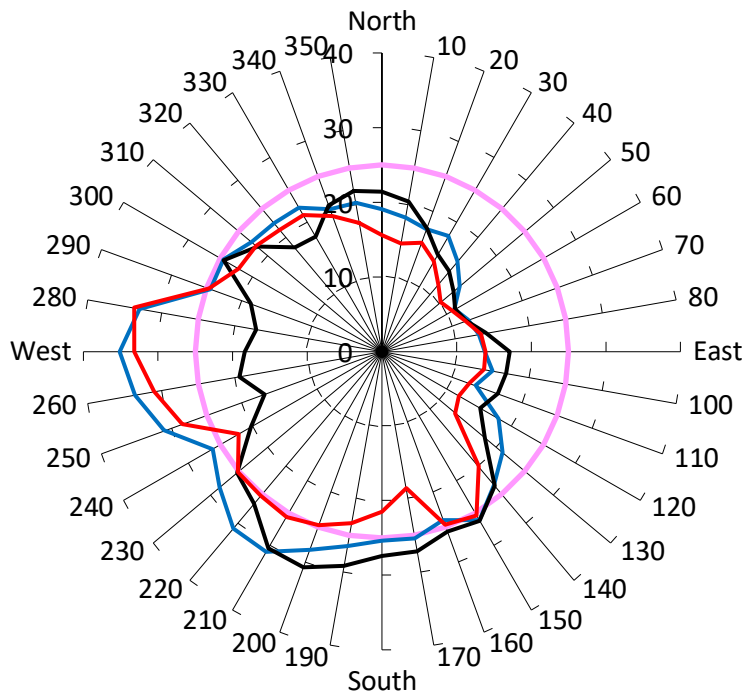
Results for P07

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

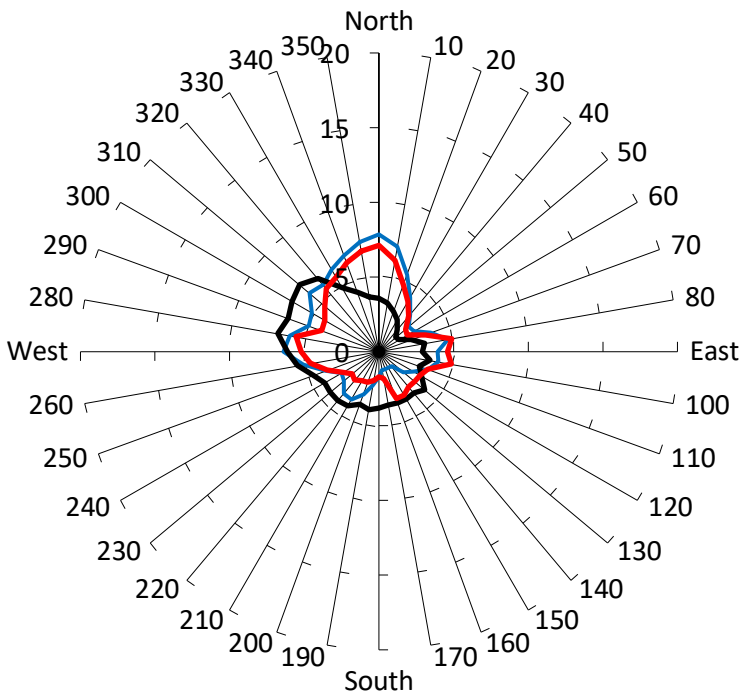


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	52%	35
Existing site conditions. No vegetation or other treatments.	40%	31
With proposed development and future surrounds case. No vegetation or other treatments.	44%	34

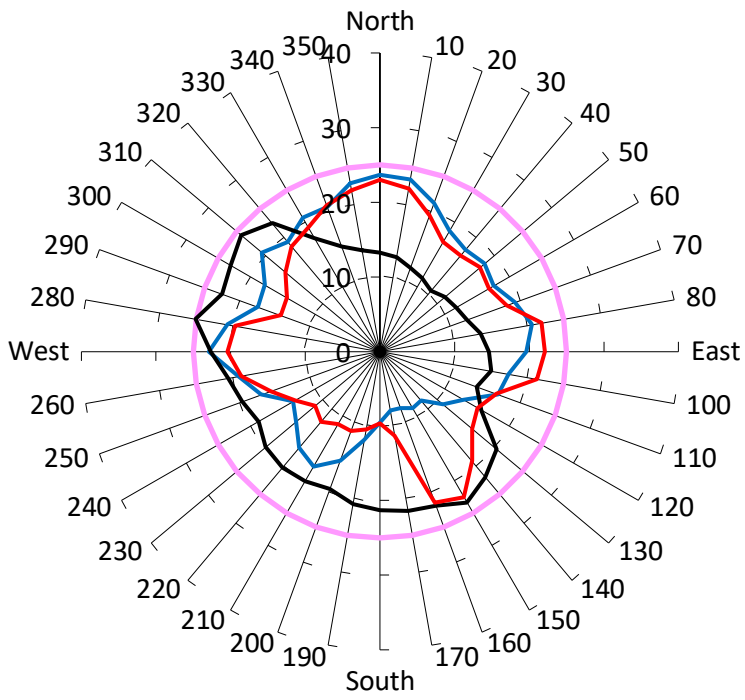
Results for P08

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

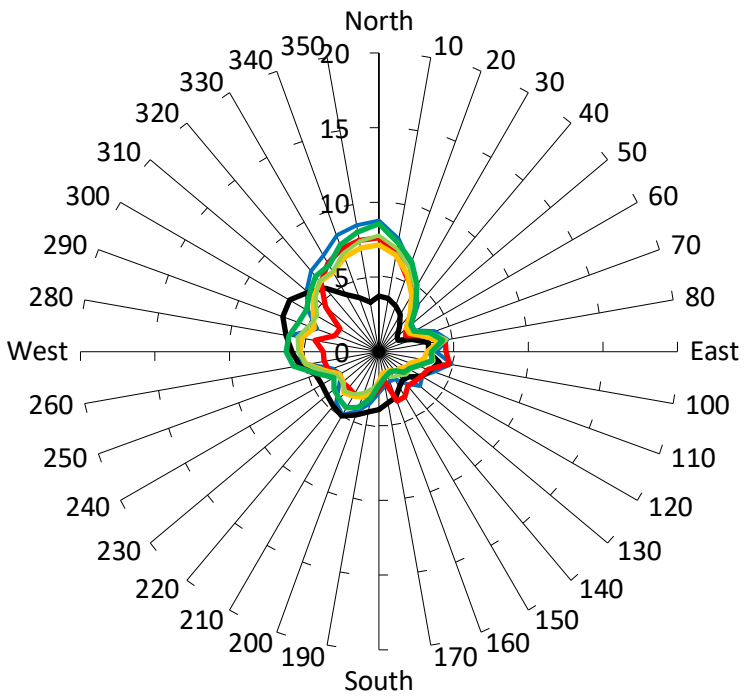


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	37%	24
Existing site conditions. No vegetation or other treatments.	36%	25
With proposed development and future surrounds case. No vegetation or other treatments.	32%	23

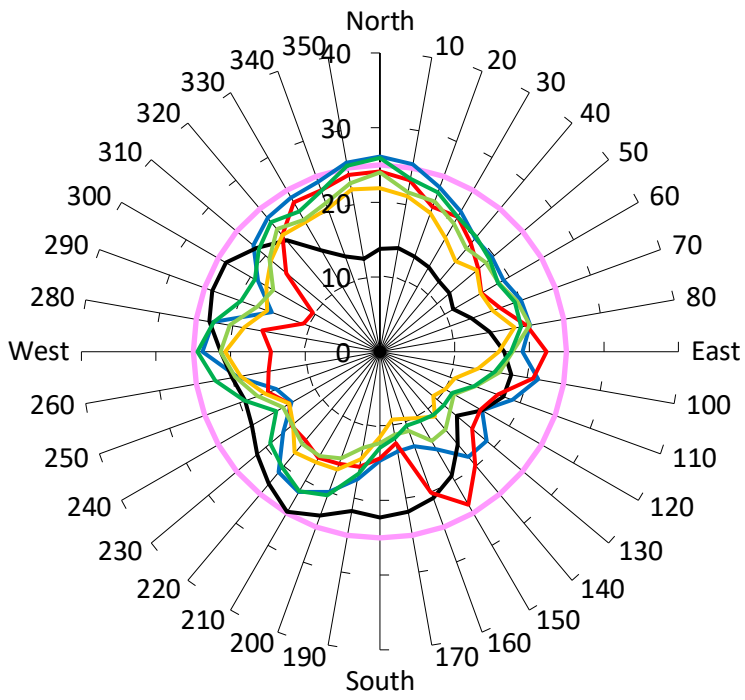
Results for P09

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

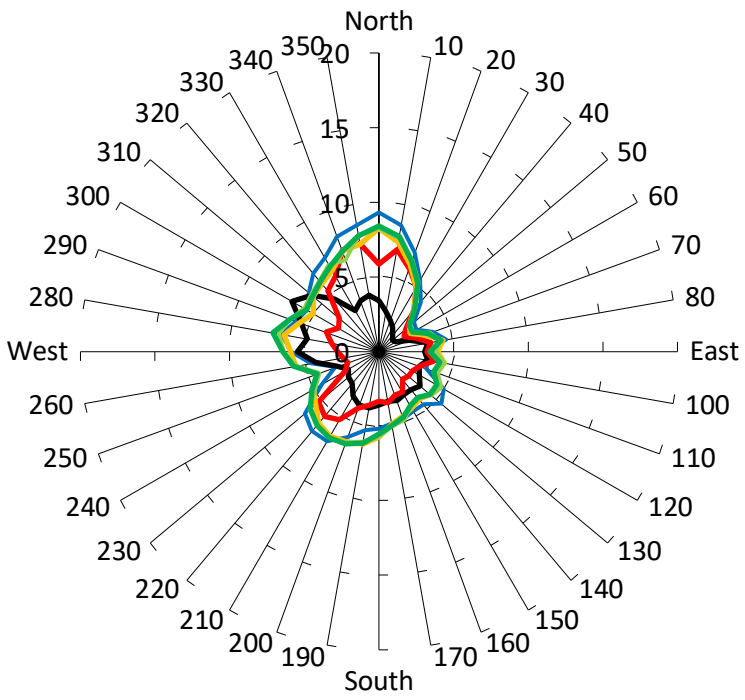


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	43%	26
Existing site conditions. No vegetation or other treatments.	34%	25
With proposed development and future surrounds case. No vegetation or other treatments.	32%	24
WE191-07 Proposed Case with inclusion of treatments (rev0) (2.0m wide awning)	33%	22
WE191-07 Proposed Case with inclusion of treatments (rev0) (1.5m wide awning)	35%	24
WE191-07 Proposed Case with inclusion of treatments (rev0) (1.2m wide awning)	42%	26

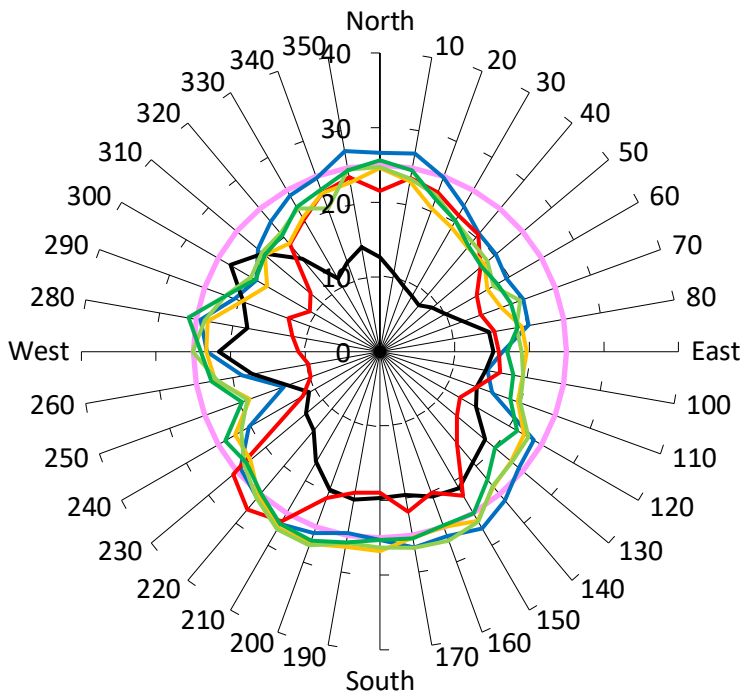
Results for P10

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

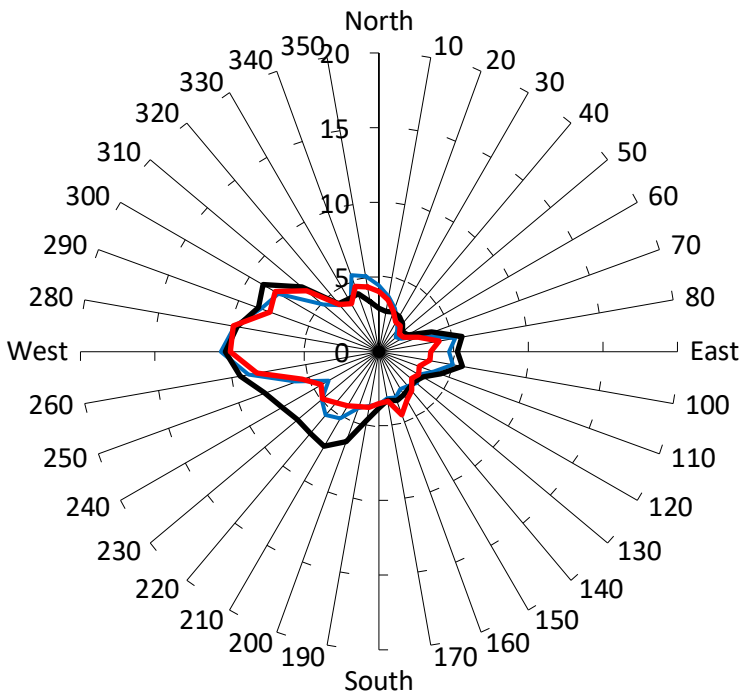


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	51%	27
Existing site conditions. No vegetation or other treatments.	23%	23
With proposed development and future surrounds case. No vegetation or other treatments.	31%	28
WE191-07 Proposed Case with inclusion of treatments (rev0) (2.0m wide awning)	50%	27
WE191-07 Proposed Case with inclusion of treatments (rev0) (1.5m wide awning)	52%	28
WE191-07 Proposed Case with inclusion of treatments (rev0) (1.2m wide awning)	52%	27

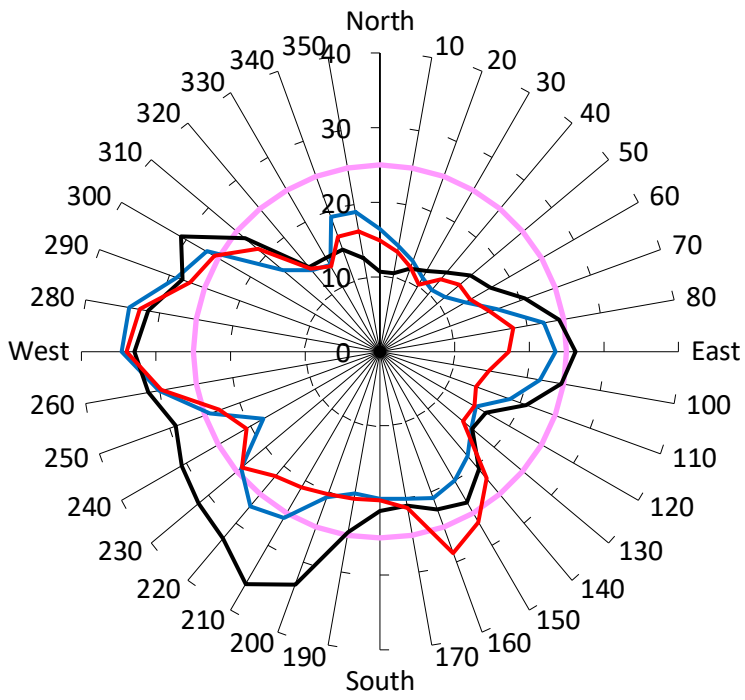
Results for P11

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

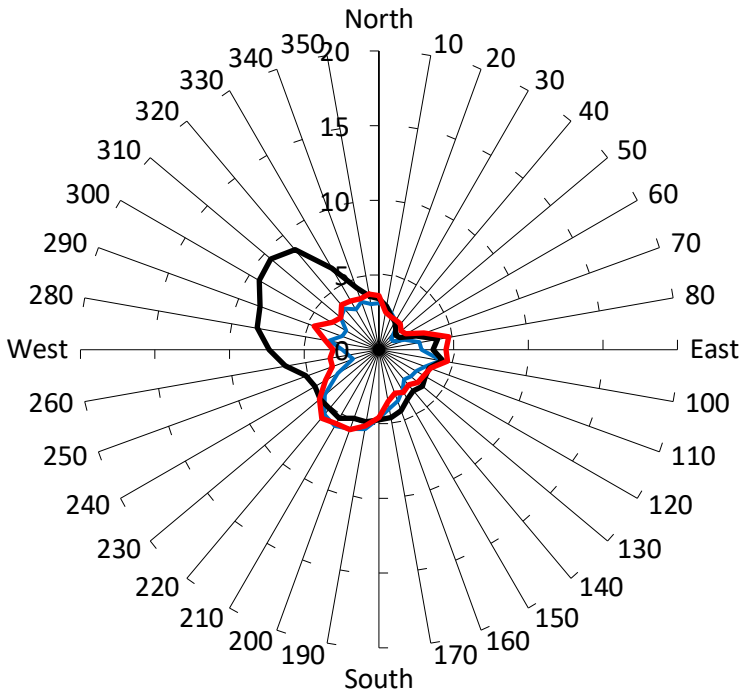


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	38%	35
Existing site conditions. No vegetation or other treatments.	42%	36
With proposed development and future surrounds case. No vegetation or other treatments.	36%	34

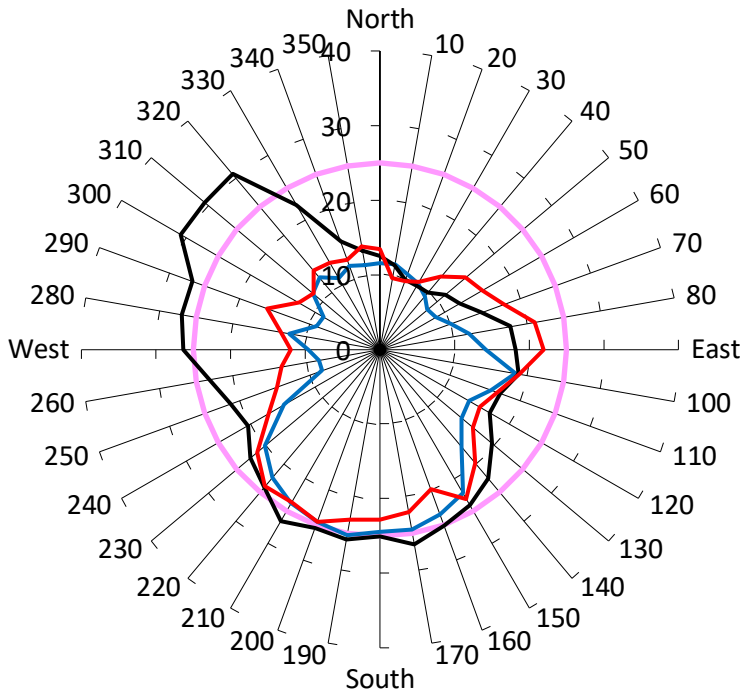
Results for P12

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

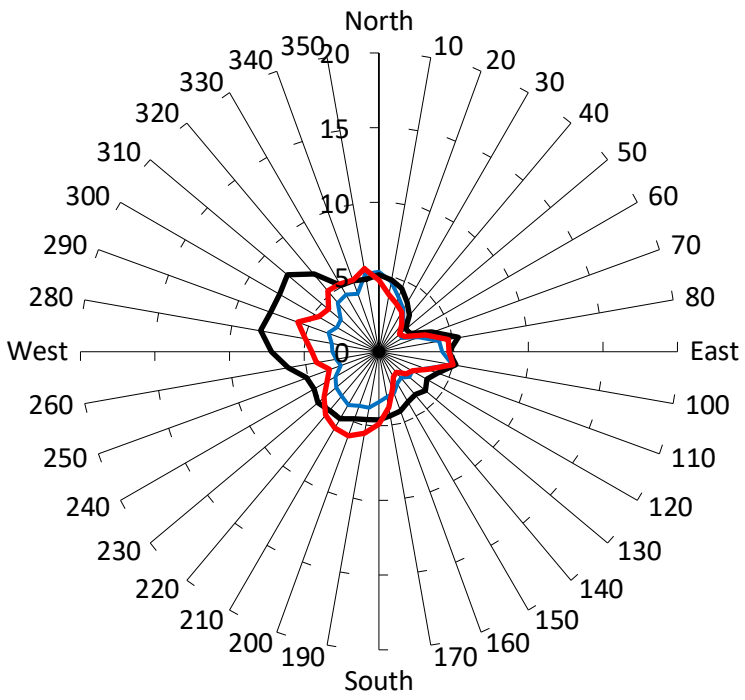


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	18%	25
Existing site conditions. No vegetation or other treatments.	44%	31
With proposed development and future surrounds case. No vegetation or other treatments.	24%	25

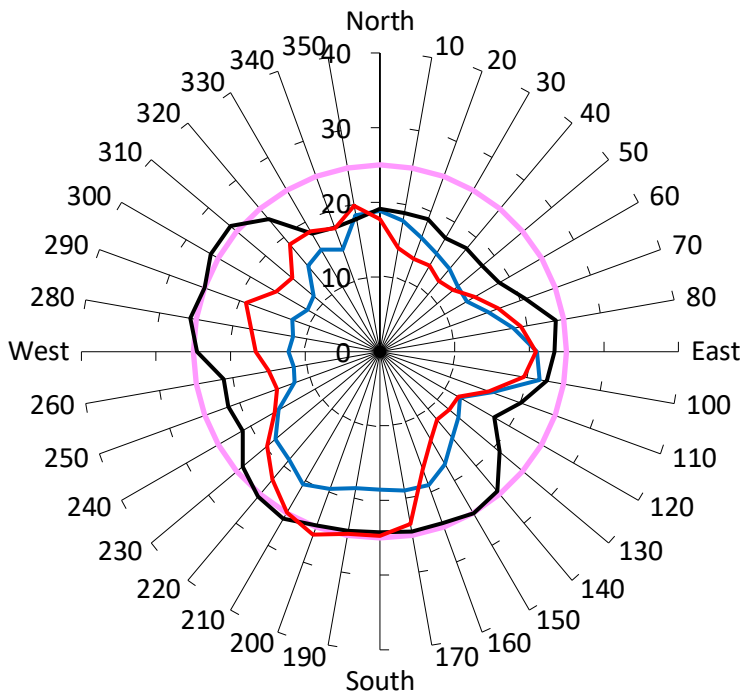
Results for P13

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

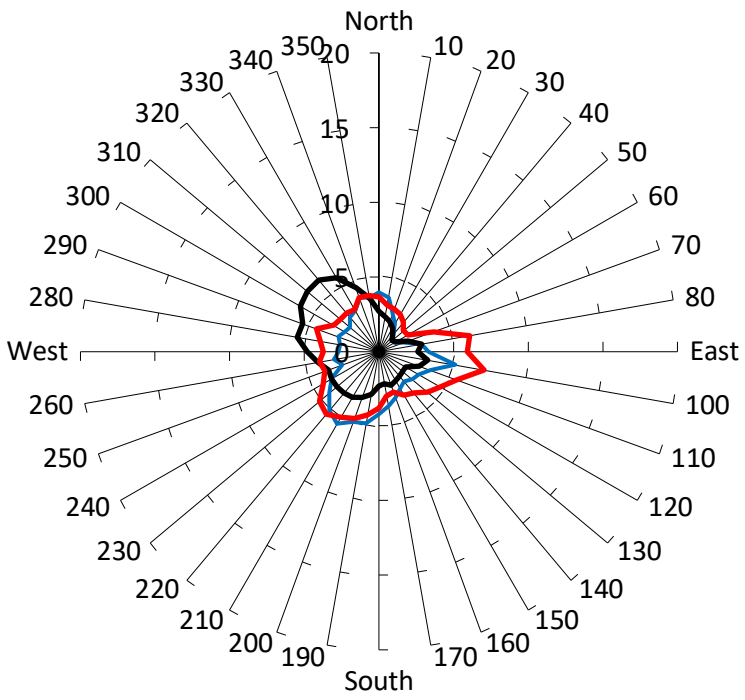


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	20%	22
Existing site conditions. No vegetation or other treatments.	48%	26
With proposed development and future surrounds case. No vegetation or other treatments.	33%	26

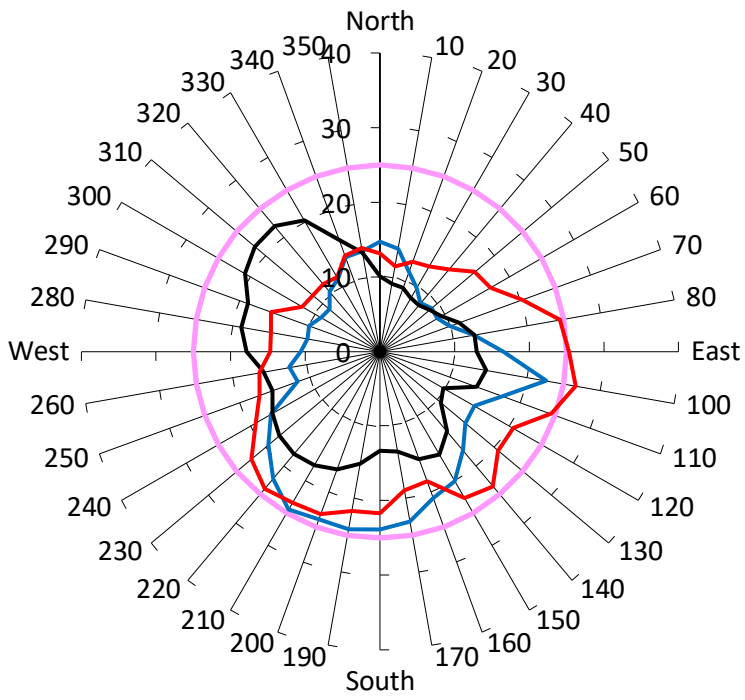
Results for P14

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

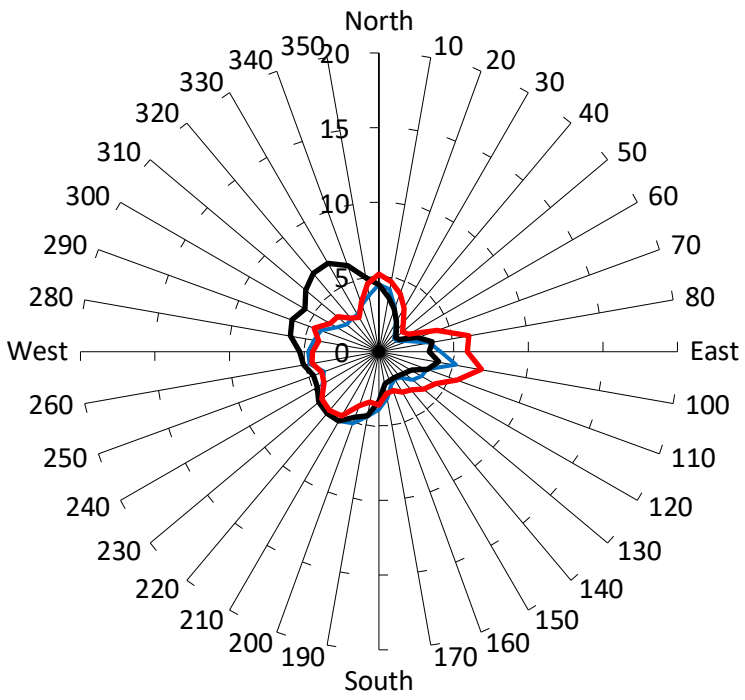


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	18%	24
Existing site conditions. No vegetation or other treatments.	24%	22
With proposed development and future surrounds case. No vegetation or other treatments.	26%	27

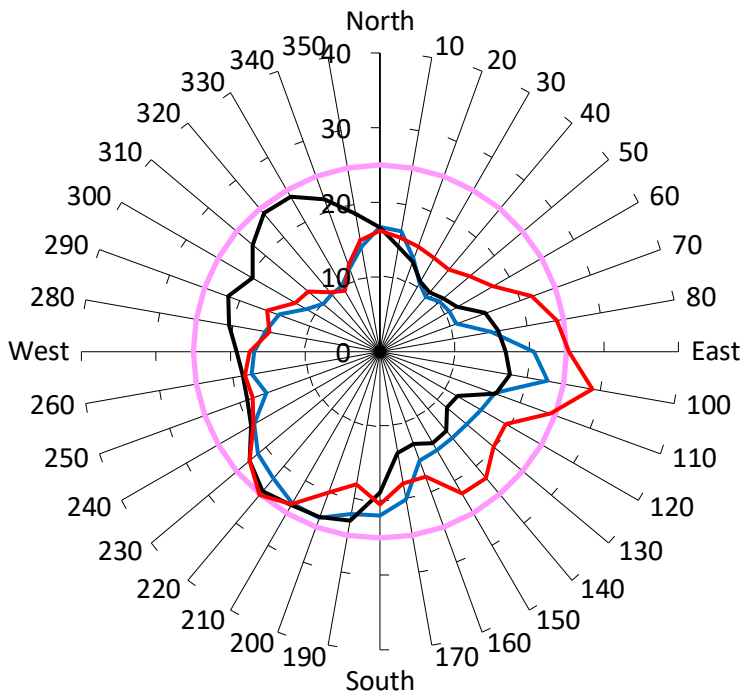
Results for P15

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

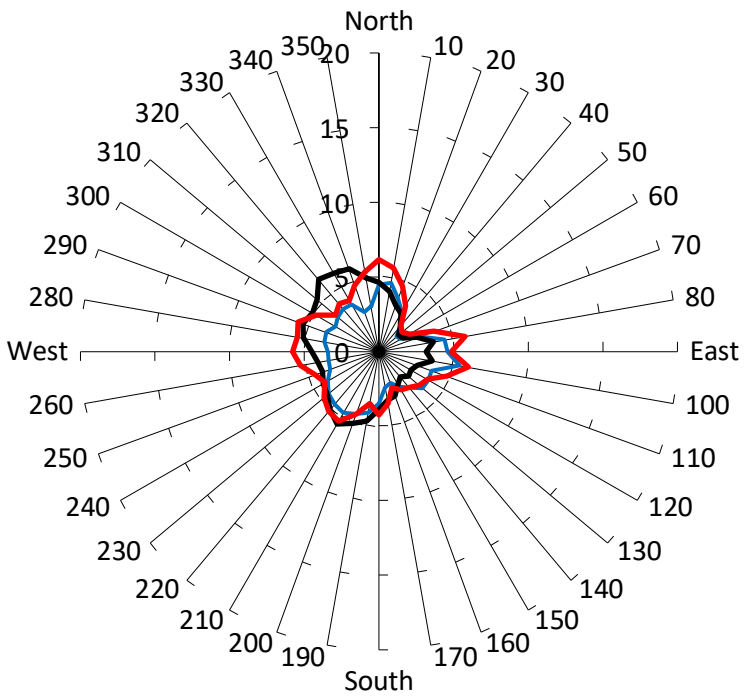


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	22%	24
Existing site conditions. No vegetation or other treatments.	38%	25
With proposed development and future surrounds case. No vegetation or other treatments.	28%	29

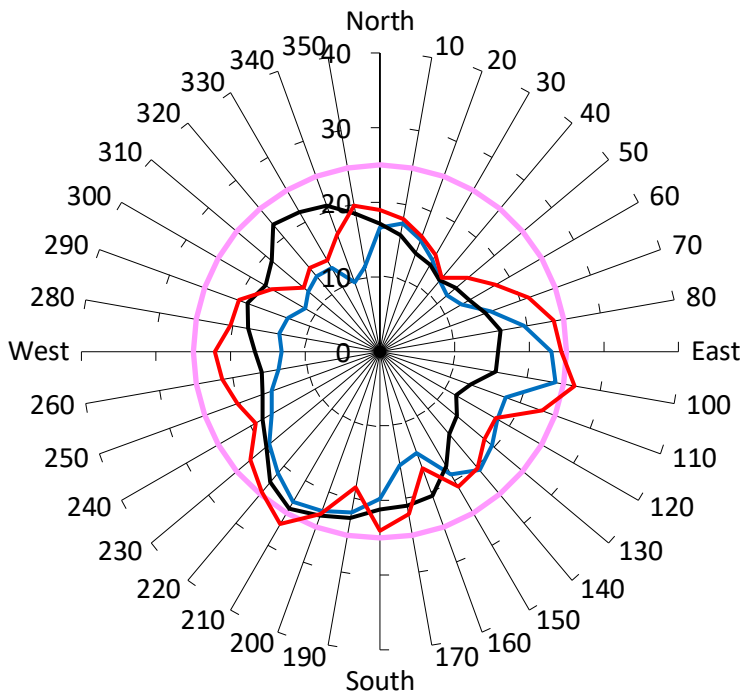
Results for P16

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

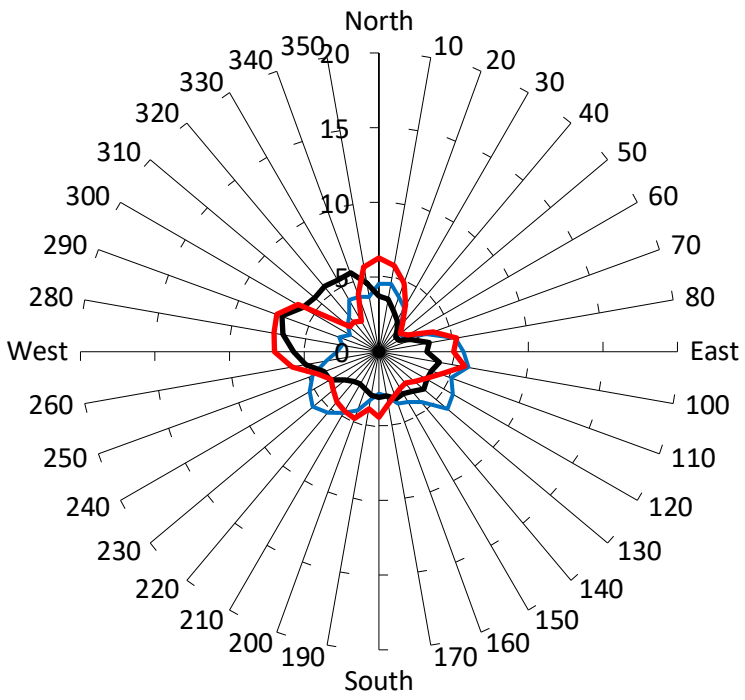


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	20%	24
Existing site conditions. No vegetation or other treatments.	33%	24
With proposed development and future surrounds case. No vegetation or other treatments.	37%	27

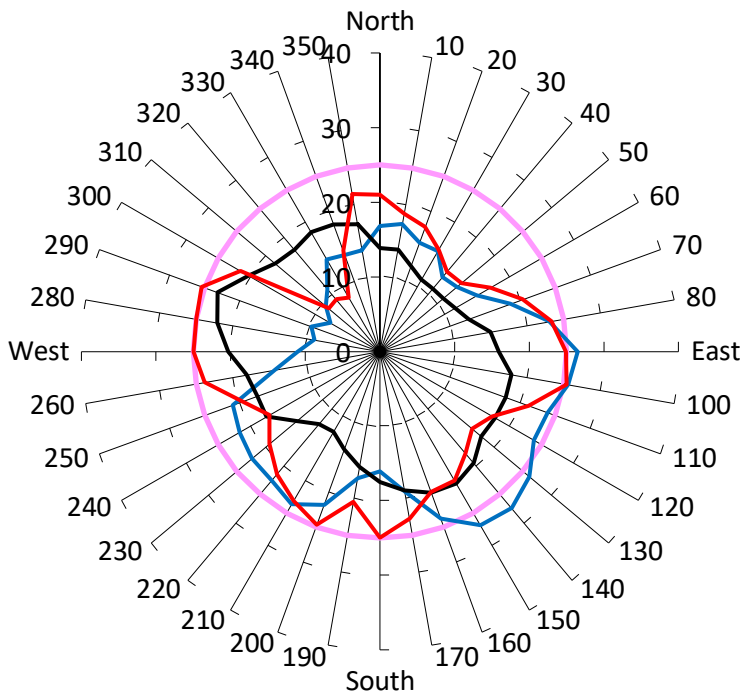
Results for P17

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

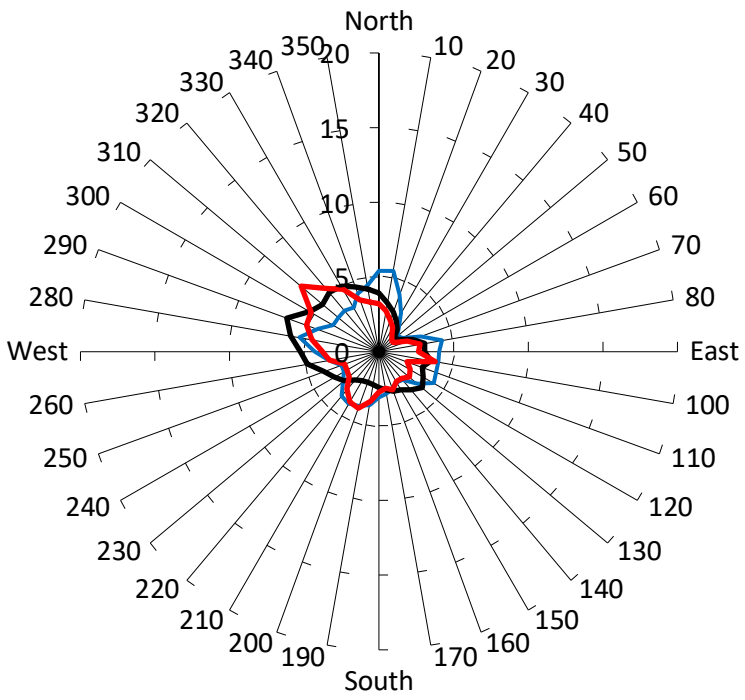


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	26%	27
Existing site conditions. No vegetation or other treatments.	31%	23
With proposed development and future surrounds case. No vegetation or other treatments.	39%	25

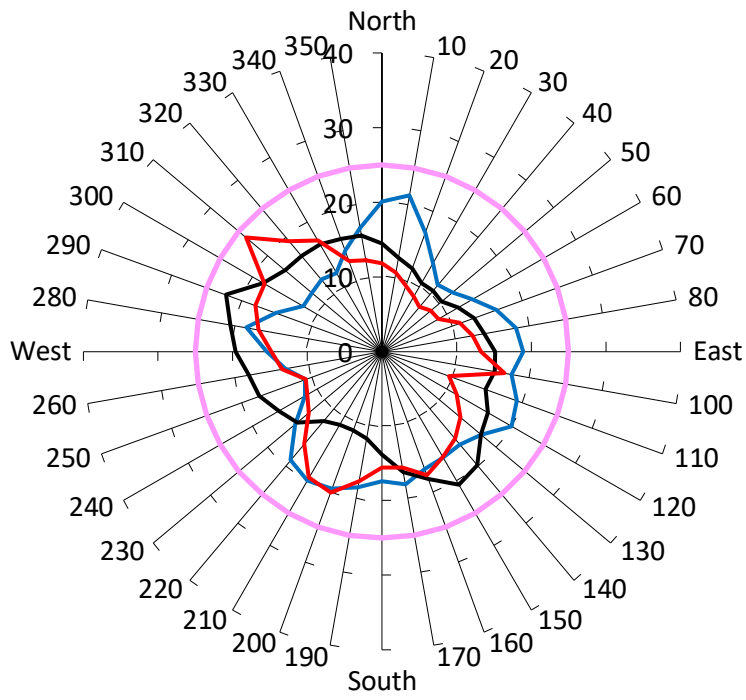
Results for P18

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

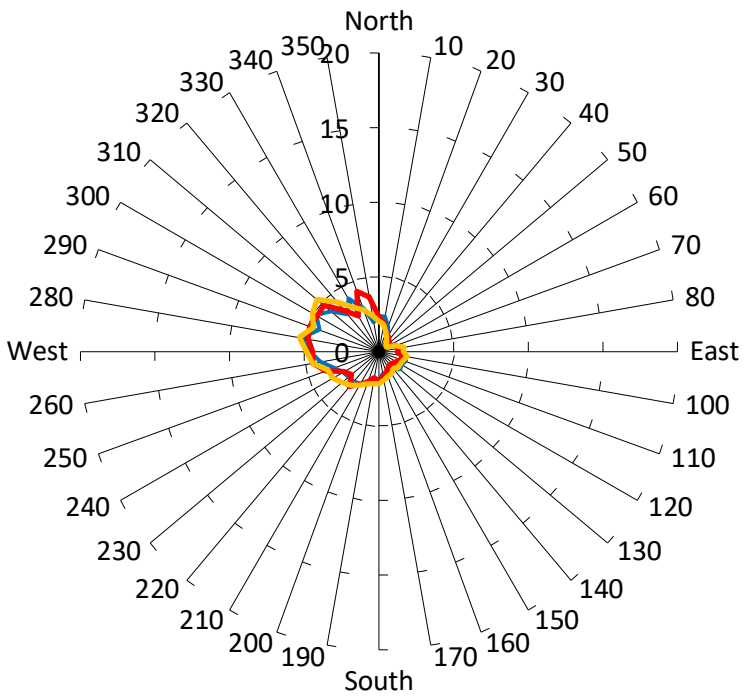


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	21%	21
Existing site conditions. No vegetation or other treatments.	24%	22
With proposed development and future surrounds case. No vegetation or other treatments.	18%	24

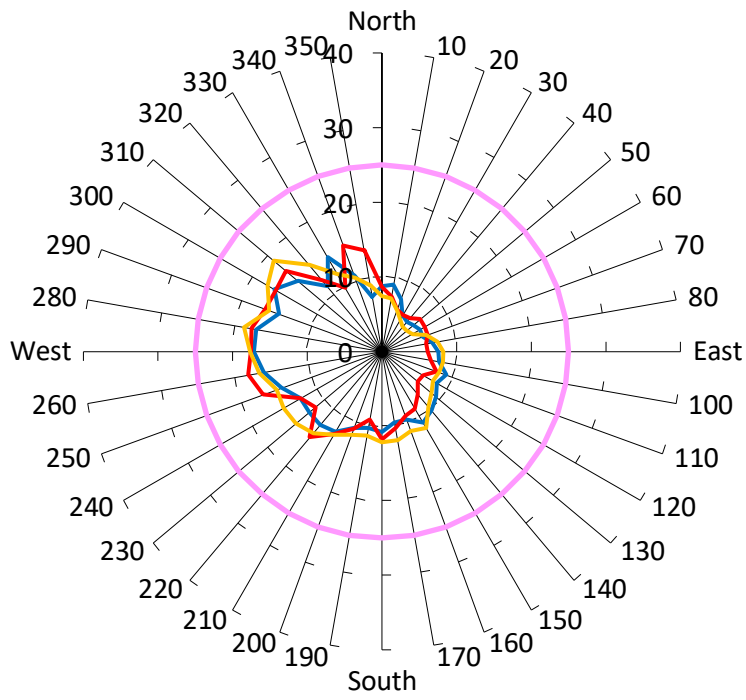
Results for P19

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

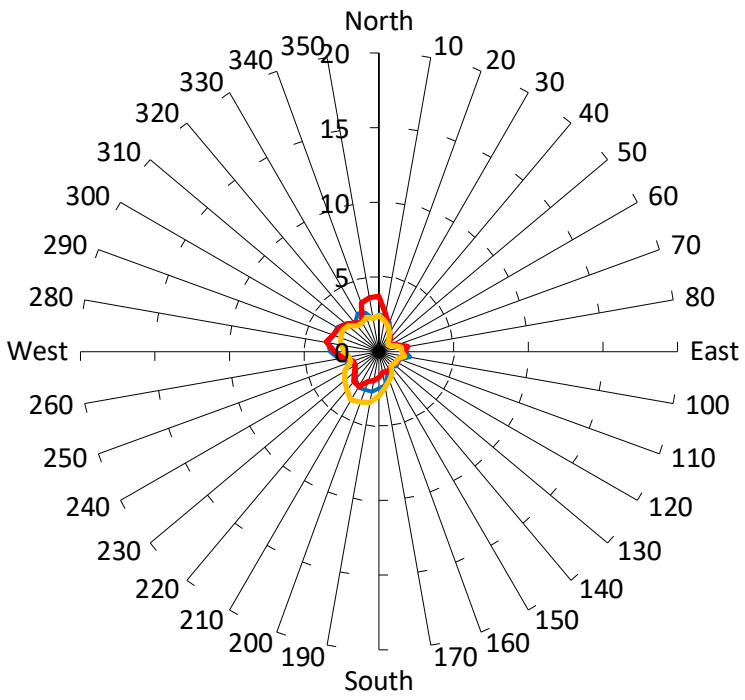


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	8%	17
With proposed development and future surrounds case. No vegetation or other treatments.	10%	18
WE191-07 Proposed Case with inclusion of treatments (rev0)	12%	19

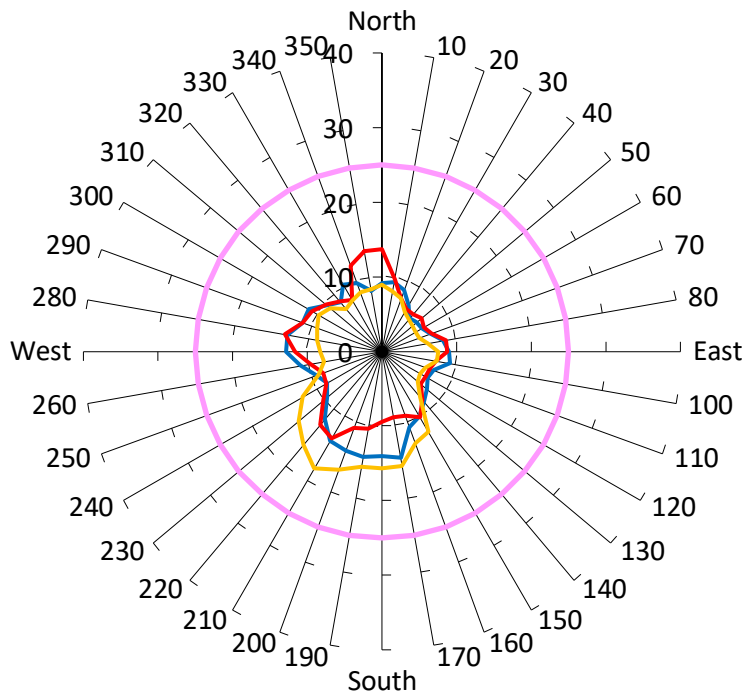
Results for P20

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

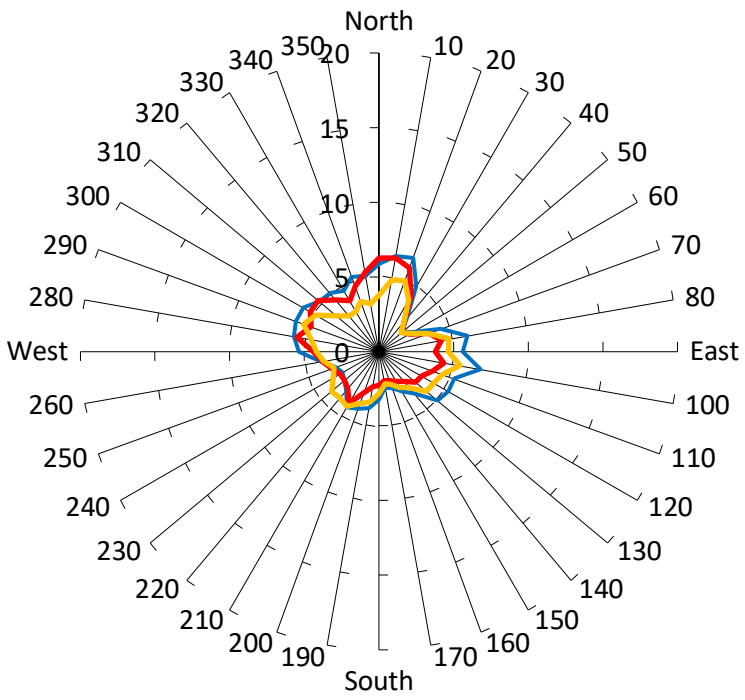


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	2%	14
With proposed development and future surrounds case. No vegetation or other treatments.	2%	14
WE191-07 Proposed Case with inclusion of treatments (rev0)	4%	18

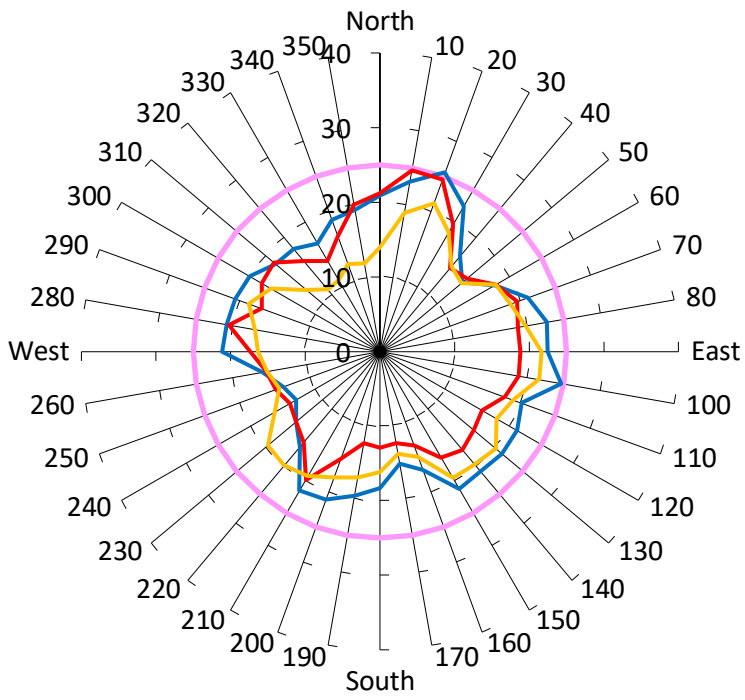
Results for P22

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

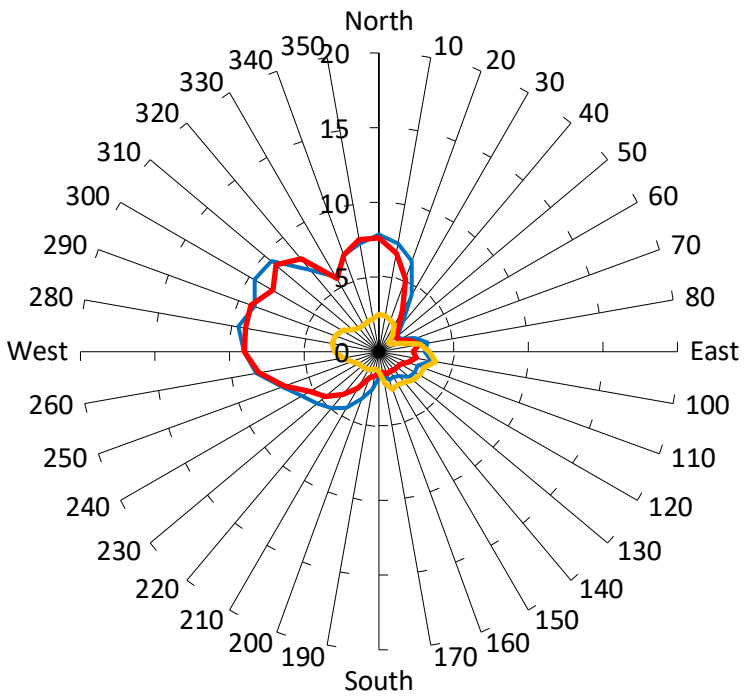


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	38%	26
With proposed development and future surrounds case. No vegetation or other treatments.	27%	25
WE191-07 Proposed Case with inclusion of treatments (rev0)	24%	22

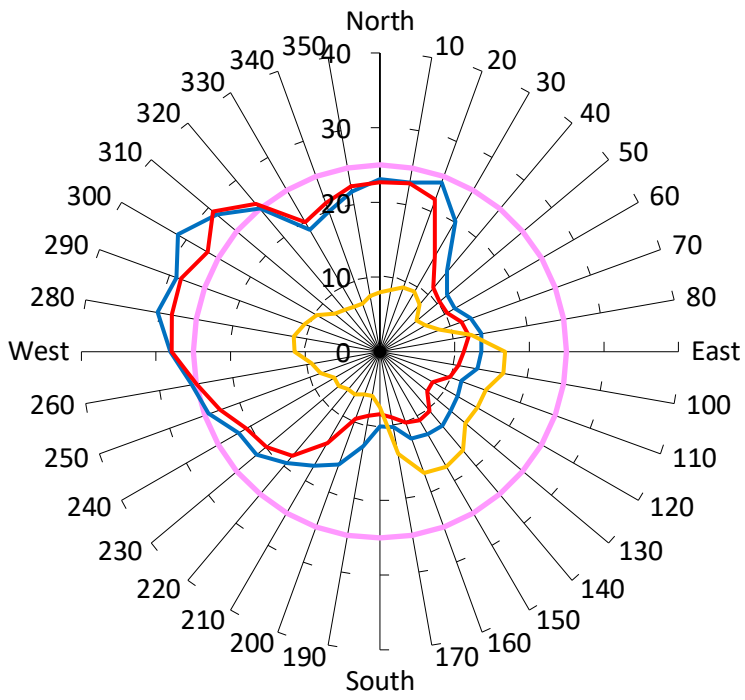
Results for P23

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

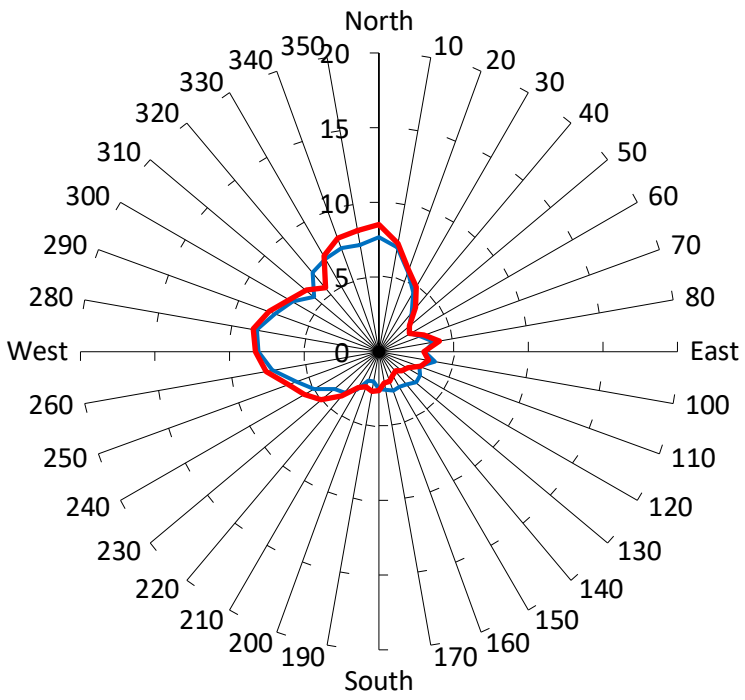


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	45%	31
With proposed development and future surrounds case. No vegetation or other treatments.	41%	29
WE191-07 Proposed Case with inclusion of treatments (rev0)	4%	18

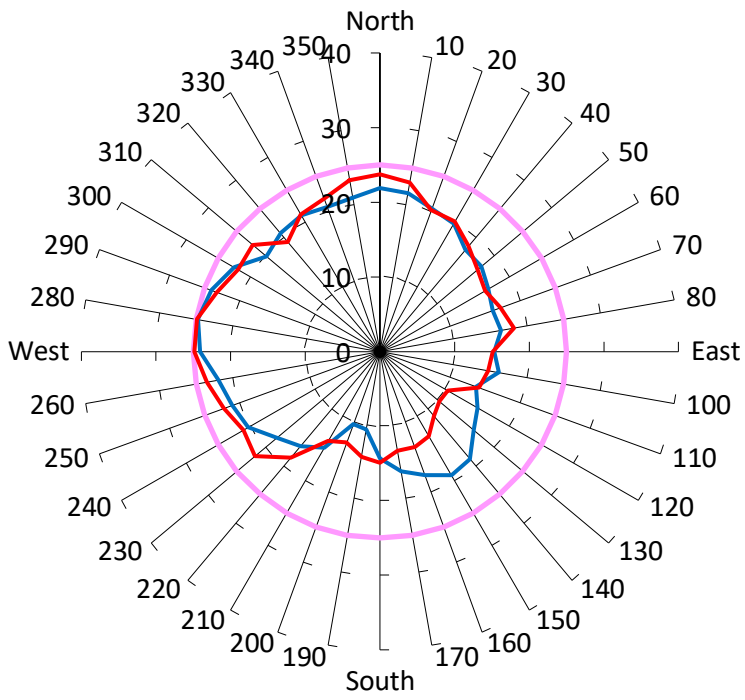
Results for P24

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

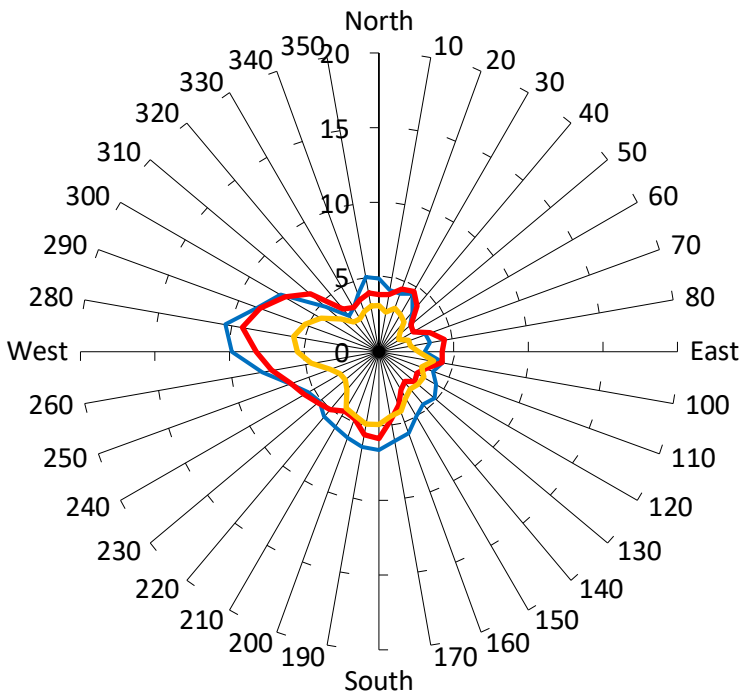


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	44%	25
With proposed development and future surrounds case. No vegetation or other treatments.	44%	25

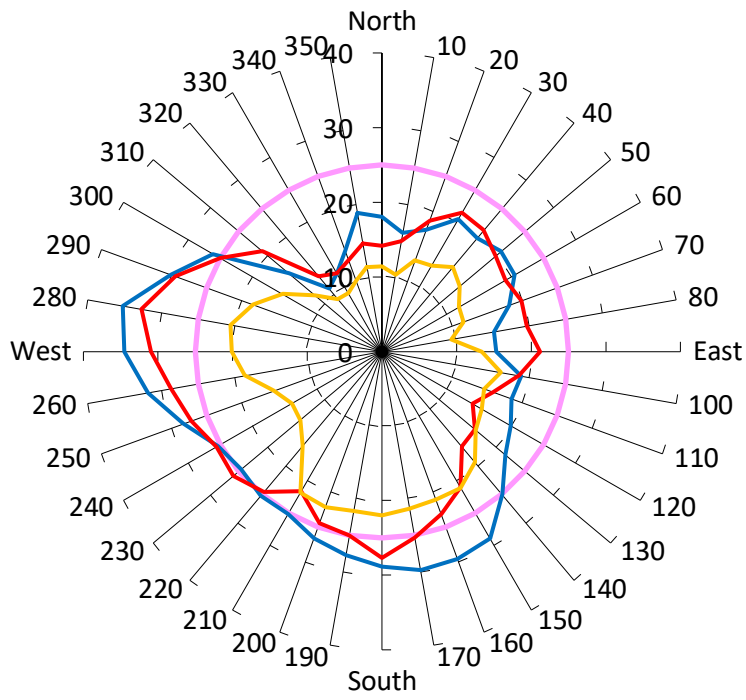
Results for P25

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

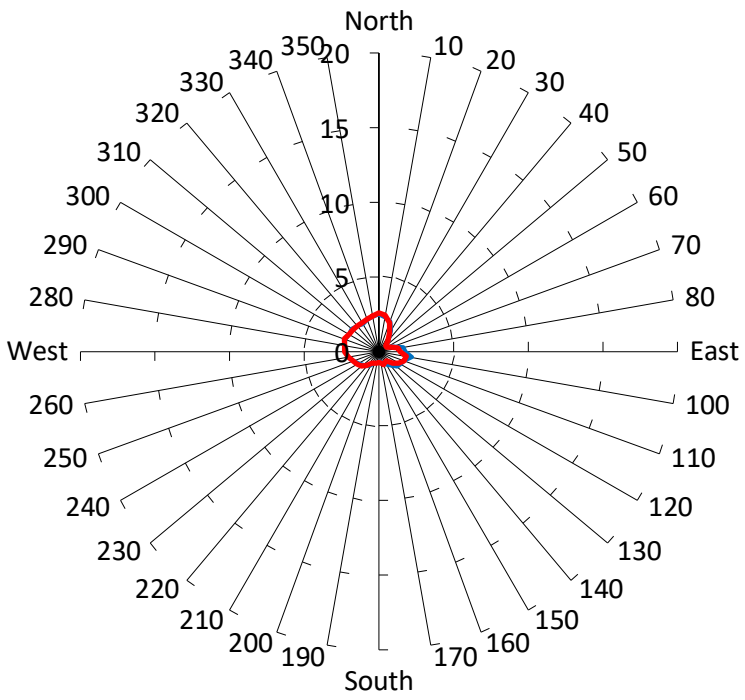


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	44%	35
With proposed development and future surrounds case. No vegetation or other treatments.	42%	33
WE191-07 Proposed Case with inclusion of treatments (rev0)	22%	22

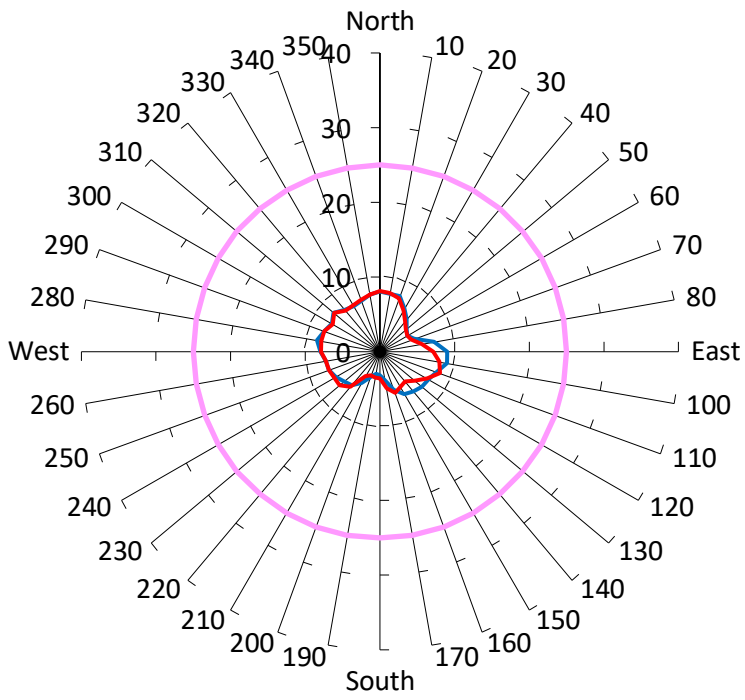
Results for P26

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

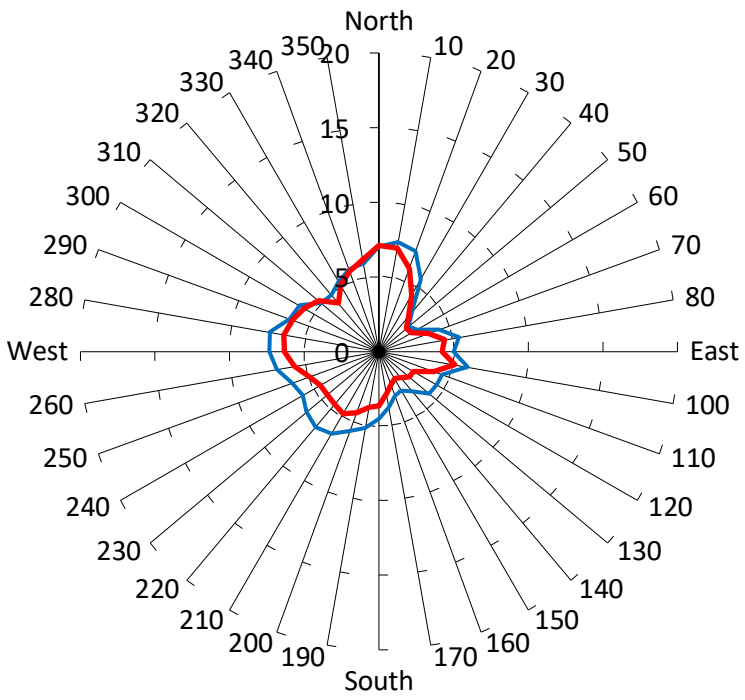


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	0%	9
With proposed development and future surrounds case. No vegetation or other treatments.	0%	9

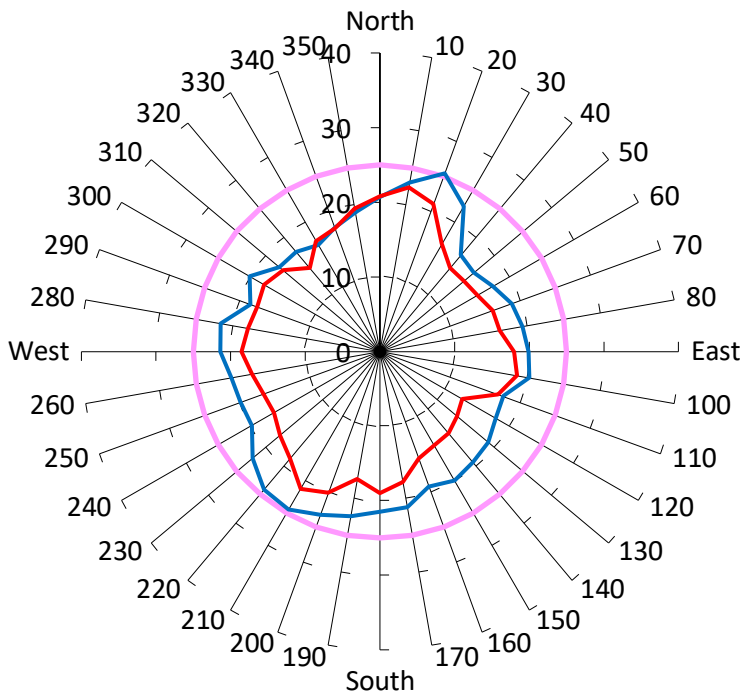
Results for P27

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

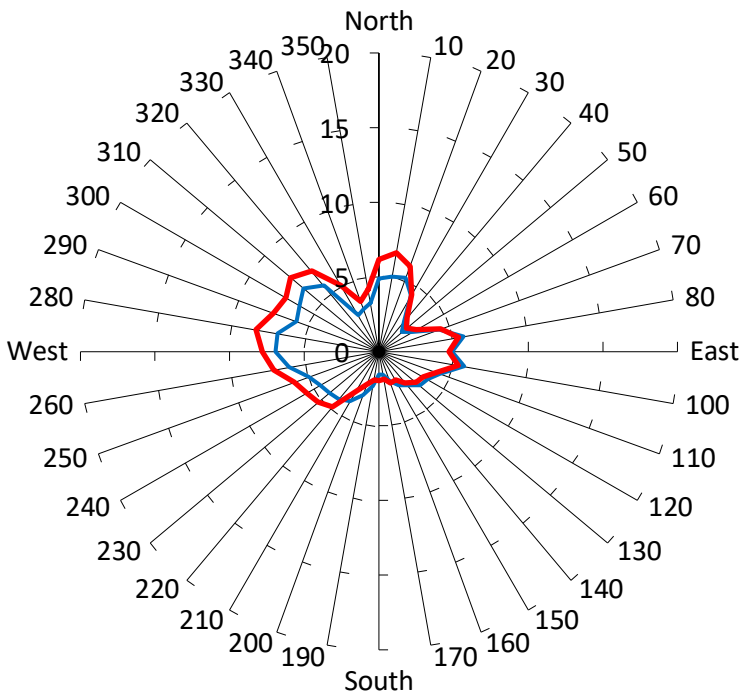


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	51%	25
With proposed development and future surrounds case. No vegetation or other treatments.	41%	22

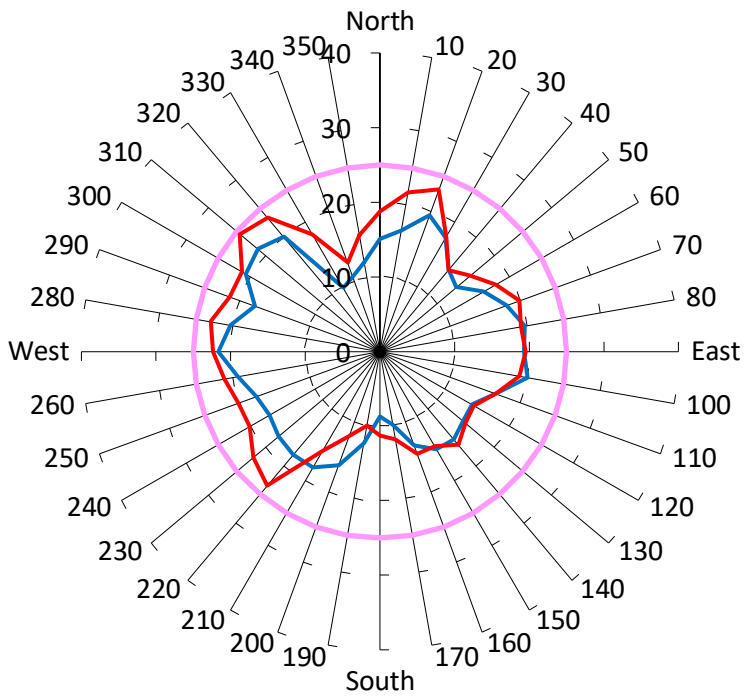
Results for P28

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

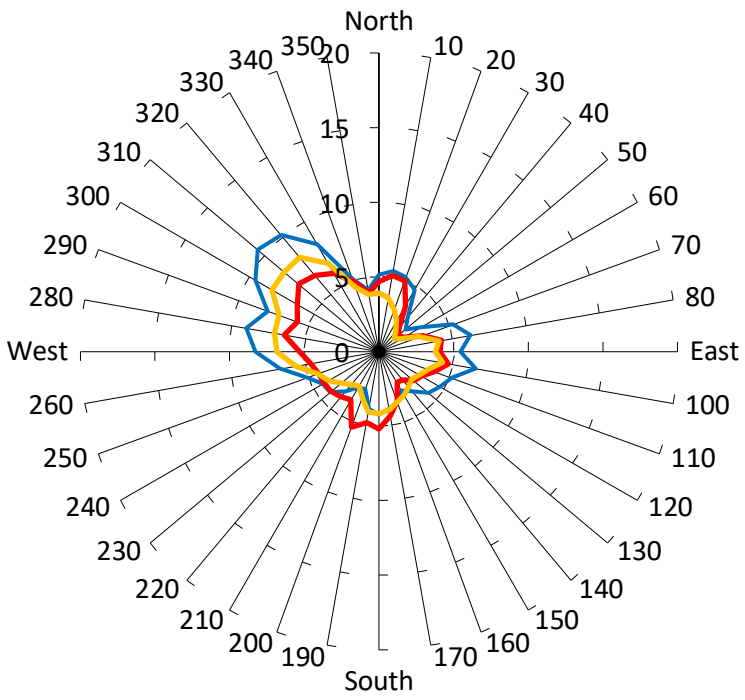


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	38%	22
With proposed development and future surrounds case. No vegetation or other treatments.	44%	24

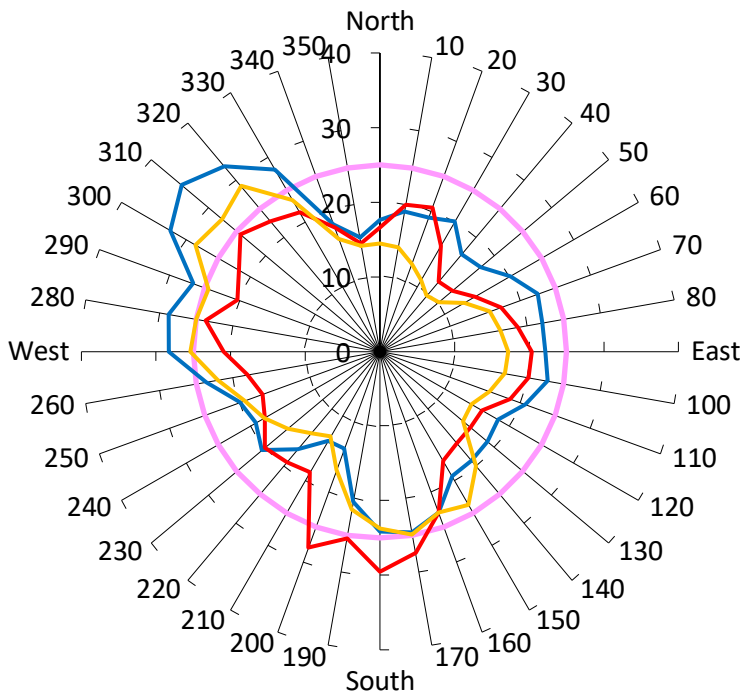
Results for P29

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

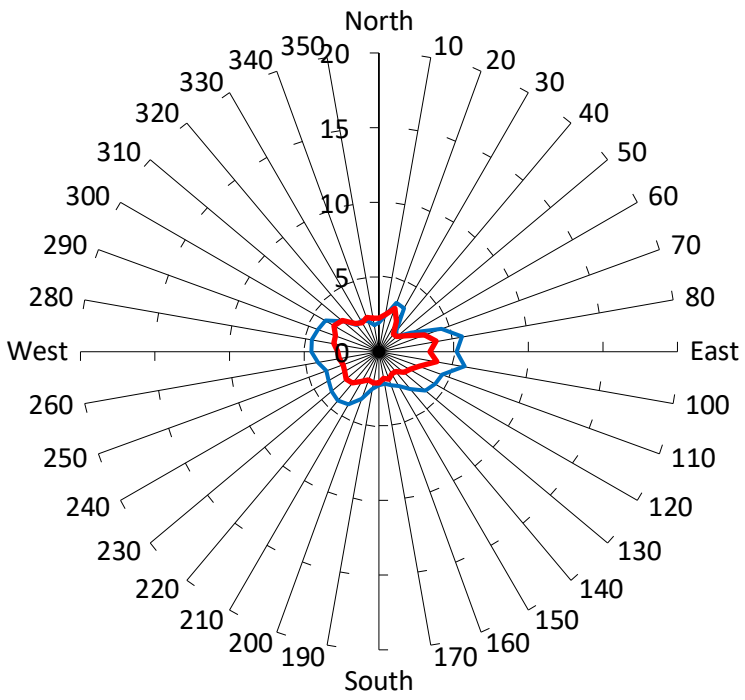


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	47%	35
With proposed development and future surrounds case. No vegetation or other treatments.	41%	30
WE191-07 Proposed Case with inclusion of treatments (rev0)	37%	29

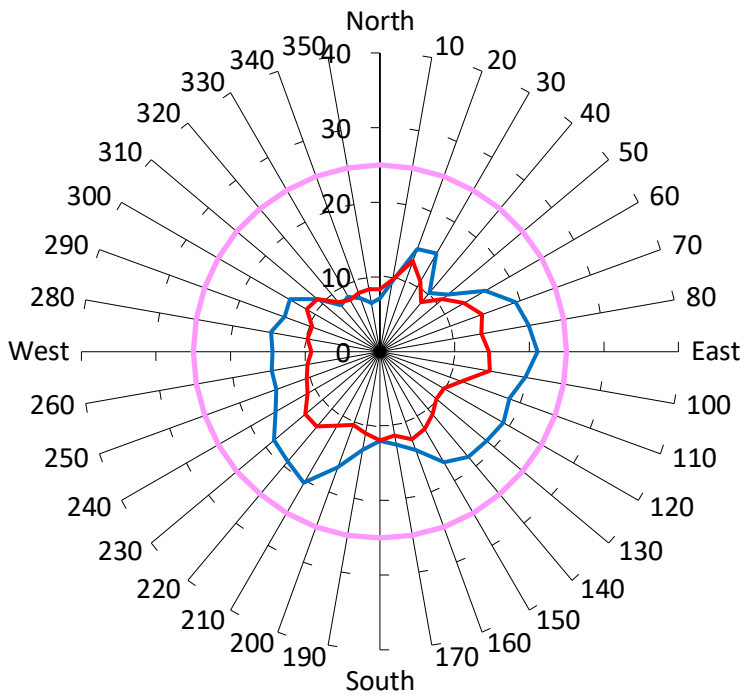
Results for P31

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

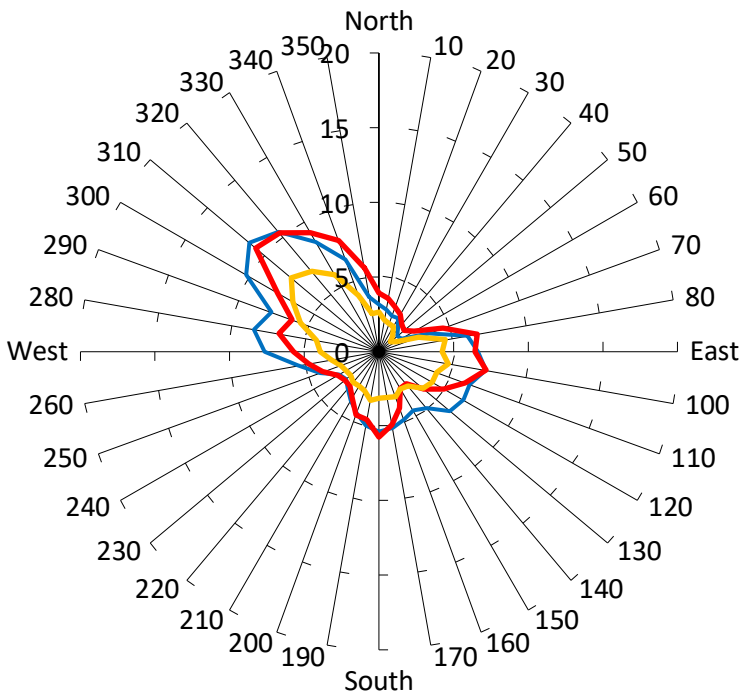


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	20%	21
With proposed development and future surrounds case. No vegetation or other treatments.	5%	15

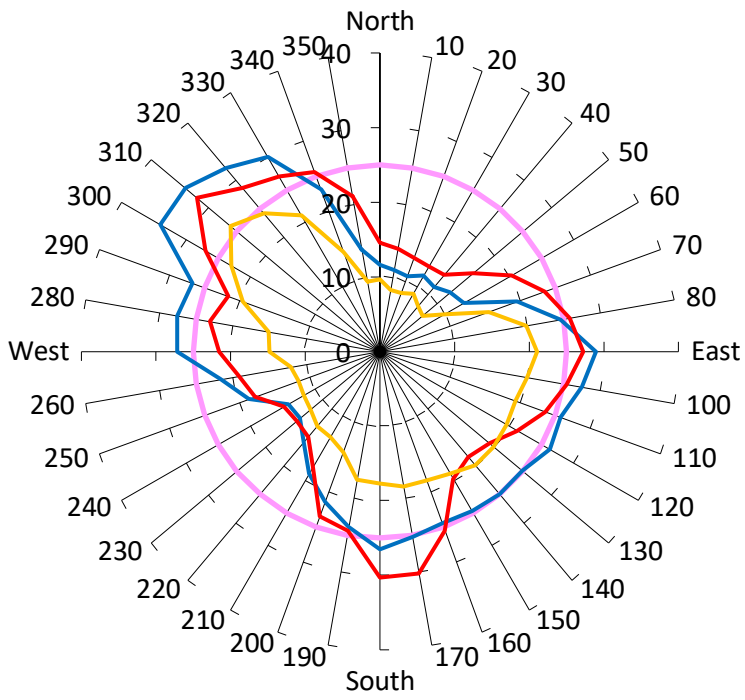
Results for P32

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

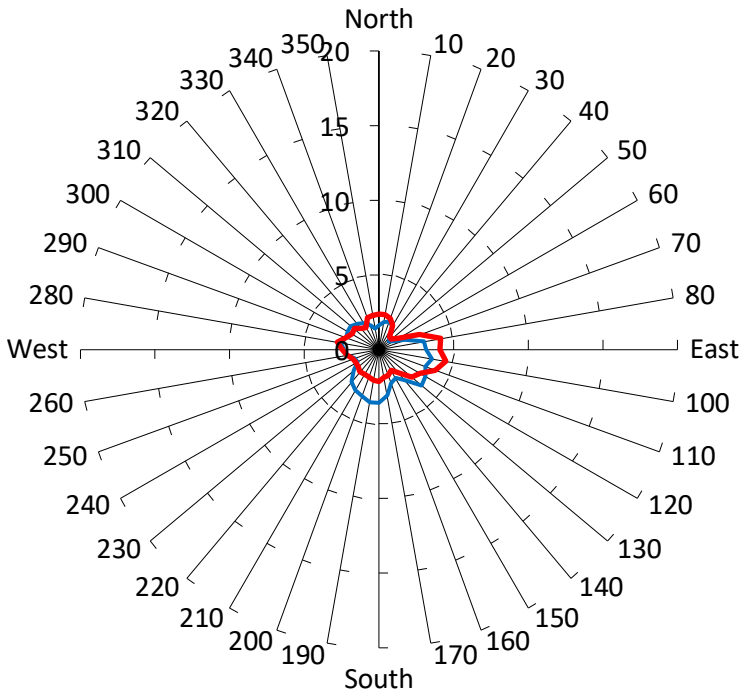


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	44%	34
With proposed development and future surrounds case. No vegetation or other treatments.	44%	32
WE191-07 Proposed Case with inclusion of treatments (rev0)	27%	26

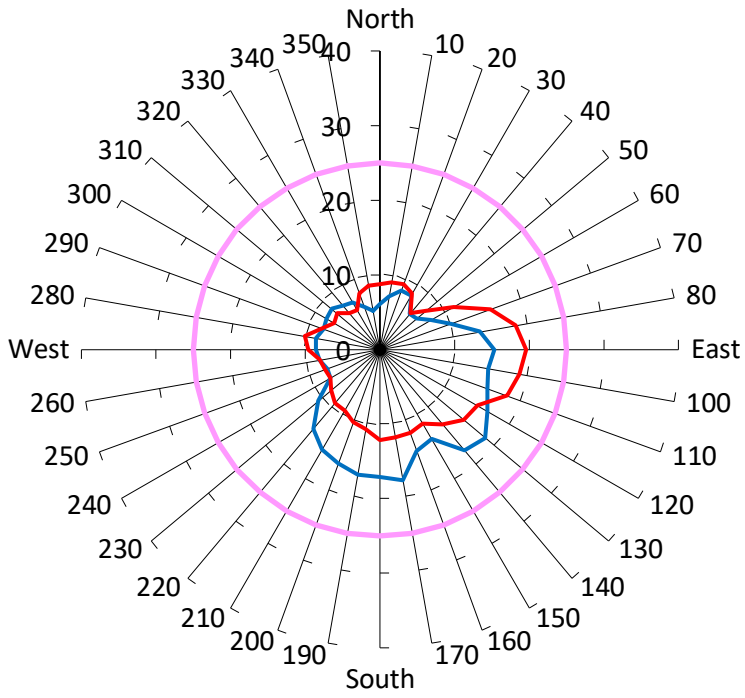
Results for P33

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

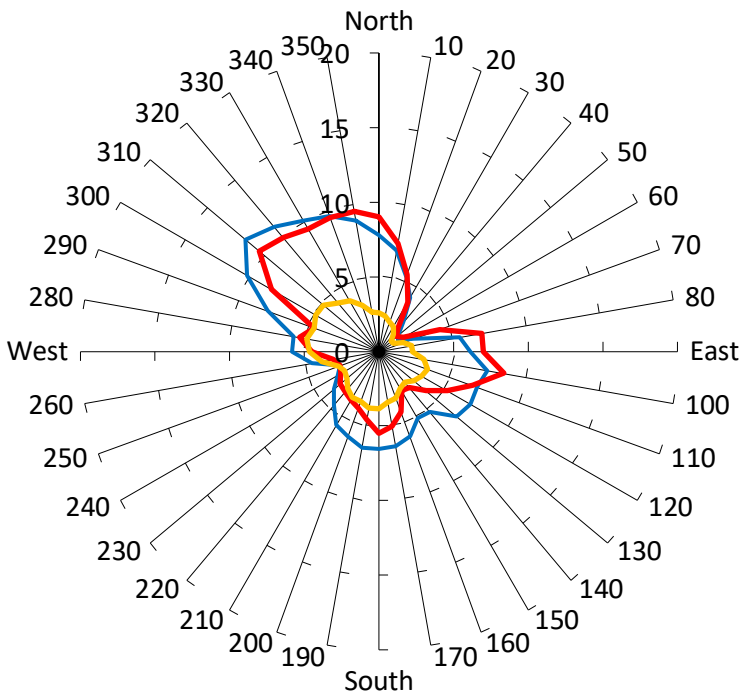


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	7%	18
With proposed development and future surrounds case. No vegetation or other treatments.	6%	20

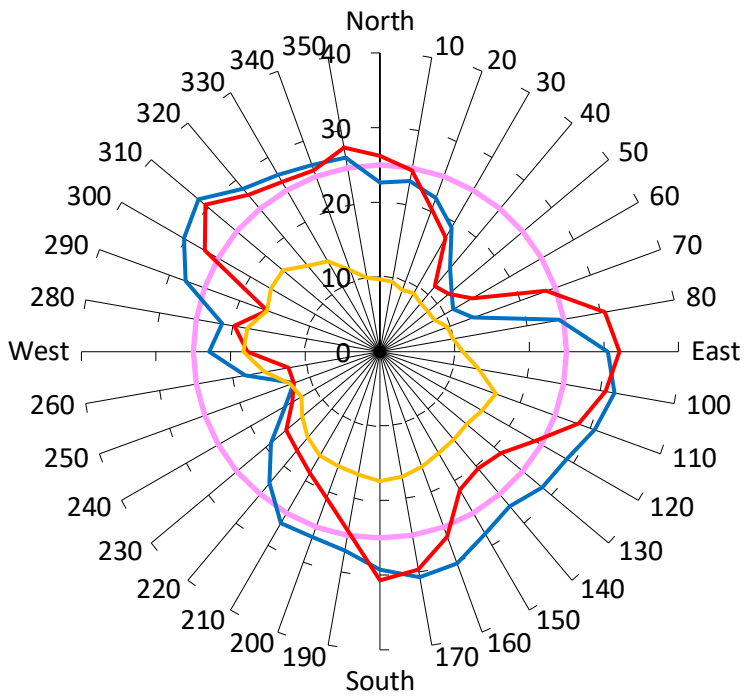
Results for P34

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

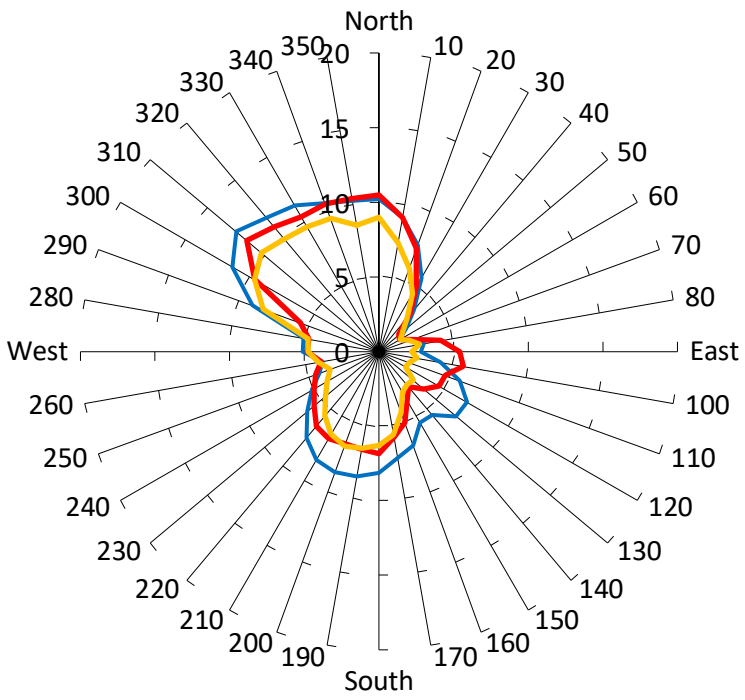


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	50%	32
With proposed development and future surrounds case. No vegetation or other treatments.	44%	32
WE191-07 Proposed Case with inclusion of treatments (rev0)	15%	18

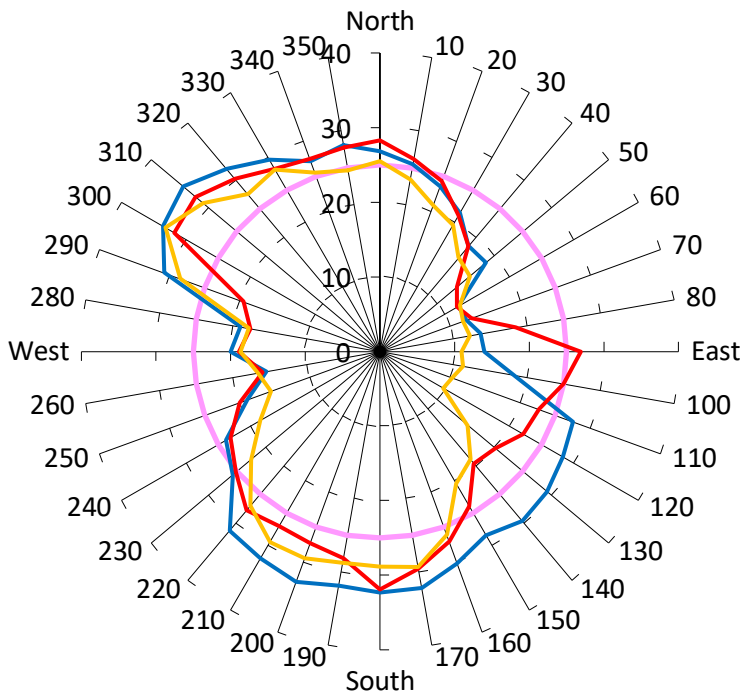
Results for P36

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

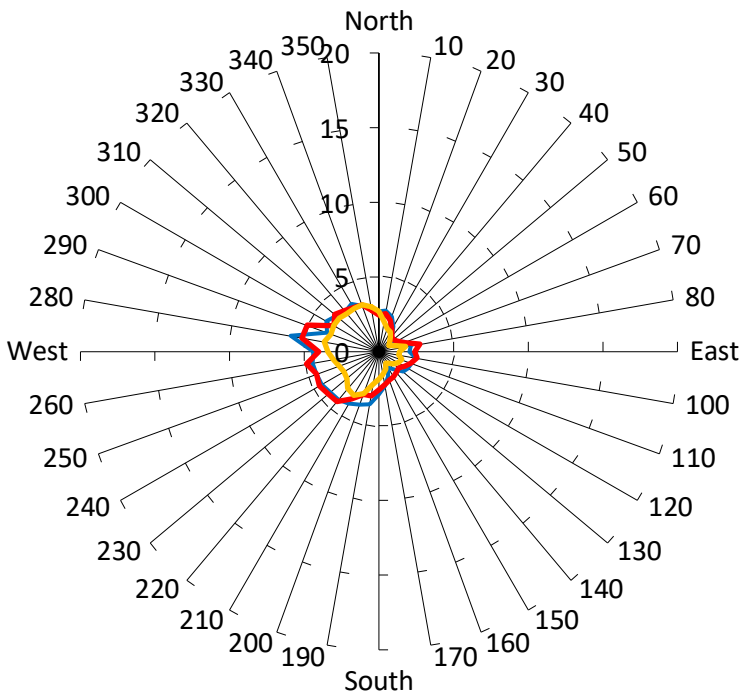


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	51%	34
With proposed development and future surrounds case. No vegetation or other treatments.	50%	32
WE191-07 Proposed Case with inclusion of treatments (rev0)	45%	33

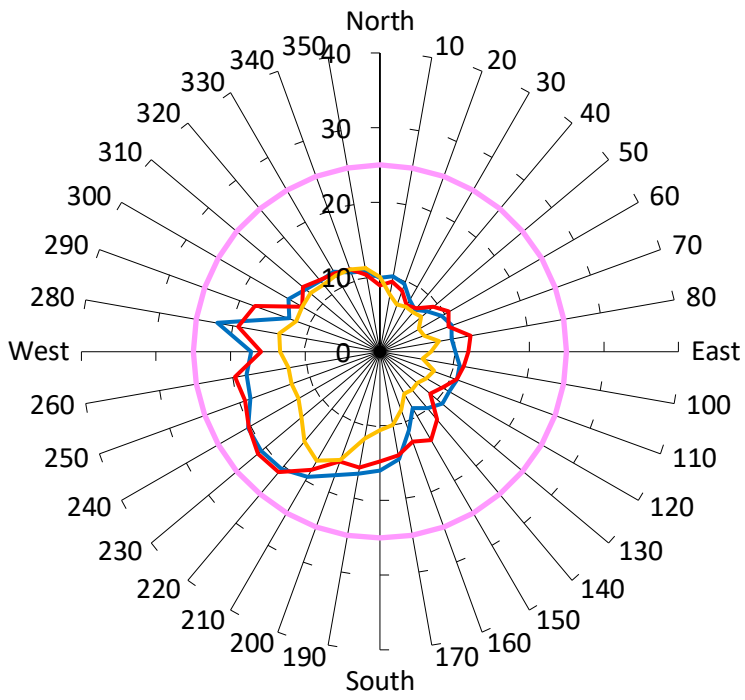
Results for P37

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

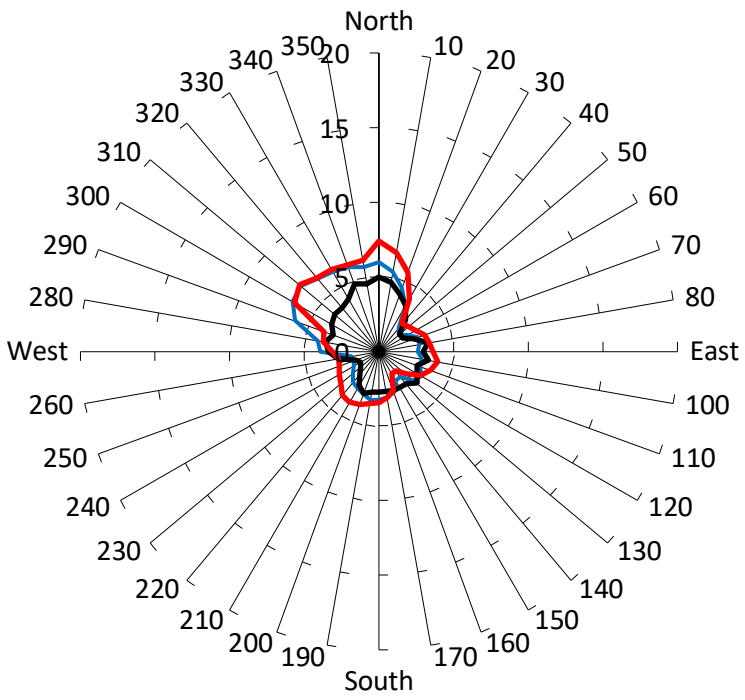


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	14%	22
With proposed development and future surrounds case. No vegetation or other treatments.	14%	21
WE191-07 Proposed Case with inclusion of treatments (rev0)	4%	17

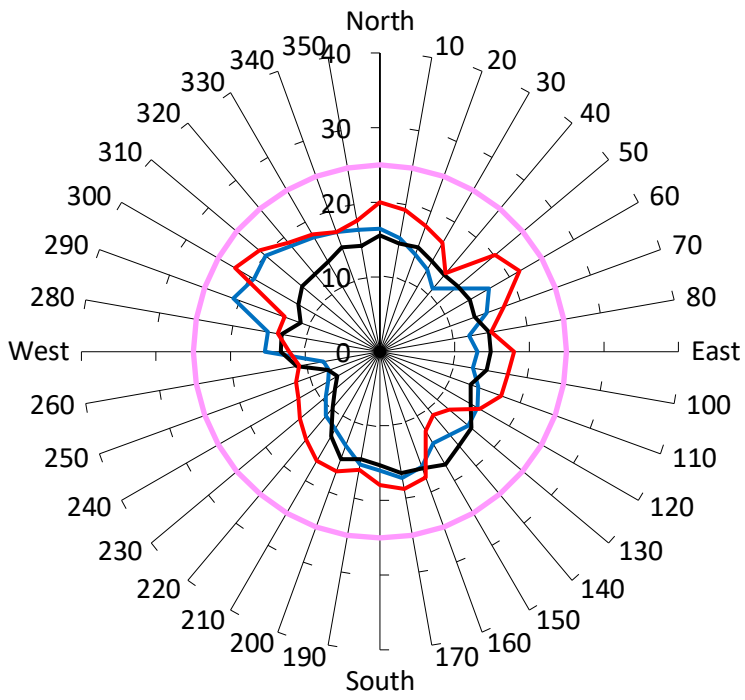
Results for P38

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

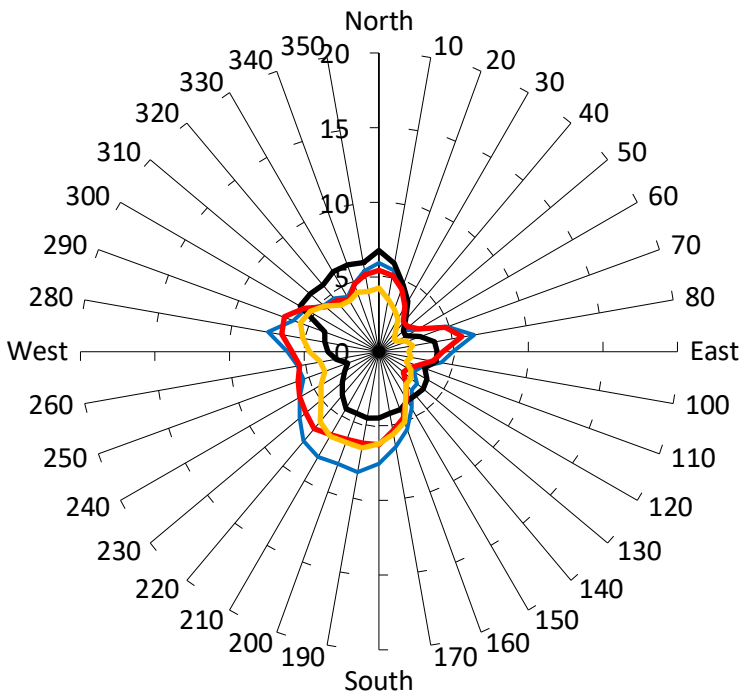


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	32%	21
Existing site conditions. No vegetation or other treatments.	13%	18
With proposed development and future surrounds case. No vegetation or other treatments.	35%	22

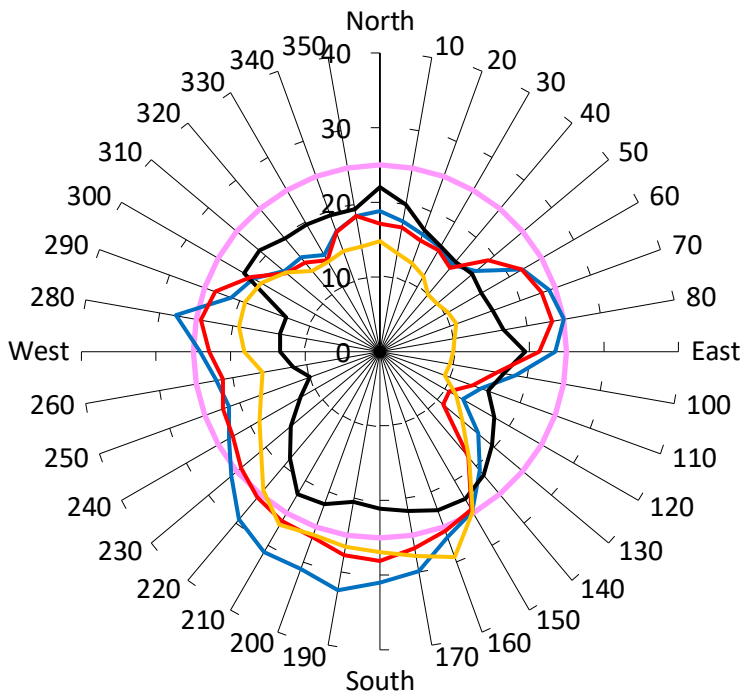
Results for P39

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

Maximum Gust (m/s)

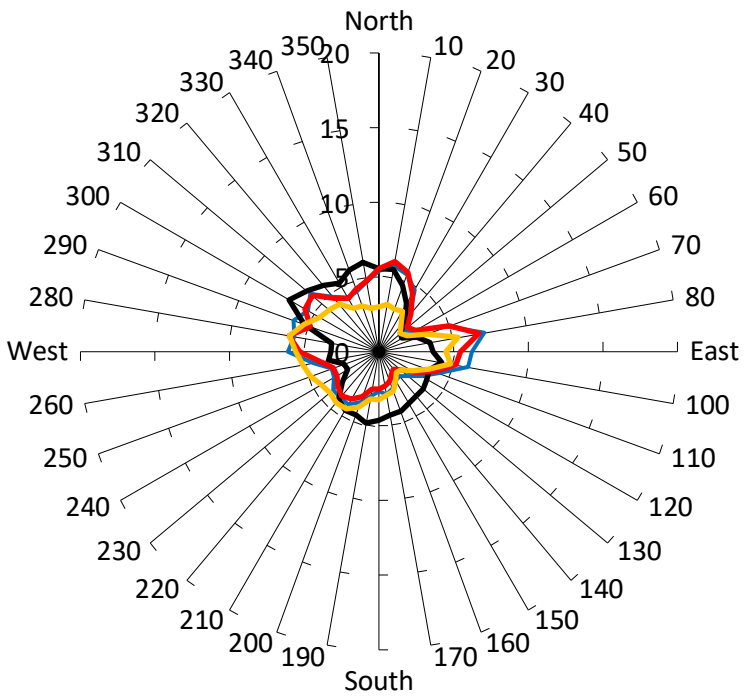


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	46%	33
Existing site conditions. No vegetation or other treatments.	37%	23
With proposed development and future surrounds case. No vegetation or other treatments.	43%	28
WE191-07 Proposed Case with inclusion of treatments (rev0)	28%	29

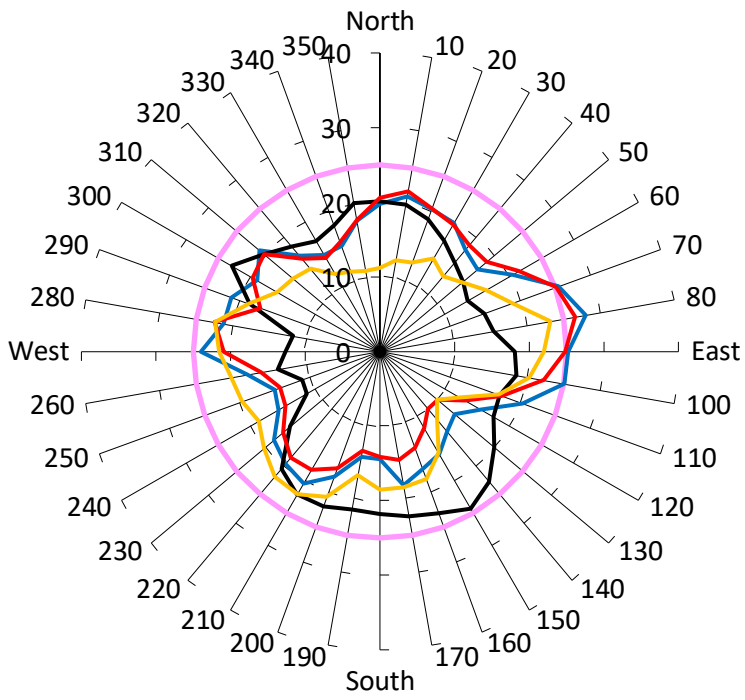
Results for P40

Gust Equivalent Mean (m/s)



Comfort Criteria: 5.5m/s with 20% probability of exceedence

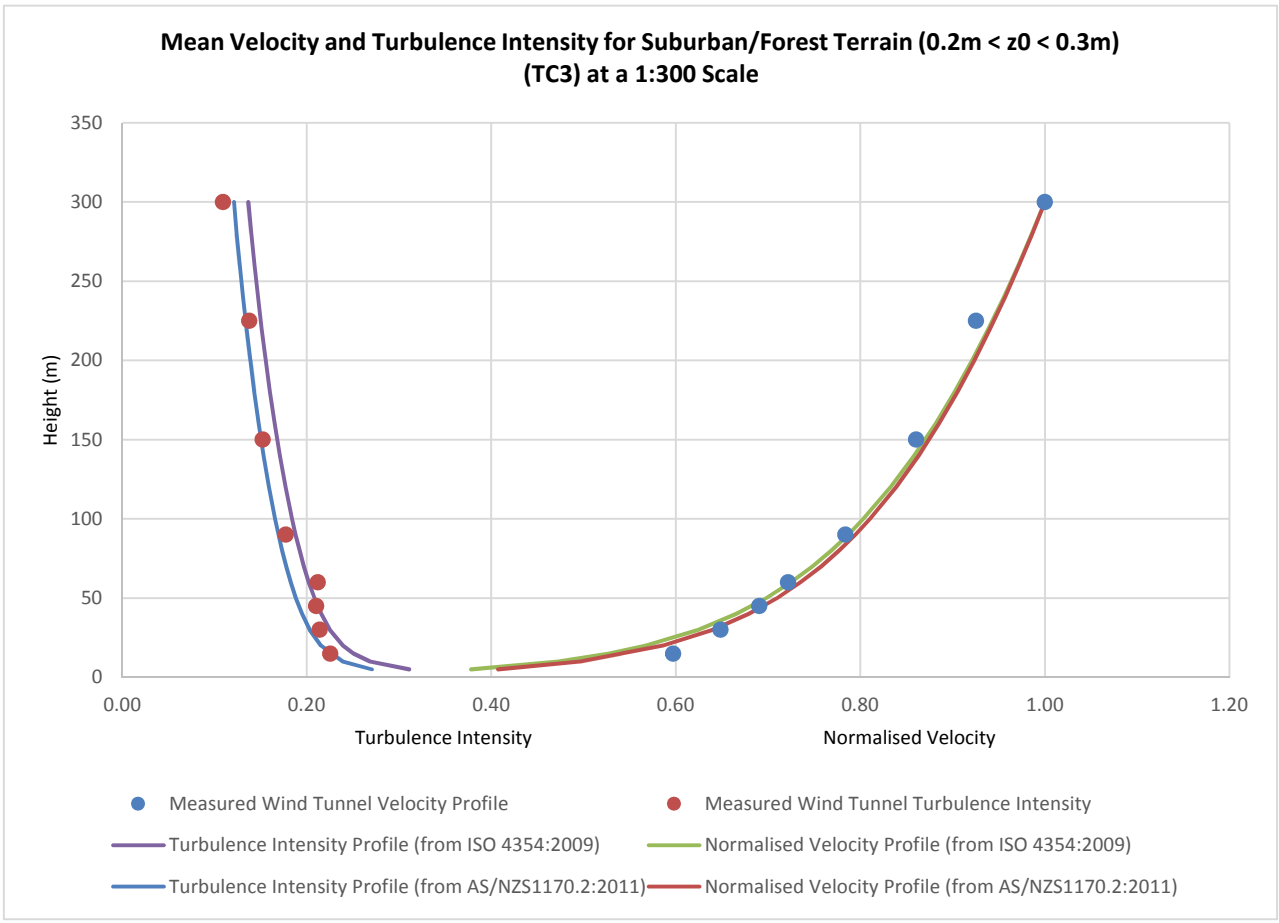
Maximum Gust (m/s)

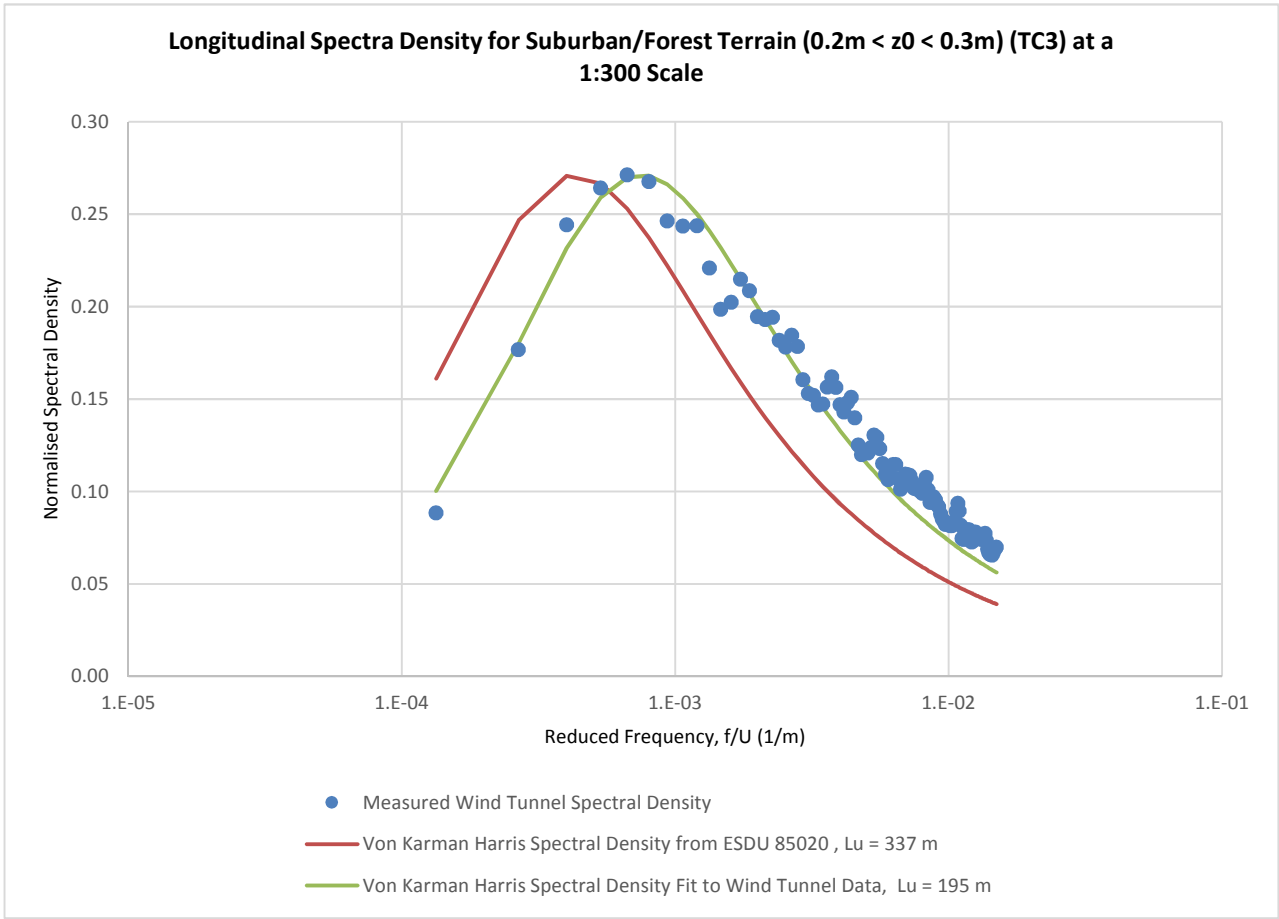


Safety Limit: 25m/s

Description	GEM Prob of Exceed %	Peak Gust m/s
Criterion: Walking Activities (20km/h, 5.5m/s). Safety Limit (90km/h, 25m/s).	20%	25
With proposed development and proposed surrounds case. No vegetation or other treatments.	35%	28
Existing site conditions. No vegetation or other treatments.	37%	24
With proposed development and future surrounds case. No vegetation or other treatments.	31%	27
WE191-07 Proposed Case with inclusion of treatments (rev0)	25%	23

APPENDIX D VELOCITY AND TURBULENCE INTENSITY PROFILES


Mean Velocity and Turbulence Intensity for Suburban/Forest Terrain (0.2m < z0 < 0.3m) (TC3) at a 1:300 Scale
Height (m)
350
300
250
200
150
100
50
0
0.00
0.20
0.40
0.60
0.80
1.00
1.20
Turbulence Intensity
Normalised Velocity
Measured Wind Tunnel Velocity Profile
Measured Wind Tunnel Turbulence Intensity
Turbulence Intensity Profile (from ISO 4354:2009)
Normalised Velocity Profile (from ISO 4354:2009)
Turbulence Intensity Profile (from AS/NZS1170.2:2011)
Normalised Velocity Profile (from AS/NZS1170.2:2011)


Longitudinal Spectra Density for Suburban/Forest Terrain (0.2m < z0 < 0.3m) (TC3) at a 1:300 Scale
Normalised Spectral Density
0.30
0.25
0.20
0.15
0.10
0.05
0.00
1.E-05
1.E-04
1.E-03
1.E-02
1.E-01
Reduced Frequency, f/U (1/m)
Measured Wind Tunnel Spectral Density
Von Karman Harris Spectral Density from ESDU 85020 , Lu = 337 m
Von Karman Harris Spectral Density Fit to Wind Tunnel Data, Lu = 195 m

WINDTECH

Doc Ref: WE191-08F01(rev0)- WE Letter

Date: April 29, 2021

To: Fares Real Estate Inc.

Address: 50 King's Wharf Place,
Dartmouth, Canada

Attn: David Quilichini

RE: BUILDING E, KING'S WHARF PLACE, DARTMOUTH
WIND ENVIRONMENT LETTER

Dear David,

This letter is in relation to the proposed Building E development at King's Wharf Place, Dartmouth, and the results of the latest Pedestrian Wind environment Study (document reference: WE191-07F01(rev2), issued March 23, 2021). The wind conditions have been assessed against the Regional Centre Land Use By-Law Package A (2019).

Wind tunnel testing has shown that there are currently some areas where the safety limit is exceeded. This is mostly due to local wind climate as well as the exposed coastal location of the site. With the implementation of the mitigation measures outlined in the abovementioned report, the development will not exacerbate the existing conditions.

Regards,

Original Signed

Windtech Consultants

Tony Rofail
Principal Director