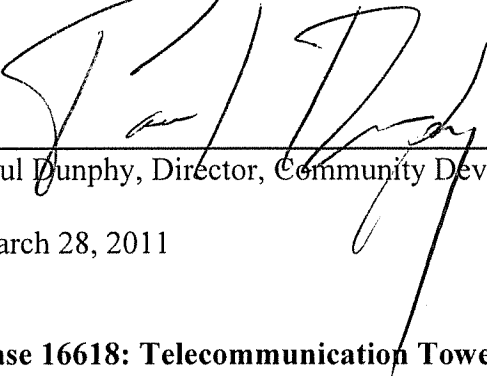


Harbour East Community Council
April 7, 2011

TO: Chair and Members of Harbour East Community Council

SUBMITTED BY: 
Paul Dunphy, Director, Community Development

DATE: March 28, 2011

SUBJECT: **Case 16618: Telecommunication Tower, Caldwell Road, Eastern Passage**

ORIGIN

Application by Bragg Communications Inc. (Eastlink), for lands of Donald and Catherine Negus, for a proposed 39 metre self supporting telecommunication tower and associated equipment shelters at 1668 Caldwell Road, Eastern Passage.

RECOMMENDATION

It is recommended that Harbour East Community Council forward a positive recommendation to Industry Canada in relation to the proposal by Bragg Communications Inc. for a proposed 39 metre self supporting telecommunication tower and associated equipment shelters at 1668 Caldwell Road, Eastern Passage.

BACKGROUND

Eastlink has applied to erect a new 39 metre high self supporting type telecommunication tower and associated equipment shelters at the tower base on a portion of the lands located at 1668 Caldwell Road (Map 1) in Eastern Passage. The subject property is residentially developed and the tower is proposed to be located approximately 195 metres from Caldwell Road within a small leased portion of the subject property (Attachment A). Access to the site will be via an extension of the existing driveway on the property.

The Tower, Antennas and Equipment

The tower:

- will be self supporting and 39 metres (127 feet) in height;
- will be constructed of steel lattice and will be site specific engineered;
- is required by Transport Canada to have lighting and painting at this location;
- is approximately 195 metres (640 feet) from Caldwell Road;
- will have equipment shelter located at the base of the tower;
- will be enclosed with 6-8 feet high steel wire fencing at the base and be equipped with anti climb apparatus; and
- will support six antennas mounted at a height of 38-39 metres.

Subject Property Location, Designation, Zoning and Surrounding Land Use

The subject property is:

- located on the northeast side of Caldwell Road about midway between DeYoung Drive and Birchill Mobile Home Park;
- designated Urban Residential along Caldwell Road and Rural Area on the rear portion (see Map 1) under the Eastern Passage and Cow Bay Municipal Planning Strategy;
- zoned R-1 (Single Unit Dwelling) along Caldwell Road and RA (Rural Area) on the rear portion (see Map 2) under the Eastern Passage and Cow Bay Land Use By-law; and
- surrounded by R-1 zoned lots with R-2 zoned lots nearby on both sides of Caldwell Road (see Map 2).

Municipal Process

Under the *Constitution Act, 1867*, the areas of telecommunication and radiocommunication are exclusively within federal jurisdiction. Industry Canada is the federal agency that licenses and regulates communication towers, including authorizing the location and installation of antenna systems. In exercising its mandate Industry Canada believes it is important that communication towers be deployed in a manner that considers the local surroundings. Proponents of new telecommunications facilities are therefore required to consult with the local municipality.

To ensure that telecommunication facilities are built with reasonable regard for the needs and concerns of the local community a public consultation policy has been established that requires that a proponent notify the applicable municipalities of its intentions. The municipality is then given an opportunity to review the proposed antenna system and site and provide comments on the aesthetic and visual qualities of the facility and site. If any reasonable or relevant concerns arise the municipality may provide written notice to the local Industry Canada office. The submissions are reviewed by Industry Canada, who will then determine whether or not a license is to be granted and upon what conditions, if any, such license may be granted.

DISCUSSION

The Eastern Passage and Cow Bay Municipal Planning Strategy (MPS) does not contain policy in regards to locating telecommunication towers or any policy criteria to be used in evaluating such a proposal. The MPS also does not establish a protocol or procedures for dealing with locating of antenna systems.

Following municipal amalgamation, HRM adopted a specific consultation process in accordance with Industry Canada's procedures and jurisdiction to address the siting of a tower on a parcel of land. The consultation process ensures that HRM, including residents, are aware of proposed new structures and allows HRM to request certain actions from applicants that will minimize the impact that such structures will have on the surrounding community. This process limits the Municipality's comments to the:

- visual impact;
- aesthetics; and
- compatibility with the local community.

Visual Impact

Often the introduction of a proposed land use may have related adverse effects. Visual impact is considered one of these adverse effects generally expected to occur with the location of a telecommunication tower. Adequate horizontal separation distance is often the only effective buffer for mitigating the visual impact of telecommunication towers. Within a built environment, where the concern is primarily visual, distances of 300 feet are regarded as sufficient separation distances. The three closest dwellings to the proposed tower are all located more than 300 feet (Attachment B) distant from the tower and the visual impact is minor. The tower is proposed to be located 195 metres (640 feet) from Caldwell Road. In the longer term, once construction is complete and the tower is erected, it is anticipated that the visual impact should have a minor impact on people working, recreating or travelling through the area due to the separation distance.

Aesthetics

The most preferred landscape image is one where the mid to foreground is a fairly open area having low ground cover, vegetated with trees and shrubs, with a water feature. Landscapes that contain buildings or structures are preferred less, with a few exceptions, but structures in the foreground do not hold the viewers focus or cause the same affective response as the preferred scenic landscape. The addition of the proposed tower to the background, with the built environment in the foreground, is not likely to significantly alter existing perceptions of the landscape. Minimal disturbance to the surrounding landscape is anticipated during the site preparation and construction phase, which is considered temporary, and is anticipated to have a minimal impact.

Community Compatibility

When a new land use is proposed for an area, compatibility concerns related to the nature of the land use, height/bulk/lot coverage, traffic generation, open storage or signs inevitably arise. Visual impact, discussed above, is often included as a compatibility concern. Despite the lighting

and painting of the tower to address safety concerns the separation distance should provide adequate visual mitigation.

In the short term there will be some impacts on the community compatibility relating to site development that are temporary effects and are not considered relevant in the visual mitigation of the proposal. After erection of the tower future traffic entering the site will be minimal with perhaps one vehicle trip per month. Further, there will be no open storage as equipment shelters are to be installed within the fenced site.

Industry Canada expects applicants to work cooperatively in reaching agreements to allow the sharing of antenna towers to minimize their number. Eastlink has determined that the existing towers located at 1500 Caldwell Road and Silvers Lane are not suitable for collocation of cellular service equipment because they do not meet Eastlink's coverage objectives for the community.

Health and Safety

Aside from land use issues there are often concerns about potential health risks from the placement of telecommunication towers. Industry Canada requires that such systems are operated in accordance with the safety guidelines established by Health Canada in their document entitled *Limits of Human Exposure to Radiofrequency Electromagnetic fields in the Frequency Range from 3kHz to 300GHz*, commonly referred to as *Safety Code 6*. This document specifies the maximum recommended human exposure levels to radiofrequency energy from radiation emitting devices. The safety of wireless communication devices such as Wi-Fi equipment, cell phones, Blackberries and their infrastructures, including base stations, is an area of ongoing study for Health Canada. Prior to receiving a licence from Industry Canada the operator must submit the calculations on the intensity of the radiofrequency fields to ensure that this installation does not exceed the maximum levels contained in *Safety Code 6* requirements. Information submitted in support of this proposal indicates no concerns in relation to *Safety Code 6* (Attachment C).

BUDGET IMPLICATIONS

The HRM costs associated with processing this planning application can be accommodated within the approved operating budget for C310.

FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Project and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Project and Operating reserves, as well as any relevant legislation.

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 a public information meeting held on January 26, 2011. For the public information meeting, notices were posted on the HRM website, in the newspaper and mailed to property owners within

the notification area as shown on Map 2. Attachment D contains a copy of the minutes from the meeting.

A public hearing is not included in the telecommunication application process; Community Council simply forwards a recommendation to Industry Canada.

ALTERNATIVES

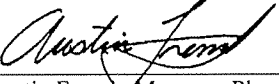
1. Inform Industry Canada that Harbour East Community Council does not object to the proposal by Bragg Communications Inc. to erect a 39 metre tower (127 feet) telecommunication tower at 1668 Caldwell Road. This is the recommended due to the reasons outlined in this report.
2. Inform Industry Canada that Harbour East Community Council has recommendations with respect to the proposed tower. In this event, staff will notify the local office of Industry Canada of Council's recommendations.
3. Inform Industry Canada that Harbour East Community Council objects to the proposal by Bragg Communications Inc. to erect a 39 metre tower (127 feet) telecommunication tower at 1668 Caldwell Road.

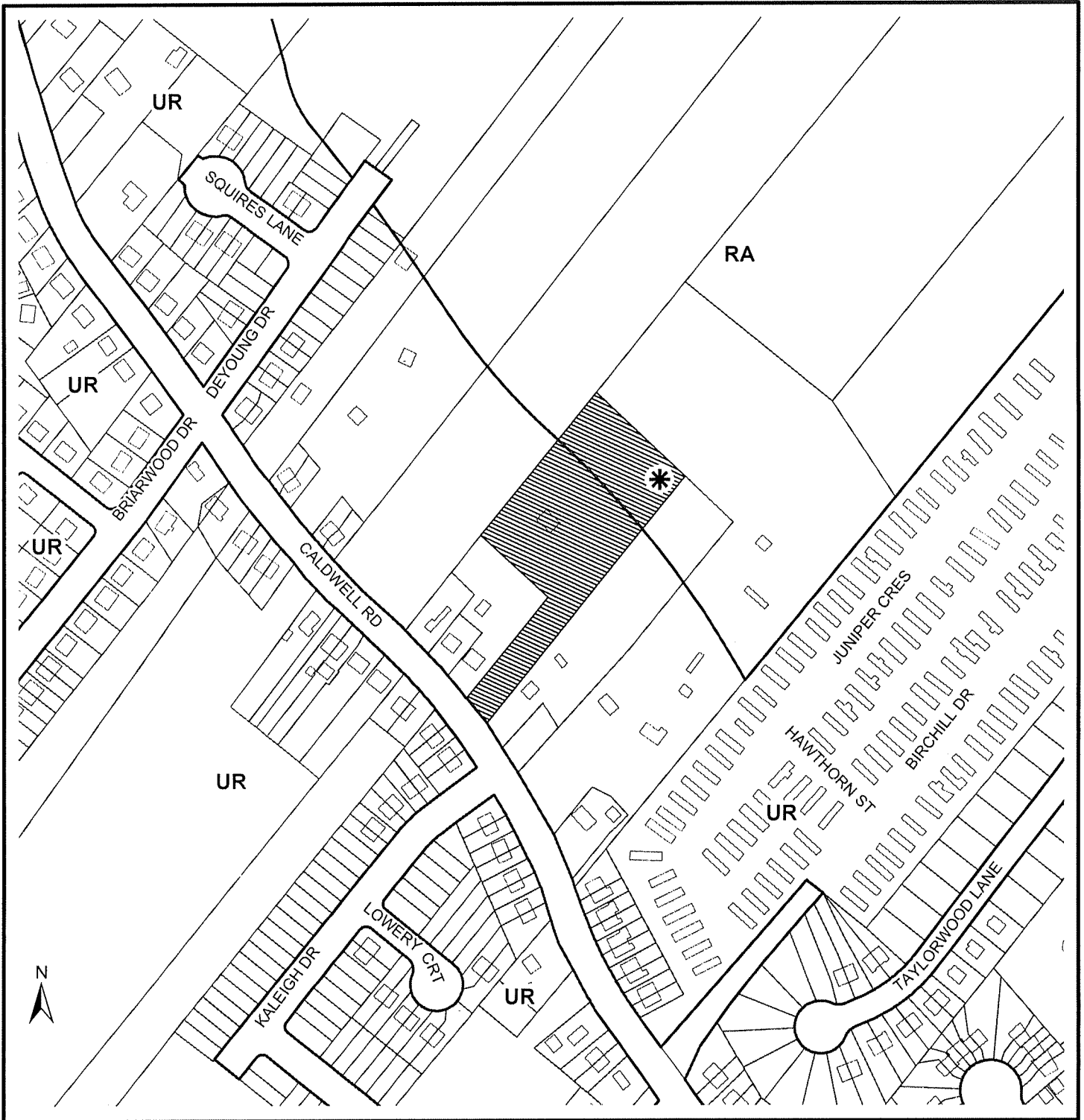
ATTACHMENTS

Map 1	Generalized Future Land Use
Map 2	Land Use By-law Zoning and Location
Attachment A	Site Plan
Attachment B	Proximity of Tower to Dwellings
Attachment C	Safety Code 6 Attestation
Attachment D	Minutes from Public Information Meeting

A copy of this report can be obtained online at <http://www.halifax.ca/commcoun/cc.html> then choose the appropriate Community Council and meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.


Report Prepared by : Darrell Joudrey, Planner I, 490-4181


Report Approved by: 
Austin French, Manager, Planning Services, 490-6717



Map 1 - Generalized Future Land Use

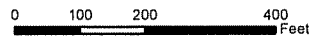
Pid 00571760

 Subject Property

 Approximate location of proposed telecommunications tower

Designation

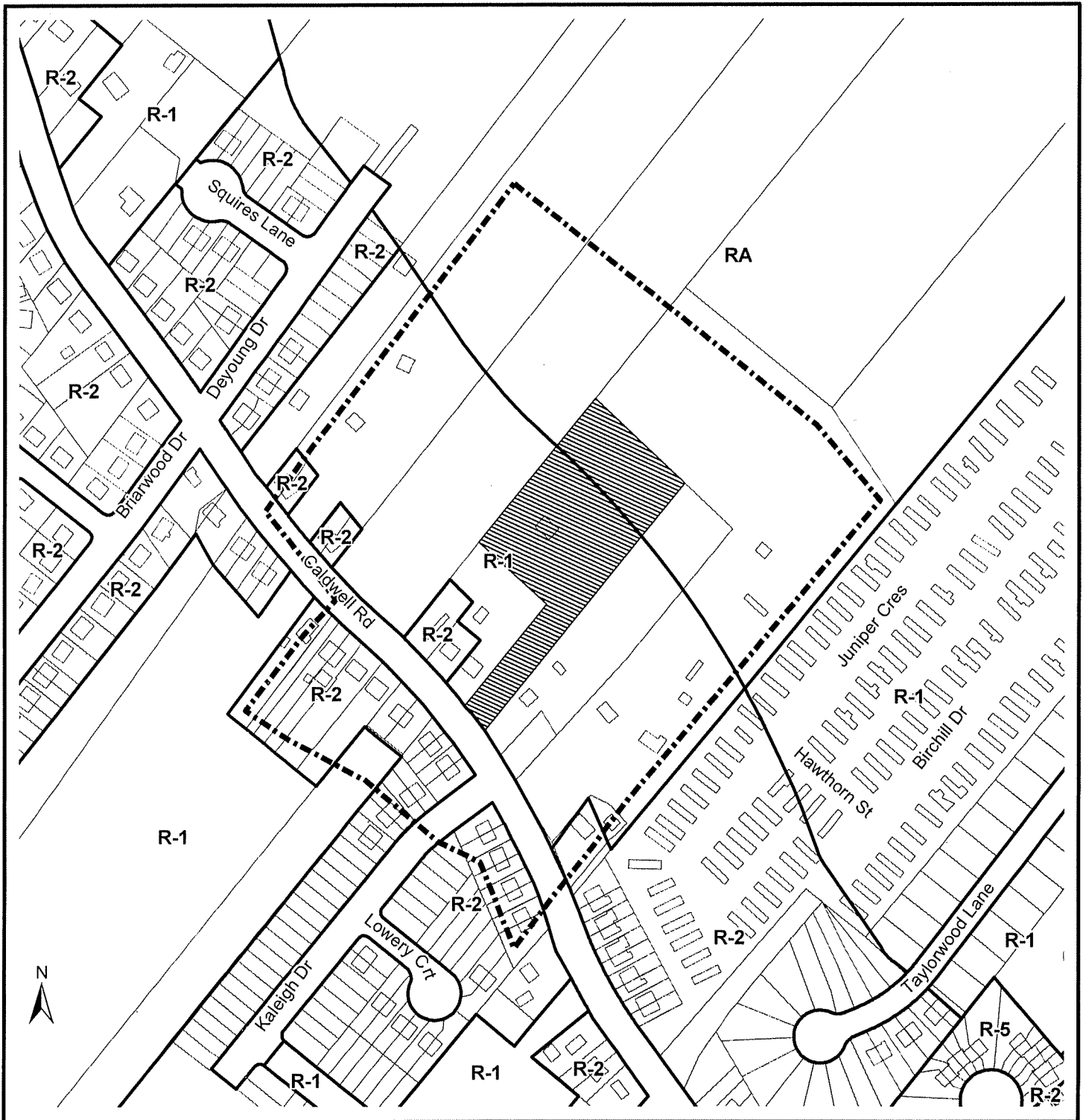
RA Rural Area
UR Urban Residential



This map is an unofficial reproduction of a portion of the Generalized Future Land Use Map for the Eastern Passage /Cow Bay Plan Area



HRM does not guarantee the accuracy of any representation on this plan.

Eastern Passage/ Cow Bay Plan Area



Map 2 - Zoning and Location

Pid 00571760

-  Subject Property
-  Notification Area

Zoning


- R-1 Single Unit Dwelling
- R-2 Two Unit Dwelling
- R-5 Townhouse Dwelling
- RA Rural Area

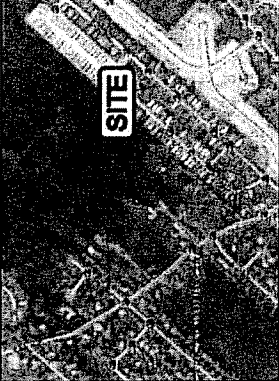


This map is an unofficial reproduction of a portion of the Zoning Map for the Eastern Passage/Cow Bay Plan Area.

HRM does not guarantee the accuracy of any representation on this plan.

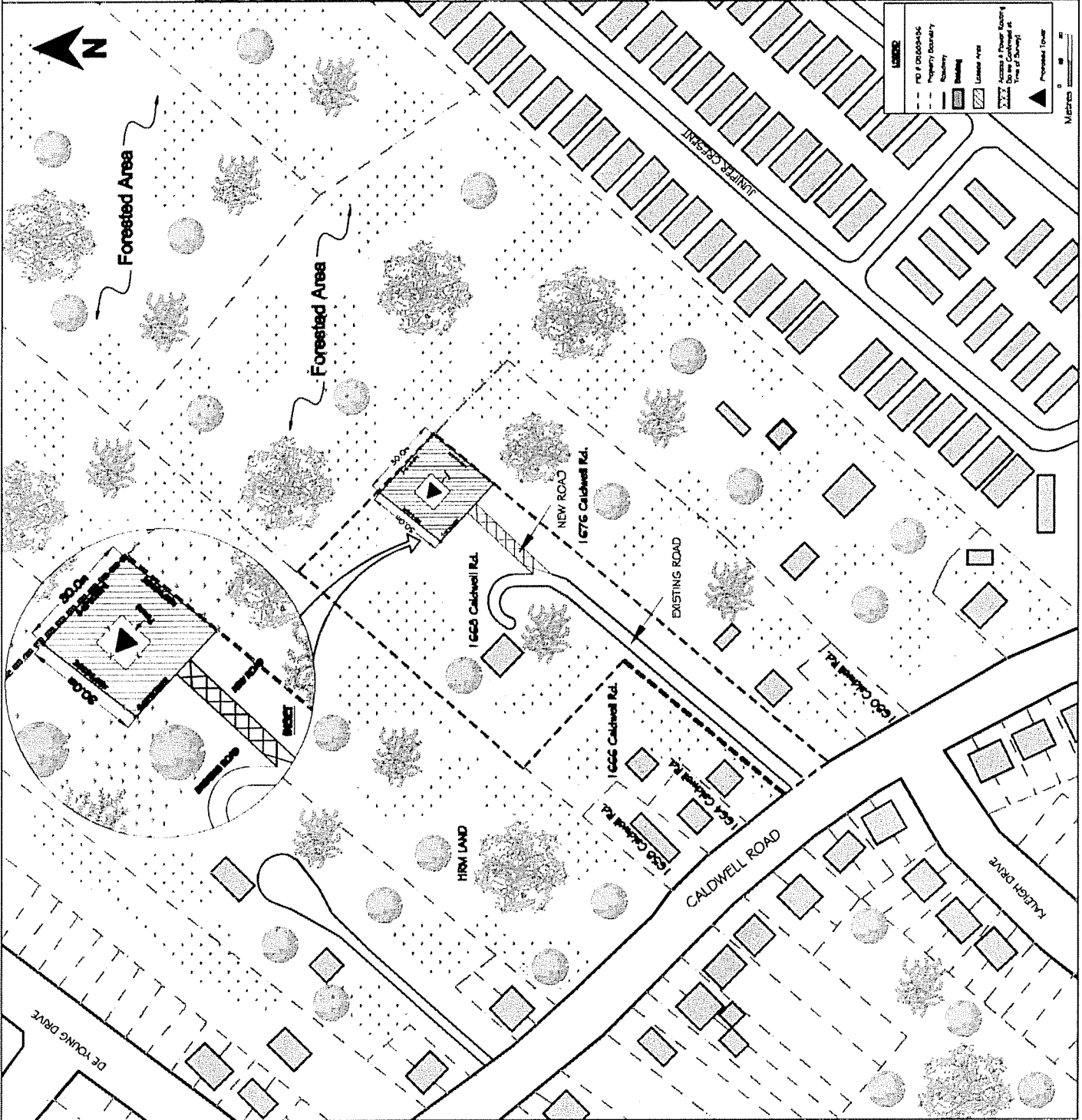
Eastern Passage/ Cow Bay Plan Area



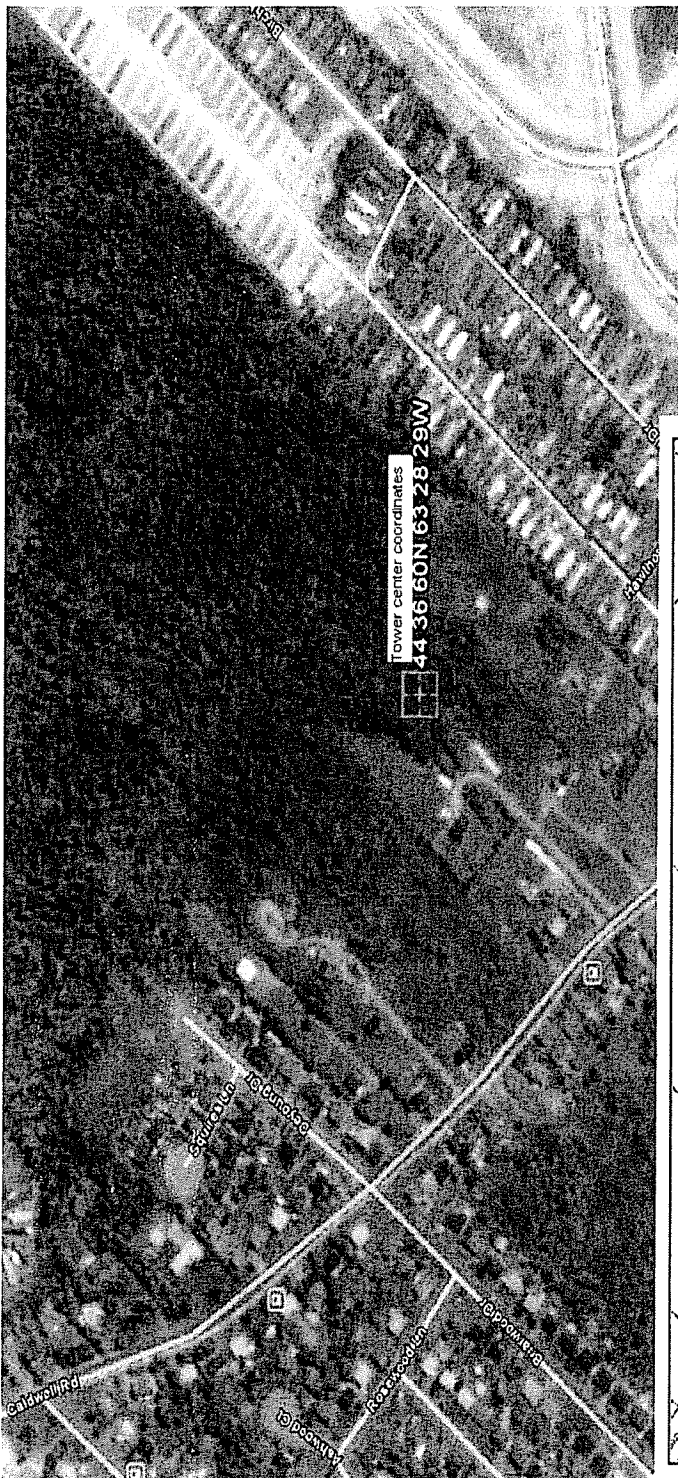


REVISIONS	
NO.	DATE

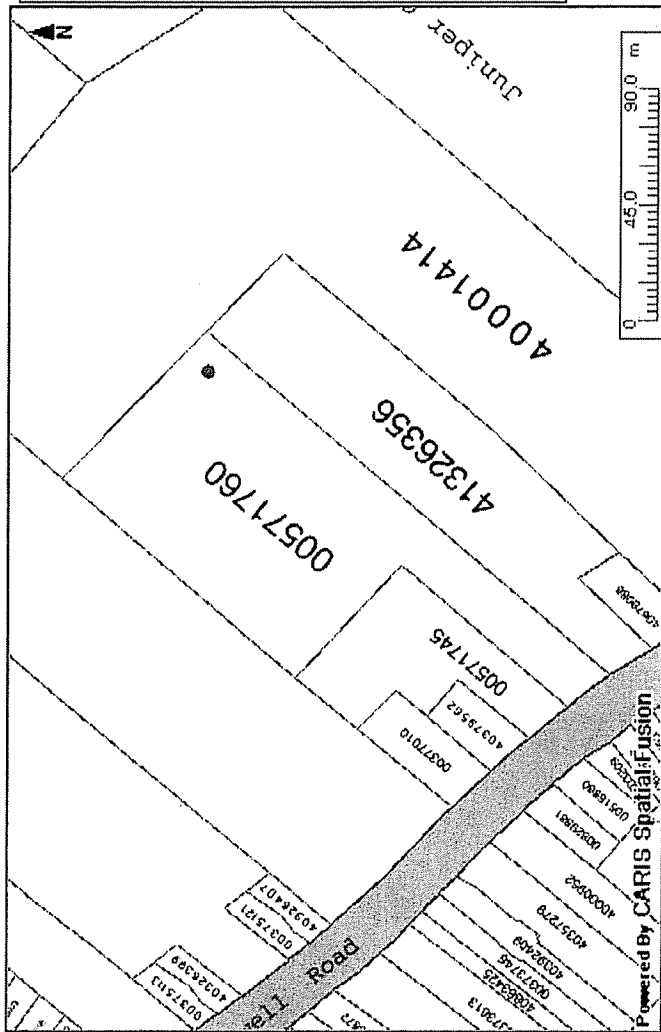
PROJECT INFORMATION	
TITLE:	SITE PLAN
SITE NAME:	EASTERN PASSAGE
SITE ID:	NSA060
DRAWING ID:	NSA060-CV-SP-001
DESIGNED:	OCTOBER 2010
DRAWN BY:	C. WEAVER
	A. PINTO



NSA060 Eastern Passage



For this location EastLink contacted a couple of landowners in the immediate vicinity as well as Armco. The candidates located on the right side of Caldwell Road are more favourable since the elevation is higher than that of the left. With Shearwater located nearby EastLink is limited to constructing a tower with a maximum height of 39m. The proposed tower center location (indicated by blue dot) is located on the north eastern tree buffer to the north, east and west of the proposed tower location.



NSA060 Eastern Passage
Proximity of Tower to Residences/Caldwell Road



Safety Code 6 Attestation

Summary

The below explanations and accompanying calculations are intended to demonstrate that Eastlink's radio installation at site **NSA060** complies with the radio emission limits as described in Health Canada's Safety Code 6.

Equipment

Eastlink's installation consists of the following equipment:

Item	Equipment Name	Max Power /Gain	Quantity
1	UMTS Remote Radio Head (RRU's)	46dBm (40Watt)	6
2	Kathrein 80010504 Panel Antenna (1710 - 2200MHz)	15.73 dBd (17.87 dBi)	6

Near Field vs Far Field

When calculating the level of emissions from a given radio installation, it is first required to identify whether the area under test is in the Near or Far Field of the antennas in question. In the case of Eastlink's UMTS-AWS Band installations, small antennas are being used, antenna considered to be small if the antenna length is less than the wavelength. (Please note that the installed Antenna is composed of array of small antenna elements). The following equation determined the Near-field limit for emissions from the site (small antenna):

$$R_s = \frac{\lambda}{2\pi} = \frac{0.143}{6.283} = 0.0227 \text{ [Meters]}$$

Where:

R_s = extent of the reactive near-field region [meters]

λ = wavelength [meters] (BS-TX of the AWS band (2100MHz))

Therefore, the area under test (ground level, **39m** from the antennas bottom) can be considered to be in the Far Field region of the transmitting antennas.

Power Density

Per Safety Code 6, exposure limits are set based on Power Density (W_{max}) of emissions at a given location relative to the transmitting antenna. Generally, in the case of tower mounted antennas, Power Density on the ground where the General Public might be exposed can be estimated as:

$$W_{max} = \frac{EiRP_{max}}{4\pi r^2} \text{ [Watts / meter}^2\text{]} \text{ (Far Field Power Density)}$$

Where:

W_{max} = Maximum Power Density [Watts / meters²]

$EiRP_{max}$ = Maximum Effective isotropic Radiated Power [Watts]

(total maximum radiated power from all the antennas installed at the site arriving at the ground)

r = antenna height off the ground [meters]

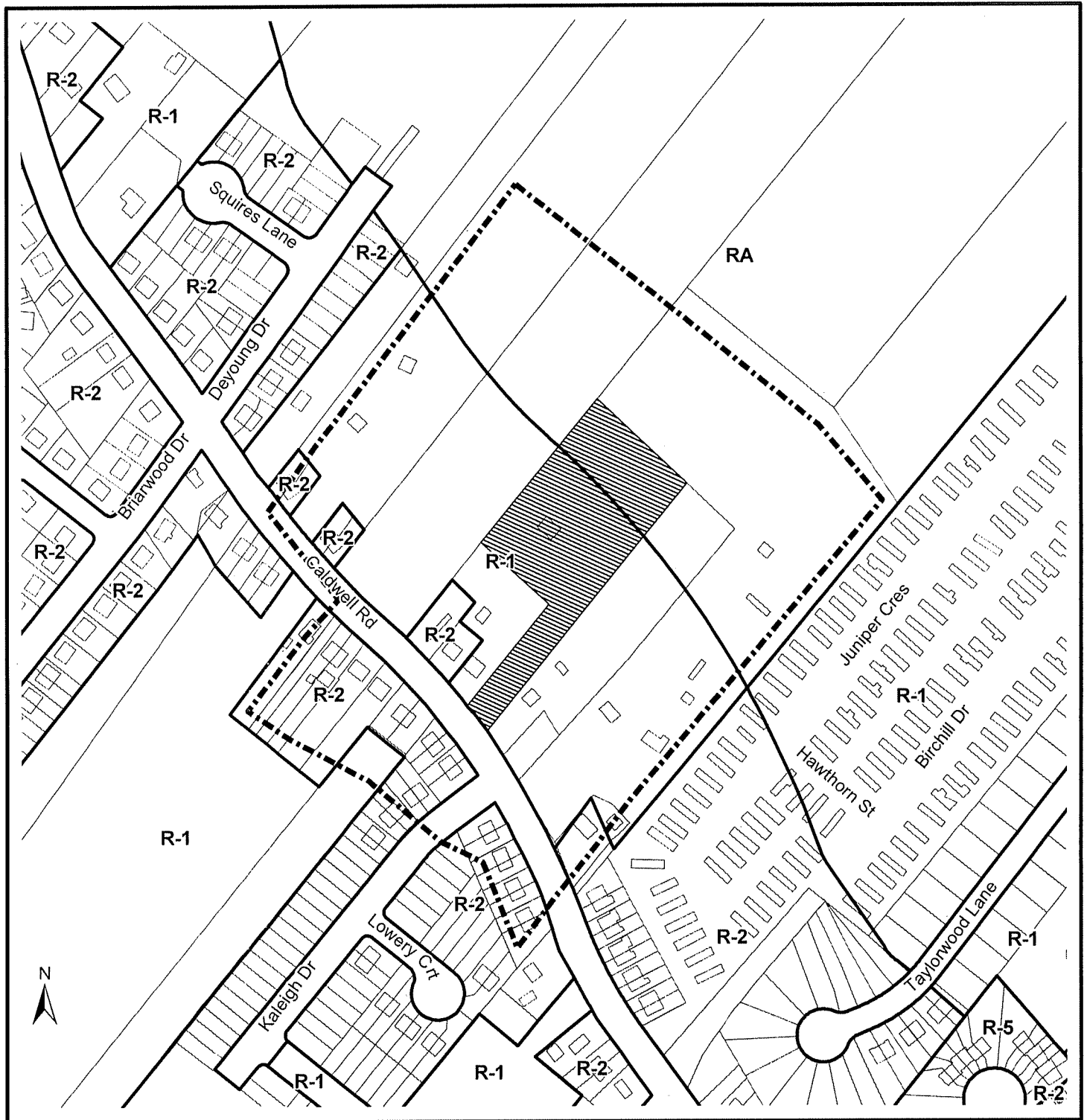
Eastlink's installation consists of direction antennas meaning that the level at which the radiated signal reaches the ground is greatly reduced from the main beam radiated power. The antennas being deployed radiate downwards to the ground (90 degrees from the main beam) with a gain of 36.2dB less than maximum. Therefore, for Eastlink's installation on site **NSA060**, a total maximum EiRP directed at the ground, including all UMTS RRU's (**6@46dBm[40W]**) is **3.51 Watts**. Assuming antennas bottom will be at the tower mounting height of **39m**, the maximum possible Power Density at the ground is:

$$W_{max} = \frac{6 * (46 \text{ dBm} + (17.87 \text{ dBi} - 36.2 \text{ dB}))}{4\pi(39)^2} = \frac{6 * (27.67 \text{ dBm})}{12.566 * (1521)} = \frac{6 * (0.585 \text{ Watts})}{19113.4} = 0.000184 \text{ [Watts / meter}^2\text{]}$$

Conclusion



Within the operating transmit frequency range for AWS Band the maximum allowed Power Density for exposure to the General Public is 10 Watts/meter². Therefore, Eastlink's installation at site **NSA060** falls well below the acceptable Radio Frequency emission limits set forth by Safety Code 6 (**actually more than 50,000 times less than allowed**).

Amr Galal
Radio Network Engineer



Map 2 - Zoning and Location

Pid 00571760

-  Subject Property
-  Notification Area

Zoning

- R-1 Single Unit Dwelling
- R-2 Two Unit Dwelling
- R-5 Townhouse Dwelling
- RA Rural Area

HALIFAX
 REGIONAL MUNICIPALITY
 COMMUNITY DEVELOPMENT
 PLANNING SERVICES



This map is an unofficial reproduction of a portion of the Zoning Map for the Eastern Passage/Cow Bay Plan Area.

HRM does not guarantee the accuracy of any representation on this plan.

Eastern Passage/ Cow Bay Plan Area

Attachment D: Minutes from Public Information Meeting

**HALIFAX REGIONAL MUNICIPALITY
PUBLIC INFORMATION MEETING
CASE NO. 16618 – 1668 CALDWELL ROAD, EASTERN PASSAGE
CASE NO. 16619 – LAURA DRIVE, COWBAY**

**7:00 p.m.
Wednesday, January 26, 2011
Eastern Passage Fire Station
1807 Caldwell Road, Eastern Passage**

STAFF IN

ATTENDANCE: Darrell Joudrey, Planner, Planning Applications
Shannon Pictou, Planning Technician
Jennifer Little, Planning Controller

ALSO IN

ATTENDANCE: Carolyn Weaver, Eastlink
Alex Forrest, Eastlink
Jill Laing, Eastlink
Matthew MacClelland, Eastlink
Councillor Jackie Barkhouse, District 8

PUBLIC IN

ATTENDANCE: 9

The meeting commenced at approximately 7:10 p.m.

Opening Remarks/Introductions/Purpose of meeting

Mr. Darrell Joudrey, Planner, Planning Applications, called the meeting to order at approximately 7:10 p.m. in the Eastern Passage Fire Station, 60 Alderney Drive, Dartmouth. He introduced himself as the planner guiding this application through the process and also introduced Councillor Jackie Barkhouse, Shannon Pictou, Planning Technician, HRM Planning Services and Jennifer Little, Planning Controller, HRM Planning Services.

Mr. Joudrey advised that the application by Eastlink is to locate telecommunication towers on lands at 1668 Caldwell Road in Eastern Passage and off Laura Drive in Cow Bay.

Mr. Joudrey reviewed the application process, noting that the public information meeting is an initial step, whereby HRM reviews and identifies the scope of the application and seeks input from the neighborhood. The application will then be brought forward to Harbour East Community Council

which will make a recommendation on the proposed telecommunication towers and forward it to Industry Canada.

Presentation on Application

Mr. Joudrey explained that Case 16618 by Eastlink is an application to Halifax Regional Municipality to locate a new 39 metre self supporting tower and 1 to 3 associated equipment shelters on a portion of PID 00571760 northeast of 1668 Caldwell Road in Eastern Passage.

Case 16619 is an application by Eastlink to locate a new 50 metre self supporting tower and 1 to 3 associated equipment cabinets on a portion of PID 40083057 northwest of 14 Laura Drive in Cow Bay. The proposed tower will be set back approximately 148 metres from Laura Drive and will be accessed by a new driveway from Laura Drive. The current land use is undeveloped.

Mr. Joudrey also explained that Eastlink had advised HRM in their application that there were no opportunities to collocate their equipment as they are required to investigate first under Industry Canada protocol.

Mr. Joudrey explained that there is no existing policy or protocol in the Eastern Passage/Cow Bay MPS regarding the telecommunication process. The policy followed is from a report approved by Regional Council in 2006 so that planning areas without evaluative policy would have a consistent approach to evaluating these applications. Council comment is limited to visual impact, aesthetics and community compatibility.

Carolyn Weaver, Eastlink Representative thanked the residents for coming to the meeting and explained she would not be doing a formal presentation but would walk everyone through a series of boards they had brought with them to describe the applications and she would answer any questions at that time.

Questions and Answers

Mr. Jim Elliot, Cow Bay, enquired why the tower does not need flashing light on it – especially because of all the Sea Kings that fly over there.

Ms. Carolyn Weaver, Eastlink, responded that Eastlink had been speaking with DND to see what the requirements were and in these application lights were not required for this particular tower (Caldwell Road).

(At this point Ms. Weaver continued going through the presentation boards after giving a brief description of who Eastlink is and where they were looking at locating towers. They currently have 71 new sites in Nova Scotia with 21 proposed for location in HRM.)

Mr. Gordon Hefler, Eastern Passage, asked if the land was owned or leased by Eastlink and what the life expectancy of a tower was.

Ms. Carolyn Weaver, Eastlink, replied the land is leased from property owners. The life of a tower is about 30 plus years if well maintained.

Mr. Bill Stanbrook, Cow Bay, asked if Eastlink built the cell-tower systems themselves.

Ms. Carolyn Weaver, Eastlink, answered yes.

Mr. Bill Stanbrook, Cow Bay, enquired how long the range was.

Mr. Alex Forest, Eastlink, introduced himself as Engineer with Eastlink, responded that the height of the tower varies for coverage areas. There is about 2-3 kilometres coverage for towers of this size.

Mr. Bill Stanbrook, Cow Bay, asked if areas of Cow Bay without reception will have coverage with the tower off Laura Drive.

Mr. Alex Forest, Eastlink, answered yes.

Mr. Bill Stanbrook, Cow Bay, asked what the time frame was for building these things.

Mr. Alex Forest, Eastlink, answered that the timeframe was about 6 months.

Mr. Bill Stanbrook, Cow Bay, asked how many antennas were on these towers. Six?

Mr. Alex Forest, Eastlink, responded yes, six initially and depending on increased capacity demands may require more.

Mr. Bill Stanbrook, Cow Bay, asked if you (Eastlink) will have to come back here to put more antennas on the tower.

Mr Alex Forest, Eastlink, answered not if they stay within the regulations. These will be monitored all the time.

Mr. Bill Stanbrook, Cow Bay, asked does weather affect these.

Mr. Alex Forest, Estlink, answered no.

Mr. Bill Stanbrook, Cow Bay, asked what happens in the event of a power outage.

Mr. Alex Forest, Eastlink, answered that there were back up batteries on site – gel cell batteries.

Mr Bill Stanbrook, Cow Bay, asked if there was any hazard from this type of battery.

Mr. Alex Forest, Eastlink, answered that these batteries are considered safe and very low impact. They will be stored inside the storage shelters.

Mr. Bill Stanbrook, Cow Bay, asked why isn't it (tower) further away from the houses. Why is it built so close to the property lines of 14 Laura Drive.

Ms. Carolyn Weaver, Eastlink, replied she was going to check the elevations but she did think they considered moving the site further north initially. Eastlink likes to keep sites fairly close to boundaries so as to not impede future development of the property. She would have to check and get back to Mr. Stanbrook on that question.

Mr. Bill Stanbrook, Cow Bay, said he had a question for HRM. Is there any concern for future development if the towers are built so close to property lines.

Mr. Darrell Joudrey, HRM, answered that there were no setback distances for telecommunication towers in the Land Use By-law and thought there were none required under the National Building Code either but he would verify that with the Building Officials.

Mr. Jim Elliot, Cow Bay, stated that in the beginning when cell phones were first being used there was only one service provider and coverage wasn't all that good. Now we have companies sharing towers. Asked how many agencies are going to have their equipment on these towers. More antennas and you are adding to the frequency and you get six times more power coming out.

Mr. Alex Forest, Eastlink, answered we are meeting government specs. In fact we are greater than 10,000 times below the Safety Code 6 level. Actually more than 50,000 times less than Health Canada safe levels

Ms. Shelly DeMont, Cow Bay, asked if adding more antennas would create higher radiofrequency levels. Are they cumulative?

Mr. Bill Stanbrook, Cow Bay, interjected that more than one study; a few studies show, that radio frequency waves are harmful to your health. But there are others that say there are no impacts to your health and towers are safe.

(Discussion ensued about radiofrequency levels and various report/studies with conflicting evidence and opinions)

Mr. Alex Forest, Eastlink, answered that Eastlink is required to recalculate everytime there is an addition to the antenna system. Any issues the public has will be addressed as we must meet Health Canada guidelines.

Mr. Jim Elliot, Cow Bay, stated that he has concerns with the health aspect of it. There is no proof that this will not cause health issues.

Mr. Bill Stanbrook, Cow Bay, asked if they (Eastlink) had to come back for a public meeting if they wanted to put more antennas

Mr. Darrell Joudrey, answered that under the Industry Canada regulations Eastlink only has to come back to HRM if they increase the tower height by 25 feet or more.

Mr. Jim Elliot, Cow Bay, stated that he has concerns with the Sea Kings. When it is foggy and not clear they will need a light.

Mr. Darrell Joudrey, HRM, answered that as Eastlink has already stated this evening NavCanada, working with DND, studied the tower request and recommend to Transport Canada that no light was required.

Mr. Bill Stanbrook, Cow Bay, asked why Eastlink was not running off towers that are already out there?

Mr. Alex Forest, Eastlink, answered that we choose not to add to their towers because we would have less quality cell service, so we would like to build our own to get the same level.

Mr. Gordon Heffler, Eastern Passage, stated that he could think of radio stations, like ones over in Halifax, that put out 100 watts. Is there a number associated with cell towers?

Mr. Alex Forest, Eastlink, 40 watts.

Councillor Jackie Barkhouse, asked if Darrell Joudrey could please explain the process from here as she thought it might be helpful.

Mr. Darrell Joudrey, HRM, explained that after this a staff report is prepared with a recommendation for Harbour East Community Council. Once it gets to Council Council may forward the recommendation or chose an alternative. This application process for telecommunication towers, does not a public hearing. Council is not making a decision only forwarding their recommendation to Industry Canada.

Councillor Jackie Barkhouse, stated that Council does not make a decision because it is Industry Canada that has the final say and we are just making a recommendation.

Mr. Darrell Joudrey, HRM, provided his contact information.

Ms. Elaine Elliot, Cow Bay. stated that she had concerns about the tower being right next to the playground. This could cause health concerns - we don't know what these towers will affect.

Ms Carolyn Weaver, Eastlink, stated that she was aware of the playground and that all towers are put in to meet standards, especially health concerns. Eastlink has been working very closely with Health Canada.

Closing Comments

Mr. Joudrey thanked everyone for attending. He encouraged anyone with further questions or comments to contact him.

Adjournment

The meeting adjourned at approximately 7:50 p.m