

Web Mapping & Engineering Drawings

Jeff Jewell Manager, Engineering Systems

Derik Woo Supervisor, GIS Services

Presentation to URISA BC 2004/05/26



Presentation Outline

- **Overview of BurnabyMap**
- **Overview of Engineering Drawings application**
- **Demo of Engineering Drawings application**
- **Q & A**
- **Webmap team:**
 - » Brian Sameshima, Chief Information Officer – Information Services
 - » James Ko, Mapping Technician – Engineering Systems
 - » Jas Dhudwal, System Analyst – Information Services
 - » George Bitcon, Programmer Analyst – Information Services
 - » Elsie Prevette, Planning Tech./Info Systems – Planning Department
 - » Terry Richard, Mapping Technician – Engineering Systems



Overview of BurnabyMap

- **BurnabyMap 1.0 Intranet service launched in 2000**
 - » ArcIMS 3.0, browser based [MS Internet Explorer only]
 - » Standard layout and user interface
 - » Limited data, query and reporting capabilities
- **BurnabyMap 2.0 Intranet and Internet service launched in 2001**
 - » ArcIMS 3.1
 - » Revised layout to maximize use of screen real-estate
 - » Simplified user interface [collapsible layer list, no “active” layer etc.]
 - » More powerful tools [.pdf printing, “drill-down” etc.]
 - » Additional data, query and reporting
- **BurnabyMap 3.0 Intranet and Internet coming soon**
 - » Portal front-end, new front-counter applications, etc.
 - » Always adding new data and stealing ideas from other WebMaps!



Demo of BurnabyMap

- **Screen layout, tools and user interface**
 - » Multi-function left frame [layers, legend, queries and reports]
 - » PDF print facility from www.geocortex.net
- **Data Layers**
- **Query capabilities**
- **Infrastructure data and queries**



Webmap layout

City of Burnaby Staff Version

SEARCH

Welcome to Burnaby's Web Map. First time visitors should familiarize themselves with the help guide by clicking on Help in BurnabyMap's toolbar.

Layer List

- Properties
- Services & Amenities
- Engineering
- Environmental
- Trails
- Aerial Photography

help contact us disclaimer home

Screen sample with browser toolbars minimized

CONFEDERATION PARK
SUMMIT YOUTH CENTRE

ROSSER ELEMENTARY
EILEEN DAILY POOL AND FITNESS CTR

MCGILL LIBRARY

CONFEDERATION COMMUNITY CENTRE

FIRE HALL 5

HEIGHTS COMMERCIAL DISTRICT

WEST-SELLS PARK

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Infrastructure Layers

The screenshot displays the City of Burnaby Mapping Application in Microsoft Internet Explorer. The browser title is "City of Burnaby Mapping Application - Microsoft Internet Explorer". The address bar shows "http://huey/website/bbypubmap/viewer.htm". The application interface includes a search bar, a "LAYERS" panel on the left, and a main map area. The "LAYERS" panel is expanded to show the "Sewer" category, which includes "Sanitary Areas", "Combined Manholes", "Combined Mains", "Sanitary Manholes", "Sanitary Mains", "Storm Manholes", and "Storm Mains". A red box highlights the "Sewer" category, and a red arrow points to the "Sewer Utility Layers" text on the map. The map shows a grid of streets including Frances St, Georgia St, Union St, Venables St, and Parker St, with various utility lines overlaid. The bottom of the screen displays "You are in the webmap testing environment." and "Local intranet".

City of Burnaby Mapping Application - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://huey/website/bbypubmap/viewer.htm

City of Burnaby Staff Version

SEARCH

Welcome to BurnabyMap. First time visitors should familiarize themselves with BurnabyMap's help guide by clicking on Help in BurnabyMap's toolbar.

LAYERS

- Properties
- Services & Amenities
- Population Characteristics
- Engineering
 - Sewer**
 - Sanitary Areas
 - Combined Manholes
 - Combined Mains
 - Sanitary Manholes
 - Sanitary Mains
 - Storm Manholes
 - Storm Mains
 - Water Network
 - Streets

5130 5215 542 5465 5515531 5551 0560 5647 0570

FRANCES ST

5130 5220 5228 5230 5304 5350 5382 5410 5420 0605

0660 5302 5340 5390

0670 0625

5181 0670 5225 5275 5305 5345 5365 5385 0645

0680 5255 5295 5325 5375 5395

5505 5515 5521 0689 5603 5615 5625 5637

0721 0720 5240 5280 5308 5358 5406 5426 5456

0741 0740

5147 0790 5225 5231 5285 5275 5299 5361 5381 5425 0757 5503 5507 5513 5517 5571 5613 5617 5647 5675

UNION ST

5190 5202 5205 5240 5290 5355 5365 5388 5408 5448 5460 5490

5504 5510 5518 5528 5584 5605 5620 0811

0875 0842

0885 5231 5251 5281 5331 5375 5379 5383 5391 5461 5491

0880 5515 5575 5585 5595

VENABLES ST

5140 5220 5428 5490 5494

0917 0936 0928 5538 5556 5586 0921

0950 0938 0925

0970 5315 5335 5341 5345 5355 5361 5371 5431 5441 5461 0931

0948 5521 5533 5591 561 0939

PARKER ST

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You are in the webmap testing environment.

Identify Local intranet



Search Details

City of Burnaby Mapping Application - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://huey/website/bbypublicmap/viewer.htm>

City of Burnaby Staff Version

SEARCH

Welcome to BurnabyMap. First time visitors should familiarize themselves with BurnabyMap's help guide by clicking on Help in BurnabyMap's toolbar.

Search Details

- Street Name: **UNION ST**
- Street Key Code: **0810-140**
- Hundred Block: **5200**
- Neighbourhood: **Parkcrest - Aubrey**
- Zoning: **R4**
- Census Profile: **District 5**
- District Lot: **L.127**
- Block Watch Area: **A18**
- Garbage Zone: **A6**
- Facet: [Click to View Map 23D](#)
- Pressure Zone: **NORTH BURNABY**
- Drainage Area: **Beecher Creek**
- Storm Main: [View Data](#)
- Sanitary Area: **SPRINGER**
- Sanitary Main: [View Data](#)
- Road Maint Area: **HC-3**

Utility Query Results

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You are in the webmap testing environment.

[Click to View Infrastructure Info](#) Local intranet



Hyperlink to Facet Map

City of Burnaby Mapping Application - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://huey/website/bbypublicmap/viewer.htm>

City of Burnaby Staff Version

SEARCH

Welcome to BurnabyMap. First time visitors should familiarize themselves with BurnabyMap's help guide by clicking on Help in BurnabyMap's toolbar.

Search Details

Neighbourhood: **Parkcrest - Aubrey**
Zoning: [R4](#)
Census Profile: [District 5](#)
District Lot: **L.127**
Block Watch Area: **A18**
Garbage Zone: **A6**
Facet: [Click to View Map 23D](#)
Pressure Zone: **NORTH BURNABY**
Drainage Area: **Beecher Creek**
Storm Main: [View Data](#)
Sanitary Area: **SPRINGER**
Sanitary Main: [View Data](#)
Road Maint Area: **HC-3**

5130 5215 542 546 551 555 0560 5647 0570

FRANCES ST

5130 5220 5228 5230 5304 5350 5382 5410 5420 0605

0660 5302 5340 5390

0670 0608 5520 5524 5620 5628 5638 5646

5181 0680 5225 5275 5305 5345 5365 538 5395

5255 5295 5325 5375

5505 5515 5521 0689 5603 5615 5625 5637

0721 0720 5240 5280 5308 5358 5408 5426 5456

0741 0740 5260 5290 5328 5378

0740 5514 5518 5602 5610 5616 5626 5676

5147 0790 5225 5231 5265 5275 5299 5361 5381 5425 0751

5235 5351 5371 5409

5503 5507 5513 5517 5571 5613 5617 5647 5675

5190 5202 5205 5240 5290 5368 5388 5448 5460 5490

5280 5355 5408

5504 5510 5518 5528 5584 5608 5629 0811

0875 0842 5251 5281 5331 5375 5379 5383 5391 5461 5491

0885 5231 5259 5365 5389

0860 5515 5575 5585 5595

0880 5515 5575 5585 5595

5140 5290 5494

0917 0936 0928 5538 5556 5586 0921

0950 0938 0925

0970 5315 5335 5341 5345 5355 5361 5371 5431 5441 5481

0948 5521 5557 5591 5611 0931

5533 5591 5611 0939

PARKER ST

VENABLES ST

UNION ST

SPRINGER

KENSINGTON PARK

HOLDWAY AV

CURTIS ST

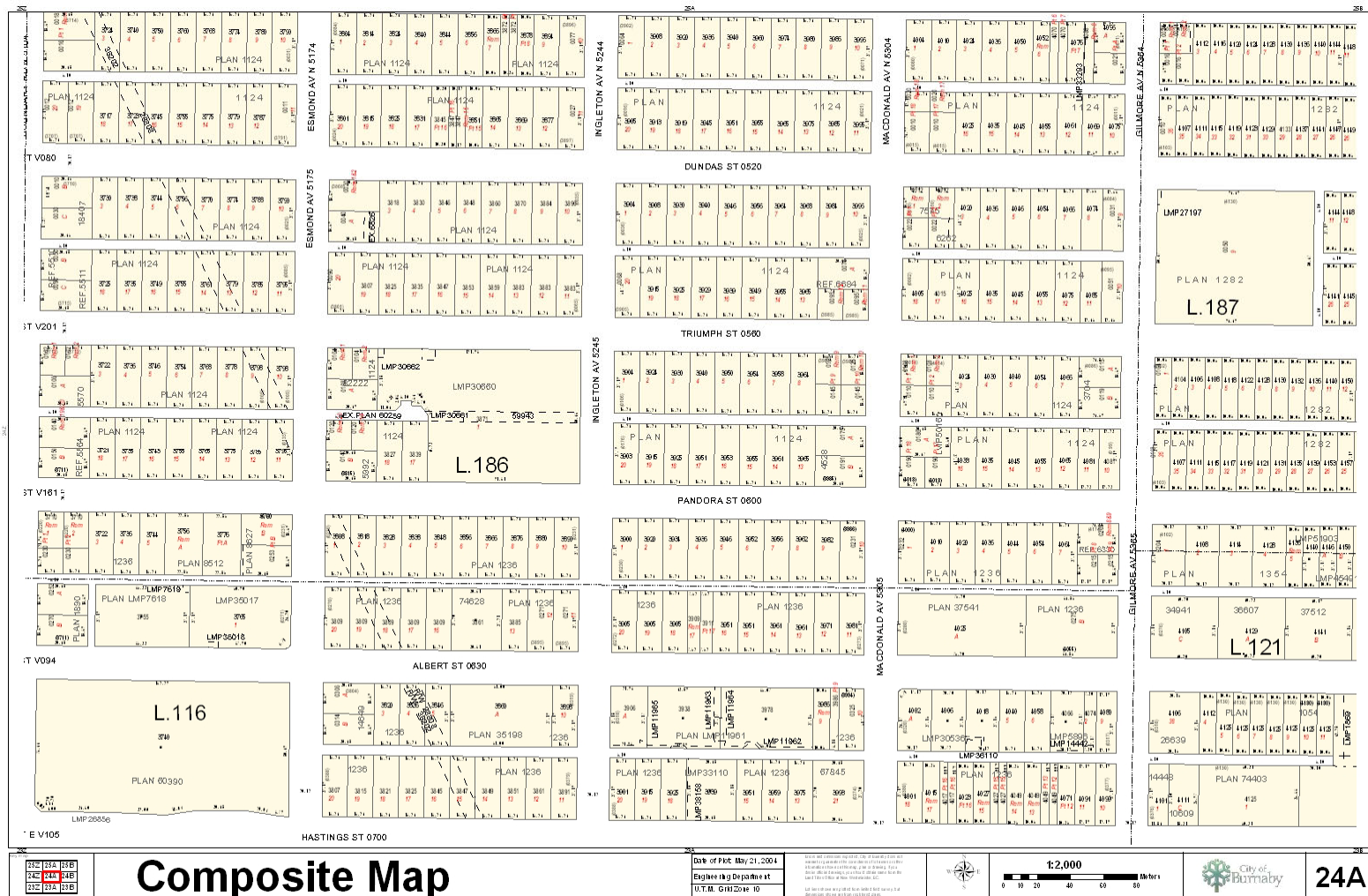
City of Burnaby - Copyright (C) 2005. Accuracy and correctness not guaranteed.

You are in the webmap testing environment.

Click to View Composite Map Local intranet



Facet Map





Legend

City of Burnaby Mapping Application - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://huey/website/bbpublicmap/viewer.htm>

City of Burnaby Staff Version

SEARCH

Welcome to BurnabyMap. First time visitors should familiarize themselves with BurnabyMap's help guide by clicking on Help in BurnabyMap's toolbar.

BurnabyMap Legend
Places

- Golf
- Police
- Fire
- Utility
- Cemetery
- School
- Civic
- Library
- Hospital
- Mall

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As Constructed
Selection cleared

Map: 501738.54 , 5458743.89 -- Image: 199 , 7

Local intranet



Search Capabilities

City of Burnaby Mapping Application - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://huey/website/bbpublicmap/viewer.htm>

City of Burnaby Staff Version

Civic/Cultural Buildings

City Hall

Search Help

Search Details

Address: **4949 CANADA WAY**
Postal Code: **V5G 1M2**
Roll Number: **1770-4949-0000**
Burnaby Parcel #: **000-059-244**
Assessment: [View Data](#)
Description: **CITY HALL**
Neighbourhood: **Douglas - Gilpin**
Zoning: **P2**
Census Profile: [District 13](#)
District Lot: **L.79**
Block Watch Area: **D16**
Garbage Zone: **C8**
Facet: [Click to View Map 15E](#)
Pressure Zone: **CENTRAL-VALLEY**
Drainage Area: **Deer Lake Brook**
Sanitary Area: **GILP-GRAHD**
Road Maint Area: **HC-8**

Search on Civic Buildings

BURNABY CENTRAL SECONDARY
CITY HALL
POLICE STATION
DEER LAKE PARK
BURNABY ART GALLERY
SHADBOLT CENTRE FOR THE ARTS

City of Burnaby - Copyright (C) 2003 Accuracy and correctness not guaranteed.

9:41 AM



Generate PDF files

File Edit View Favorites Tools Help

Back Search Favorites Media

Address <http://huey/Website/BurnabyMap/> Go Links

Google Search Web Search Site Site popups allowed AutoFill Options

City of Burnaby Staff Version help contact us disclaimer home

Create A Report

Engineering Drawings:

Print Done

Layer List

- Properties
- Services & Amenities
- Engineering
 - Sewer
 - Water Network
 - Streets
 - Survey
 - Capital Works
- Environmental
- Trails
- Aerial Photography
 - B/W 2002
 - Colour 2002

CONFEDERATION PARK

EILEEN DAILY POOL AND FITNESS CTR

MCGILL LIBRARY

CONFEDERATION COMMUNITY CENTRE

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Generate an output map in PDF format

Local intranet



PDF map layout details

City of Burnaby Mapping Application - Microsoft Internet Explorer

Address <http://huey/Website/BurnabyMap/>

City of Burnaby Staff help contact us disclaimer home

Generate Printable Map - ...

Map Title:
Goal Post Problem

Paper Size:
Tabloid (11 x 17)

Print to a Standard Scale
 Automatically select best scale.
 Imperial Scale

Enter your own scale in the box below.
1 :

Map Notes:
Follow up citizen complaint of misplaced goal post!

Generate Map

A Few Notes About Printing

CONFEDERATION PARK
SUMMIT YOUTH CENTRE
MCGILL LIBRARY
CONFEDERATION COMMUNITY CENTRE

Map: 499775.77 , 5459083.75 -- Image: 129 , 84



PDF Map

Adobe Acrobat Professional - [map[2].pdf - Linked File]

File Edit View Document Tools Advanced Window Help

59%

No current selection

City of Burnaby
Goal Post Problem
May 18, 2004

City of Burnaby - Copyright (C) 2003. Accuracy and correctness not guaranteed.
This information has been gathered and assembled on the City of Burnaby's computer systems. Data provided herein is derived from a number of sources with varying levels of accuracy. The City of Burnaby disclaims all responsibility for the accuracy or completeness of information contained herein.
Follow up citizen complaint of misplaced goal post

Map Scale
1 : 1250

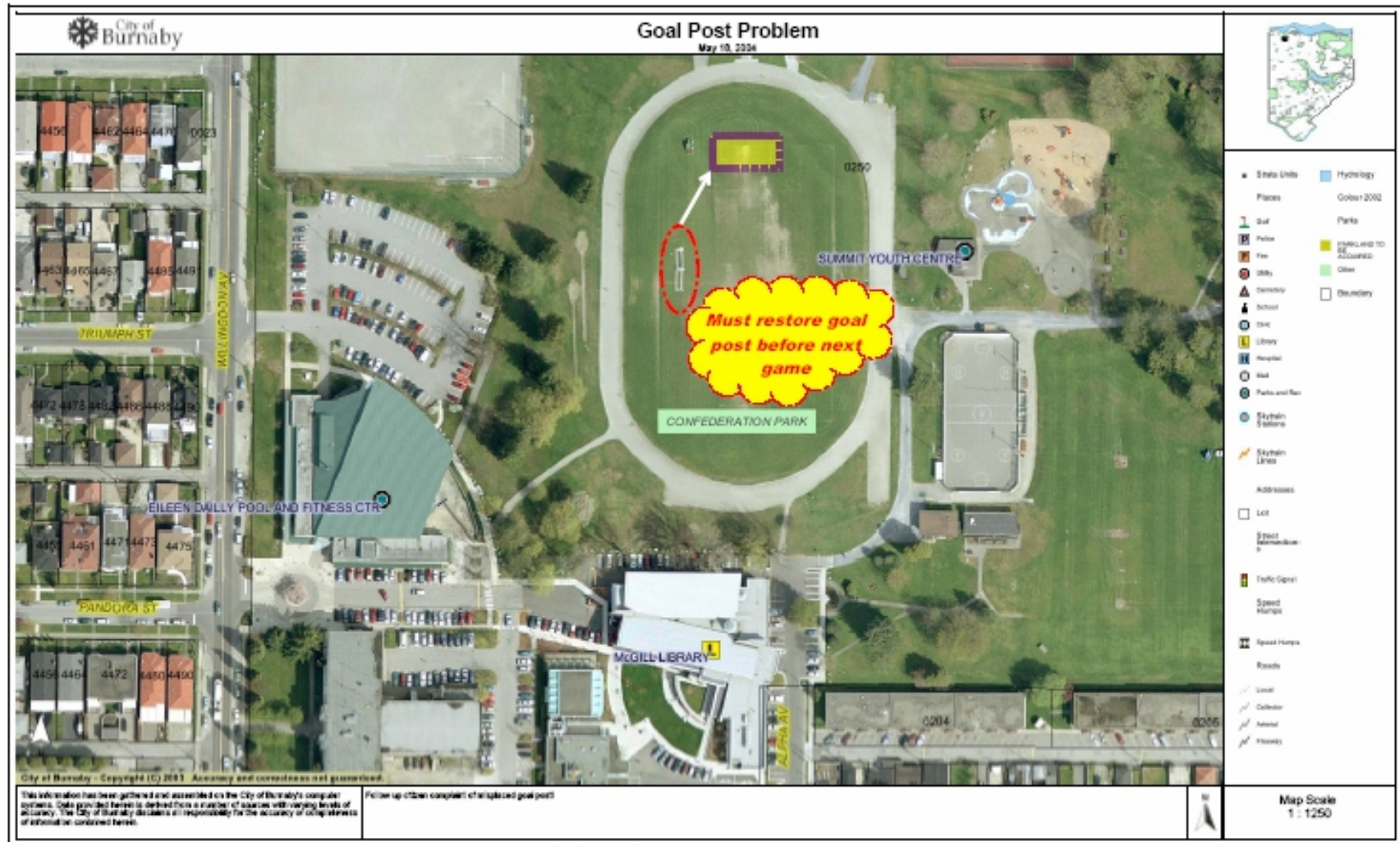
PDF map with legend

17 x 11 in

1 of 1



Redlining and Annotating Using Acrobat



PDF map with user annotations



Overview of Engineering Drawings project

- **Project Background**
- **Why use a GIS for Engineering Drawings?**
- **Engineering Drawings application characteristics**
 - » Document indexing
 - » Document retrieval
 - » Document usage
- **Demo of Engineering Drawings application**
- **What we've learned**
- **What's next**



Project Background

- **Burnaby has approximately 25,000 engineering drawings.**
- **Requirements: (1) backup; (2) on-line access from any PC**
- **The lowest cost scan conversion service [<\$1.00 per drawing]:**
 - » Each document placed on flatbed table and microfilmed
 - » Microfilm images automatically scanned by machine
 - » CD-ROMs containing TIFF 4 images + Drawing IDs referenced to filenames
 - » NO index to support access via spatial or attribute query
- **Staff preference for hardcopy originals rather than digital copies**
- **Spatial document Indexing & Retrieval facility required because:**
 - » Resistance to change. Goal: to 'win' users by saving their time.
 - » Had to be easy to use and guaranteed to find what user is looking for.



Why use GIS for Eng. Drawing access?

- **DBMS is perfect for storage / retrieval of non-spatial documents:**
 - » Indexing on selected attributes to optimize query retrieval
 - » Query with Boolean logic on attribute values
- **DBMS (without spatial processing) is problematic for spatial documents:**
 - » The basic problem is to identify what is contained within a picture.
 - » What alphanumeric data accurately describes a picture?
 - ③Attribute data entry/verification [e.g. 6-12 fields, 50-100 characters]
 - ③Any errors [spelling, abbreviations, punctuation] compromise query
 - ③Cannot **guarantee** that all relevant documents will be found
- **GIS technology is the natural solution for spatially related documents:**
 - » Index and query on combined spatial and attribute data



Overview of spatial indexing and retrieval

- ‘Spatial Index’ polygon corresponding to area covered by each Drawing
- Retrieval based upon spatial query:
 - » Query-Point [e.g. Hydrant ID] in Drawing-Polygon
 - » Query-Line [e.g. Water Main ID] intersecting Drawing-Polygon
 - » Query-Polygon [e.g. Parcel ID] intersecting Drawing-Polygon
 - » Buffered Query-Point/Line/Polygon intersecting Drawing-Polygon
- **GIS technology is the natural solution for spatial documents!**
 - » No need to identify what is contained within a picture
 - » Attribute data [e.g. drawing type, date] can optionally be used to refine query
 - » Reduced cost and effort to create and to use
 - » **Guarantees** that all relevant documents will be found



Engineering Drawings application

- **Spatial Document Indexing Facility**
 - » Based upon ESRI's MapObjects and Microsoft Visual Basic
 - » Developed for the City of Burnaby by GDS & Assoc.
 - » Most of indexing work done by student temp. staff
 - » Maintained by drafting staff via ArcMAP update into ArcSDE
- **Spatial Document Retrieval via BurnabyMap**
 - » Browser-based service using ESRI's ArcIMS [Internet Map Server]
 - » Developed by Burnaby staff, with consulting support by Inform Systems Ltd.
- **User processing of retrieved documents**
 - » Adobe Acrobat6Pro to scale, measure, crop, annotate, save and print
 - » Print full-size on Océ TDS400 36" laser, or reduced size on any laser printer
 - » Also acquired 36" scanner for rescanning poor quality documents



Spatial Document Indexing Facility

- **Design parameters**
 - » Visual Basic with ESRI's MapObjects application running on a PC
 - » Performance goal: 1 min. per document
- **Functional specifications**
 - » key-in address or intersection contained within drawing
 - » zoom to base-map centered on identified location
 - » draw bounding box in Drawing window
 - » select two identifiable points in both Drawing and Map windows
 - » software automatically 'rotates' and 'calibrates' the drawing and map spaces
 - » software automatically converts bounding box to map space coordinates
 - » create RDBMS attribute record with drawing ID, type and year etc.



Spatial Document Query Facility

- **Design goals**
 - » Query response time: < 10 seconds
- **Technology platform**
 - » Burnaby WebMap: Intranet/Internet service based on MS IE 5+ ArcIMS
- **Functional specifications: Combined Spatial and Attribute query**
 - » Spatial Query
 - ③specify ANY spatial feature [i.e. point, line, polygon]
 - ③specify spatial feature either through GUI or by keying attribute [e.g. address]
 - ③generalized selection set with optional buffer around specified feature
 - ③optional selection criteria [e.g.. Contained within, Intersection with etc.]
 - » Attribute Query
 - ③Boolean logic on any attribute field(s)



A Simple Concept with Wide Applicability

- **Suitable for any form of business data that is spatially related:**
 - » Works with any file type – e.g. .pdf, .doc, .dxf, .jpg, etc.
- **Index shapes can be used as ‘folders’ for groupings of documents**
 - » Project based records
 - » “Existing geometry” based [e.g. park boundary, planning zone boundary etc.]
- **Potential to tie spatial indexing approach to generalized and industry standard Electronic Document Management packages [e.g. PC Docs]**
 - » Many documents can be easily geo-coded and linked to spatial features in GIS [e.g. Parcel address, Infrastructure-ID etc.]
- **Spatial document indexing and retrieval is just as natural a GIS application as mailing labels**



What we've learned!

- **GIS based spatial document retrieval even better than expected!**
 - » Query response time about 8 seconds to select 100 drawings from 25,000
 - » Display time about 1 second per drawing [depends on viewer and file size]
- **Need full service before rollout:**
 - » Most users are very resistant to change. They appreciate convenience, efficiency and ease of use—but still want hardcopy.
 - » Print-to-scale a requirement for most Engineering users [36" laser printer].
 - » Lack of access to 'foreign utilities' is an issue for some.
- **Image quality issues**
 - » Monochrome vs Grayscale images.
- **Underestimated cost/effort of index build, and amount of rescanning**



Future Plans

- **Provide public access to Engineering Drawings via Internet WebMap?**
- **Add other spatial documents**
 - » Foreign utilities?
 - » Other departments and data [e.g. Planning, Parks, Survey etc.]
- **Provide enhanced query/retrieval services**
 - » Query by address
 - » Query by zone polygons
 - » Tighter coupling with Acrobat



Demo of Engineering Drawings app.

- **Spatial query & report:**
 - » Specify spatial query area
 - » Generate report of drawings that intersect spatial query area
 - » View drawings with appropriate viewer [.tif and .dwf]
 - » Save selected drawings to folder
- **Process via Acrobat:**
 - » Create multi-page .pdf file. Rearrange/remove pages if required.
 - » Measuring and cropping
 - » “Redline” annotation
 - » Save & email
 - » Printing and scaling



Engineering Drawings

City of Burnaby Mapping Application - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites Media Site popups allowed AutoFill Options

Address <http://huey/Website/BurnabyMap/> Go Links

Google Search Web Search Site

City of Burnaby Staff Version help contact us disclaimer home

Create A Report

- Composite Maps
- Select a report
- Composite Maps
- Engineering Dwgs**
- Mailing Labels
- Survey Jobs

Layer List

- Properties
- Services & Amenities
- Engineering
- Environmental
- Trails
- Aerial
- Photography

Invoke Engineering Dwgs/application

Map: 498824.14 , 5458812.27 -- Image: 23 , 505 Local intranet



Select Features

City of Burnaby Mapping Application - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites Media Site popups allowed AutoFill Options

Address <http://huey/Website/BurnabyMap/> Go Links

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help contact us disclaimer home

Create A Report

Engineering Dwgs

Help

Properties

- Lot
- Strata Units
- Addresses
- Zoning
- Easement
- Right of Way
- Neighbourhoods
- Agricultural Land Reserve

Services & Amenities

- Engineering
- Environmental
- Trails

Aerial Photography

- B/W 2002
- Colour 2002

Select by Line/Polygon

Specify selection method

Map showing streets (ALBERT ST, PANDORA ST, HASTINGS ST, PENDER ST, MADISON AV, WILLINGDON AV, ALPHA AV) and landmarks (ROSSER ELEMENTARY, EILEEN DAILY POOL AND FITNESS CTR, CONFEDERATION PARK, MCGILL LIBRARY, CONFEDERATION COMMUNITY CENTRE). A red arrow points to the 'Specify selection method' text.

Select by Line/Polygon

Local intranet



Select by Polygon

The screenshot displays a web browser window titled "Select Polygon - Microsoft Internet Explorer". The main content area shows a map of a residential area with streets labeled: ALBERT ST, PANDORA ST, HASTINGS ST, PENDER ST, MADISON AV, ROSSER ST, and WILLINGDON AV. A blue dashed polygon is drawn around a set of lots, with a red arrow pointing to it from the text "Complete selection by Line or Polygon".

On the left side, there is a sidebar with the following sections:

- Create A Report** (dropdown menu)
- Engineering Dwgs** (dropdown menu)
- Help** (button)
- Properties** (checkboxes):
 - Lot
 - Strata Units
 - Addresses
 - Zoning
 - Easement
 - Right of Way
 - Neighbourhoods
 - Agricultural Land Reserve
- Services & Amenities** (checkboxes):
 - Services & Amenities
- Engineering** (checkboxes):
 - Engineering
- Environmental** (checkboxes):
 - Environmental
- Trails** (checkboxes):
 - Trails
- Aerial Photography** (checkboxes):
 - B/W 2002
 - Colour 2002

At the top of the main window, there is a toolbar with buttons: "Restart", "Delete Last Point", "Complete Line & Select", and "Complete Polygon & Select". A red arrow points from the "Complete Polygon & Select" button to the selection polygon on the map.

At the bottom of the browser window, the status bar shows: "Map: 499456.21 , 5459066.1 -- Image: 166 , 4" and "Local intranet".



Selected As-builts

City of Burnaby Mapping Application - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites Media Site popups allowed AutoFill Options

Address http://huey/Website/BurnabyMap/

City of Burnaby Staff Version help contact us disclaimer home

Create A Report

Engineering Dwgs

Help

- Properties
 - Lot
 - Strata Units
 - Addresses
 - Zoning
 - Easement
 - Right of Way
 - Neighbourhoods
 - Agricultural Land Reserve
- Services & Amenities
- Engineering
- Environmental
- Trails
- Aerial Photography
 - B/W 2002
 - Colour 2002

Each pink polygon represents a drawing that intersects selection polygon



Create report of selected drawings

The screenshot displays the City of Burnaby Mapping Application in a Microsoft Internet Explorer browser window. The address bar shows <http://huey/Website/BurnabyMap/>. The application interface includes a top toolbar with navigation and utility icons, and a left-hand navigation menu. The menu is titled "City of Burnaby Staff Version" and contains the following sections:

- Create A Report** (dropdown menu)
 - Engineering Dwgs (dropdown menu)
 - Help
- Properties** (checkbox)
 - Lot
 - Strata Units
 - Addresses
- Zoning** (checkbox)
 - Easement
 - Right of Way
 - Neighbourhoods
 - Agricultural Land Reserve
- Services & Amenities** (checkbox)
- Engineering** (checkbox)
- Environmental** (checkbox)
- Trails** (checkbox)
- Aerial Photography** (checkbox)
 - B/W 2002
 - Colour 2002

The main map area shows a detailed street grid with several parks labeled: CONFEDERATION PARK, SCENIC PARK, KENSINGTON PARK, BRENTWOOD TOWN CENTRE STATION, GILMORE STATION, MILLENNIUM LINE HOLDOM STATION, and SPERLING - BURNABY LAKE STATION. A red arrow points to a "Create a Report" button in the top toolbar. A blue dashed box highlights the text "Create a Report of selected drawings" on the map. The bottom status bar shows "Create a Report" and "Local intranet".



Find desired drawing

File Edit View Favorites Tools Help

Back Search Favorites Media

Address <http://huey/Website/BurnabyMap/> Go Links »

Google Search Web Search Site Site popups allowed AutoFill Options

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Create A Report

Engineering Drawings:

Print Done

Street Lighting	
1	950044
2	950044
3	560006
4	950044
5	710099
6	710099
7	560006
8	950044
9	770016
10	700056
11	660055
12	950044
13	950040
14	950044
15	770003
16	950044
17	560002
18	950044
19	720001
20	950044

Water	
1	950032

CONFEDERATION PARK SCENIC PARK BARNET MARINE PARK KENSINGTON PARK

BRENTWOOD TOWN CENTRE STATION GILMORE STATION MILLENNIUM LINE HOLDOM STATION SPERLING - BURNABY LAKE STATION

Scroll through list of selected drawings sorted by type

Start sc2 Micr... Eng... Hyp... Desktop 10:46 AM



DWF viewer functionality

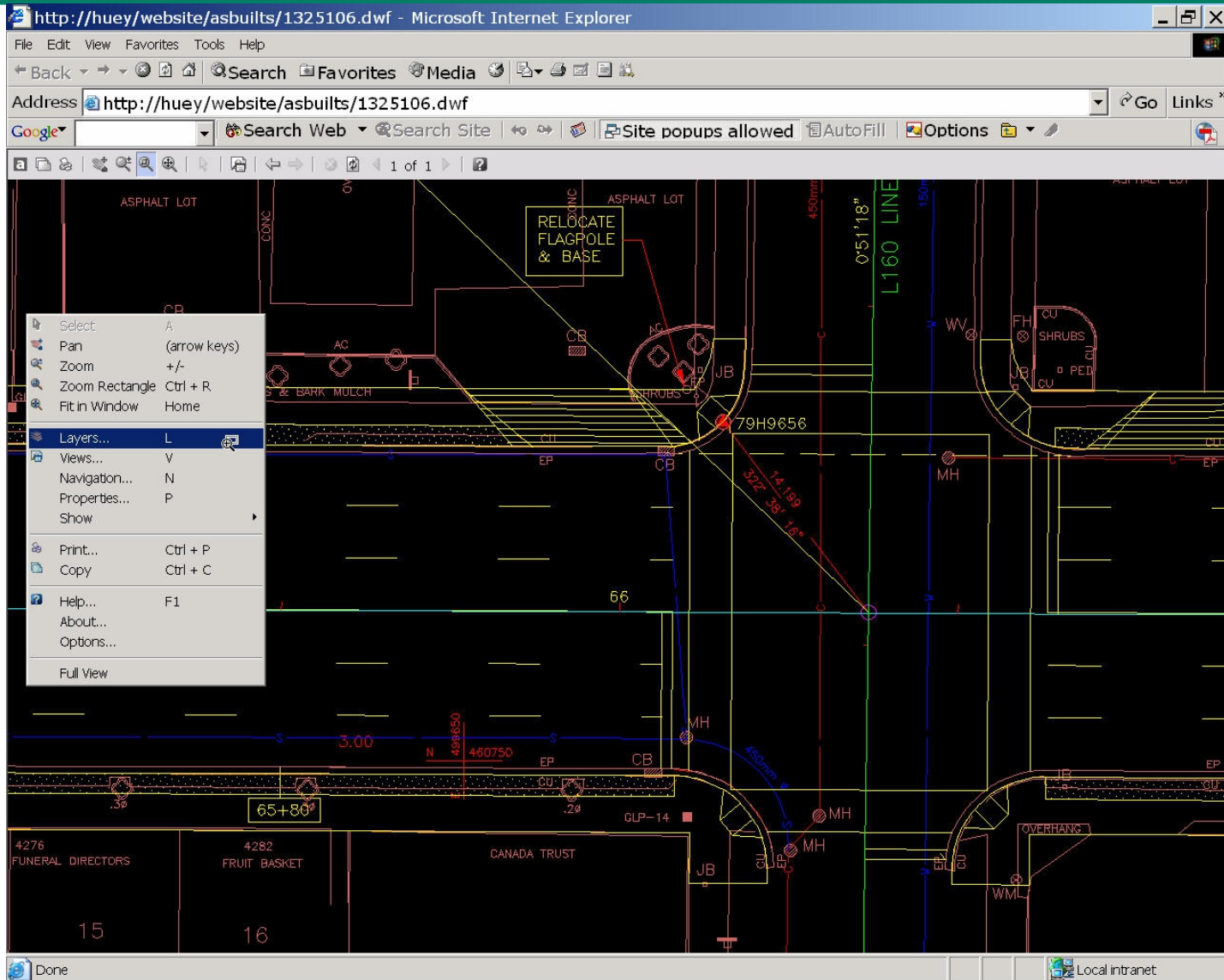
The screenshot shows a Microsoft Internet Explorer browser window displaying a DWF viewer. The address bar shows the URL <http://huey/website/asbuilts/1325106.dwf>. A context menu is open over the viewer, listing various functions:

- Select: A
- Pan: (arrow keys)
- Zoom: +/-
- Zoom Rectangle: Ctrl + R
- Fit in Window: Home
- Layers...: L
- Views...: V
- Navigation...: N
- Properties...: P
- Show: >
- Print...: Ctrl + P
- Copy: Ctrl + C
- Help...: F1
- About...
- Options...
- Full View

A red arrow points from the 'Zoom +/-' option in the menu to a yellow callout box containing the text 'Functionality of .dwf viewer'. The background of the viewer is a technical drawing of a street intersection, showing property lines, lot numbers (e.g., PLAN 1054, PLAN 8181, PLAN 26910, PLAN 48987, PLAN 73006), street names (HASTINGS STREET, MADISON AVENUE), and utility lines (LISSO LINE, LANE). The drawing is overlaid with a grid and various colored lines representing different layers or features.



Layers Option





Turn layer on/off

The screenshot shows a Microsoft Internet Explorer browser window displaying a CAD drawing from the URL <http://huey/website/asbuilts/1325106.dwf>. The drawing is a site plan with various layers and annotations. A 'Layers' dialog box is open, showing a list of layers with checkboxes for 'On' and 'Off'. The 'On' column has a yellow arrow pointing to the right for all layers, indicating they are currently visible. The 'Name' column lists the following layers:

- BP8\$1\$F_DETAIL-TW
- BP8\$1\$F_DETAIL
- BP8\$1\$F_DRAINAGE
- BP8\$1\$F_GRID
- BP8\$1\$F_LEGAL
- BP8\$1\$F_UTILITY
- BP8\$1\$TBLOCK
- DES-GEO
- DES-LANEML
- DES-LTEXT
- DES-NOTES
- LL106\$0\$DES-LLINE
- LL106\$0\$DES-LLINESS
- LL106\$0\$DET-LLINESS
- LL106\$0\$LLINE\$0\$X_DES-LLINE
- PL106\$0\$DES-HATCH
- PL106\$0\$DES-LANE (highlighted)
- PL106\$0\$DES-LANESW
- X_CONTROL

The drawing itself shows a road layout with various annotations such as 'RELOCATE FLAGPOLE & BASE', '79H9656', 'L160 LINE', '0'51'18"', '450mm', '66', '3.00', '498850', '460750', '65+80', 'CANADA TRUST', 'FUNERAL DIRECTORS', 'FRUIT BASKET', 'OVERHANG', and 'WML'. The drawing is displayed in a dark background with various colored lines and text.



DWF properties

The screenshot shows a Microsoft Internet Explorer browser window displaying a DWF file at the URL <http://huey/website/asbuilts/1325106.dwf>. The browser's address bar and search bar are visible. The main content area shows a technical drawing with various annotations and dimensions. A context menu is open over the drawing, listing actions such as Select, Pan, Zoom, and Properties. The Properties dialog box is also open, displaying the following information:

Name	Value
Sheet Name	1325106
author	Ko
creationTime	04/01/02 04:12:45 PM
creator	Genuine AutoCAD 2000i (15.05s (LMS Tech)) - Autodesk(R) I
modificationTime	04/01/02 04:12:45 PM
sourceCreationTime	26/09/96 07:35:15 AM
sourceFileName	1325106.dwg
sourceModificationTime	25/09/98 11:06:13 AM

The drawing itself contains several annotations, including "RELOCATE FLAGPOLE & BASE" in a yellow box, "L1000 LINE", "L160 LINE", and "90° 16' 48\"/>



Hyperlink to TIF drawing

File Edit View Favorites Tools Help

Back Search Favorites Media

Address <http://huey/Website/BurnabyMap/> Go Links

Google Search Web Search Site Site popups allowed AutoFill Options

City of Burnaby Staff Version

help contact us disclaimer home

Create A Report

Engineering Drawings:

Print Done

Description	Design No.
Combined Sewer	
1	E-90-A
2	View Image
3	19930044
4	19930044
5	19930044
6	H.C.-62-39
7	View Image
8	H.C.-62-53
9	View Image
10	1959
11	View Image
12	H.C.-62-36

Hyperlink to selected drawing with appropriate .tif or .dwf viewer

City of Burnaby - Copyright (C) 2003 Accuracy and correctness not guaranteed.

View As Constructed Image Local intranet



TIF viewer

City of Burnaby Mapping Application - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites Media

Address <http://huey/Website/BurnabyMap/> Go Links

Google

Engineering Drawing Image: BURN03_0000047_CB004767.TIF - Micro...

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Create A Report

Engineering Drawings:

Print Done

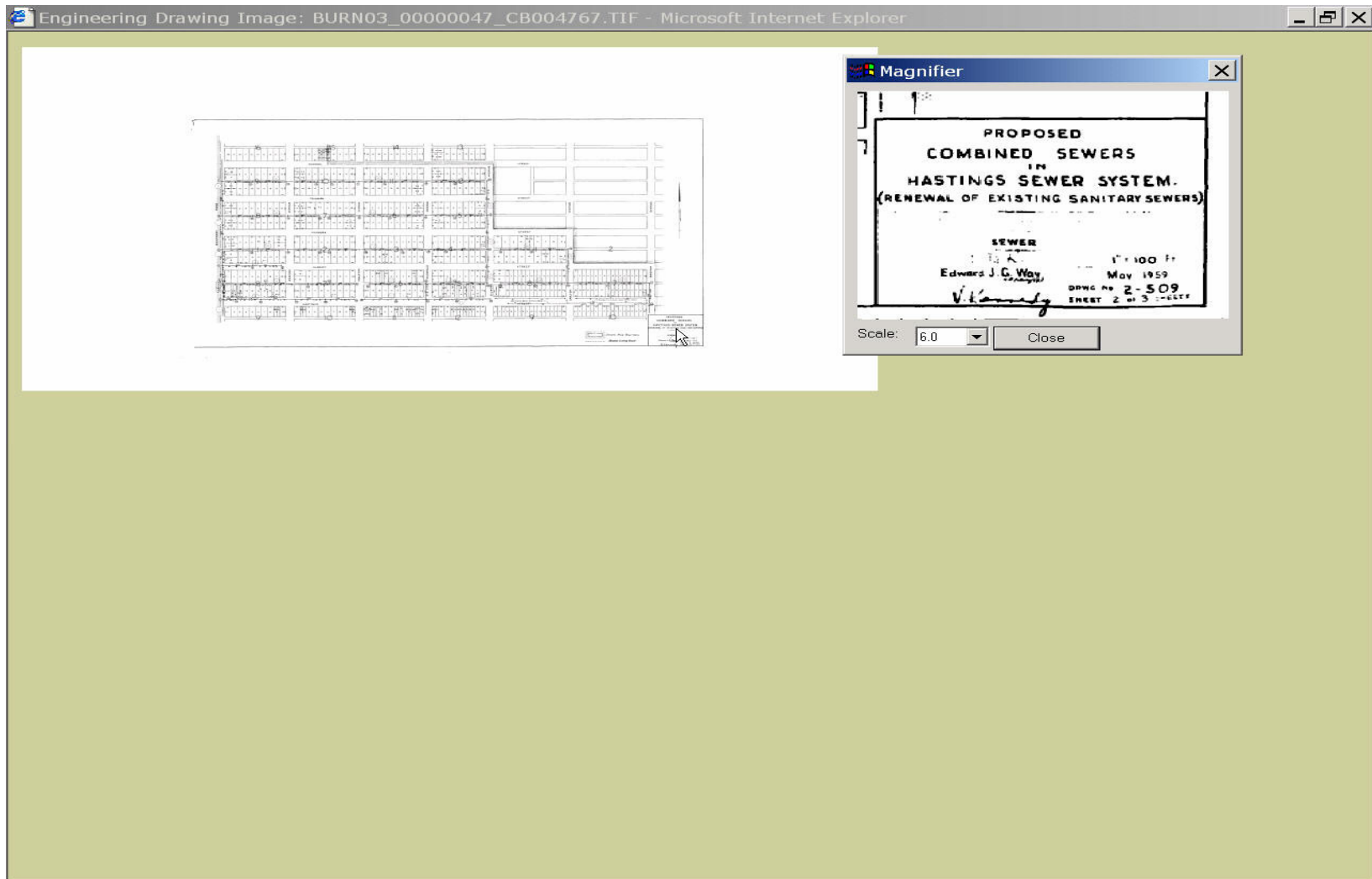
4	19980044
5	19980044
6	H.C.-62-39
7	View Image
8	H.C.-62-53
9	View Image
10	1959
11	View Image
12	H.C.-62-36
13	View Image
14	H.C.-62-37
15	1959
16	View Image
17	View Image
18	H.C.-62-52
19	E-12B-A

Shareware browser plug-in .tif viewer

View As Constructed Image Local intranet



TIF Magnifier





Saving file

The screenshot shows a software interface with a menu on the left and a drawing area on the right. The menu items are: Refresh, Fit All, Zoom Box, Zoom In, Zoom Out, Magnify, Text Magnification, Pan, Redline, Copy to Clipboard, Print, Save..., and About. The 'Save...' option is highlighted in blue, and a mouse cursor is pointing at it. A callout box with a blue dashed border contains the text: Save .tif drawing for processing in Acrobat. The drawing area shows a technical drawing of a building floor plan with a grid of rooms and various annotations.



Acrobat: distance calibration

284% X: 7.53 in Y: 5.09 in Distance: 3.37 in Angle: 0.60 Annotate Show Rulers

1 in : 1 in

Calibrate drawing scale using Acrobat distance measurement tool and scale specification

HASTINGS

PENDER

AVENUE

AVENUE

102 1 2 3 4 5 6 7 8 9 10

121 A B C 3 4 5

122 20 19 18 17 16 15 14 13 12 11

20 off

20 off

20.27 x 13.44 in 1 of 1



Scale Calculation Parameters





Scale Bar Calibration

X: 1653.43 ft Y: 704.17 ft Distance: 849.88 ft Angle: 0.46

3.37 in : 850 ft

Measured distance = 3.37"

Key-in "scale bar" calibration

"Scale Bar"

PENDER

AVENUE

AVENUE

18.26 x 9.73 in

1 of 1



Calculate Scale Correction

Adobe Acrobat Professional - [BURN03_0000047_CB004768.tif.pdf]

File Edit View Document Tools Advanced Window Help

284%

X: 1269.27 ft Y: 1452.82 ft Distance: Perimeter: Angle: Annotate Show Rulers 3.37 in : 850 ft

Calculated scale correction factor for printing:
True-Distance / Measured-distance = 8.50/3.37 = 2.52 = 252%

Calculator

2.5222551926783382789317507418398

Backspace CE C

MC 7 8 9 / sqrt

MR 4 5 6 * %

MS 1 2 3 - 1/x

M+ 0 +/- + =

20.27 x 13.44 in 1 of 1



Crop tool

The screenshot displays a software interface with a toolbar at the top. A red arrow points from the 'Crop Tool' icon in the toolbar to a yellow text box with a blue dashed border containing the text: "Crop scanned image for printing @ 36x48". Below this, another red arrow points from the text box to the top-left corner of a large technical drawing. The drawing is a detailed site plan or sewer map showing a grid of streets and sewer lines. The streets are labeled with names such as HASTINGS, PENDER, AVENUE, STREET, CARLTON, and VENABLES. A legend in the bottom right corner of the drawing area identifies symbols for 'PROPOSED COMBINED SEWERS' and 'EXISTING SANITARY SEWERS'. The software interface also includes a status bar at the bottom showing dimensions (20.27 x 13.44 in) and page information (1 of 1).



Cropped Image

The screenshot displays a software application window with a technical drawing of a sewer system. The drawing shows a grid of streets and sewer lines. A yellow dashed box highlights a specific area of the drawing, containing the text "Cropped image ready for printing". The software interface includes a toolbar at the top with various icons for navigation and editing. Below the toolbar, there is a status bar showing "55%" zoom. The drawing itself is a detailed plan view of a sewer system, with streets labeled and sewer lines shown. The drawing is titled "PROPOSED COMBINED SEWERS IN HASTINGS SEWER SYSTEM (REVISION OF EXISTING SANITARY SEWER)". The software interface also shows a "Pages" panel on the left with "Layers", "Signatures", and "Bookmarks" options. The status bar at the bottom indicates "18.23 x 9.23 in" and "1 of 1".



Print to Scale

Printer

Name:

Status: Waiting; 0 documents waiting

Type: Oce TDS400

Print to file

Print color as black

Print Range

All

Current view

Current page

Pages from: to:

Subset: Reverse pages

Page Handling

Copies: Collate

Page Scaling:

Tile Scale: % Overlap: in

Cut Marks:

Print What:

Preview

48

36

Units: Inches Zoom: 252%

Key-in scale correction to print @ original scale



Questions & Answers

- Q & A

Contact information :

- Jeff Jewell, (604) 294-7160, jeff.jewell@city.burnaby.bc.ca
- Derik Woo, (604) 294-7486, derik.woo@city.burnaby.bc.ca