CITY OF PRINCE GEORGE

BYLAW NO. 8285

A bylaw of the City of Prince George to designate land as flood plain and regulate the development of land that is subject to flooding.

WHEREAS, the City considers that flooding may occur on certain lands and wishes to protect against loss of life and minimize property damage, injury and trauma associated with flooding;

AND WHEREAS, the City may, pursuant to s. 910 (1.1) of the *Local Government Act*, designate land as flood plain;

AND WHEREAS, the City may, pursuant to s. 910 (2) of the *Local Government Act* specify the flood level for the flood plain; and specify the setback from a watercourse, body of water or dike of any landfill or structural support required to elevate a floor system or pad above the flood level;

AND WHEREAS, the City must, pursuant to s. 910 (3) of the *Local Government Act* consider Provincial guidelines, and comply with the Provincial regulations and a plan or program the local government has developed under those regulations;

AND WHEREAS, the City may, pursuant to s. 910 (3.1) of the *Local Government Act* make provisions in relation to areas, zones, land uses, types of geological or hydrological formations, works and services, siting circumstances, buildings or other structures and types of machinery, equipment or goods within them;

AND WHEREAS, the City may, pursuant to s. 903 (1)(c)(iii) of the *Local Government Act* make provisions in relation to the siting of buildings and other structures;

NOW THEREFORE, Council of the City of Prince George, in an open meeting assembled, **ENACTS AS FOLLOWS**:

Section 1 - Introduction

1.1 Title and Repeal

1.1.1 This bylaw may be cited as "City of Prince George Flood Plain Regulation Bylaw No. 8285, 2010".

1.1.2 "City of Prince George Flood Plain Regulation Bylaw No. 7855, 2007" is repealed.

1.2 Definitions

Definitions may be found in Schedule "B" of this Bylaw.

1.3 General Provisions

1.3.1 Unless otherwise defined herein, all words and phrases in this Bylaw shall have the meaning given to them in the *Local Government Act* and the *Community Charter*.

1.3.2 Words in this Bylaw directing or empowering any officer or employee of the City to do any act or thing, or to otherwise applying to him by name of office, include his successors in such office and his lawful deputy, and any person the Council may from time to time by bylaw or resolution designate to act in his place.

1.3.3 A reference in this Bylaw to any enactment of British Columbia is a reference to the enactment as amended, revised, consolidated or replaced from time to time, and a reference to any bylaw of the City is a reference to the bylaw as amended, revised, consolidated or replaced from time to time.

1.3.4 No person shall construct, build, erect or place, or allow to be built, erected, or placed any building or structure contrary to the provisions of this Bylaw.

1.3.5 The provisions of this Bylaw are cumulative.

1.4 Compliance with Other Bylaws or Enactments

Compliance with this Bylaw or an exemption authorized by the City, in relation to a specific parcel of land or a use, building or other structure on a parcel of land, shall not be deemed to be a representation by the City that the use of land, building or other structure on a parcel of land complies with all applicable bylaws or other enactments. The owner of the land, building or other structure remains responsible to ensure compliance with all bylaws and other enactments.

Section 2 – Designation of Flood Plain

The following land is designated as flood plain:

a) land identified as "Flood Plain Areas" on the attached Schedule "A";

b) land within 30 metres measured horizontally from the natural boundary of a watercourse not identified on the attached Schedule "A";
c) notwithstanding sub-section 2 (b) land within 15 metres of the top of a steep bluff where the toe of the bluff is subject to erosion and/or closer than 15 metres from the natural boundary of a watercourse, or a orizontal distance equal to 3 times the height of the bluff as measured vertically from the toe of the bluff, whichever is greater; and
d) land within 15 metres from the natural boundary of a body of water, including a lake, pond, swamp or marsh.

Section 3 – Setback from a Watercourse, Body of Water or Dike

3.1 Pursuant to s. 910. (2)(b) of the *Local Government Act* the minimum setback from a watercourse, body of water or dike of any landfill or structural support required to elevate a floor system or pad above the flood level is:

a) the boundary of the Severe Flood Hazard Area as identified on the attached Schedule "A" or 30 metres from the natural boundary of the Nechako River or Fraser River whichever is greater;
b) 30 metres from the natural boundary of any watercourse except the Nechako River or Fraser River;
c) notwithstanding sub-section 3.1 b) 15 metres from the top of a steep bluff where the toe of the bluff is subject to erosion and/or closer than 15 metres from the natural boundary of a watercourse, or a horizontal distance equal to 3 times the height of the bluff as measured vertically from the toe of the bluff, which ever is greater; and
d) 15 metres from the natural boundary of a body of water, including a lake, pond, swamp or marsh.

3.2 Pursuant to s. 903 (1)(c)(iii) of the *Local Government Act* the minimum setback from a watercourse, body of water or dike of a building or other structure is:

a) the boundary of the Severe Flood Hazard Area as identified on the attached Schedule "A" or 30 metres from the natural boundary of the Nechako River or Fraser River whichever is greater;
b) 30 metres from the natural boundary of a watercourse, except the Nechako River or Fraser River;
c) notwithstanding sub-section 3.2 b) 15 metres from the top of a steep bluff where the toe of the bluff is subject to erosion and/or closer than 15 metres from the natural boundary of a watercourse, or a horizontal distance equal to 3 times the height of the bluff as measured vertically from the toe of the bluff, which ever is greater; and

d) 15 metres from the natural boundary of a body of water, including a lake, pond, swamp or marsh.

3.3 Pursuant to Section 910 (4) of the *Local Government Act*: no landfill or structural support required to support a floor system or pad, shall be constructed, reconstructed, moved, extended or located within any Flood Plain Setback specified in Section 3.1 of this Bylaw.

Section 4 – Flood Level for the Flood Plain

4.1 The flood level for the flood plain is:

a) as interpolated from the Flood Construction Level (FCL) identified on the attached Schedule "A";
b) 3.0 metres measured vertically above the natural boundary of any watercourse or stream not identified on the attached Schedule "A"; and
c) 1.5 metres measured vertically above the natural boundary of a body of water, including of any lake, pond, swamp or marsh not identified on the attached Schedule "A".

Section 5 – Exemption

5.1 General Exemption to the Minimum Setback

5.1.1 Despite Section 3 of this Bylaw, but subject to Provincial regulations and a plan or program the City has developed under those regulations, the setback from a watercourse, body of water or dike of any landfill or structural support required to elevate a floor system or pad above the flood level in all Flood Plain areas may be less than the applicable setback specified in this Bylaw in the following cases:

a) where a building or other structure is legally non-conforming to the flood level provisions of this bylaw, and the use and density of the building or other structure conforms to the Zoning Bylaw, the building or other structure may be renovated or repaired only to the extent that the renovation or repair would, when complete, involve no further contravention to the setback regulations of this Bylaw than existing at the time the renovation or repair was started; and
b) open-sided recreation shelters, stands, washhouses, washrooms, docks and other outdoor facilities on lands zoned for park or recreation uses and owned by the Crown or the City of Prince George;

5.1.2 Despite Section 3 of this Bylaw, but subject to Provincial regulations and a plan or program the City has developed under those regulations, the setback from a watercourse, body of water or dike of any landfill or structural support required to elevate a floor system or pad above the

flood level may be less than the applicable setback specified in this Bylaw for all areas except the Severe Flood Hazard Area where protected by a standard dike, buildings shall have a minimum setback of 7.5 metres from any structure for flood protections or seepage control or any dike right-of-way used for protections works.

5.2 General Exemption to the Flood Level in a Flood Plain

Despite Section 3 of this Bylaw, but subject to Provincial regulations and a plan or program the City has developed under those regulations, the underside of any floor system, or the top of any pad supporting any space or room, including a manufactured home that is used for dwelling purposes, business, or the storage of goods which are susceptible to damage by floodwater, may be below the applicable flood level specified in this Bylaw, in the following cases:

a) where a building or other structure is legally non-conforming to the flood level provisions of this bylaw, and the use and density of the building or other structure conforms to the Zoning Bylaw, the building or other structure may be renovated or repaired only to the extent that the renovation or repair would, when complete, involve no further contravention to the flood level regulations of this Bylaw than existing at the time the renovation or repair was started;
b) that portion of a building or other structure used or intended to be used only as a carport;
c) parking areas, including enclosed underground parking areas, except that in the case of an enclosed underground parking area, an unobstructed means of pedestrian ingress and egress must be provided above the flood level, and a sign must be posted at all points of entry notifying users that the parking area is not protected from inundation by floodwaters;
d) accessory buildings or other structures less than 10 m^2 in gross floor area;
e) porches;
f) open-sided livestock buildings on lands zoned for agriculture;
g) closed sided livestock buildings on lands zoned for agriculture, protected by a standard dike;
h) subject to sub-section 5.2 f) and g), farm buildings, other than a building used or intended to be used for human habitation;
i) open-sided recreation shelters, stands, washhouses, washrooms, docks and other outdoor facilities on lands zoned for park or recreation uses;
j) on-loading and off-loading facilities associated with water oriented industry and portable sawmills provided the main electrical switchgear is placed above the applicable flood level; and

5.3 Site-Specific Exemptions to the Flood Level or Setback

5.3.1 An applicant who intends to seek a site-specific exemption from this Bylaw shall complete an application.

5.3.2 The applicant must provide the following information, at the applicant's expense, to the Authorized Person at the time of application submission, except to the extent that the Authorized Person determines that the provision of the information is not required to assist Council or the Authorized Person in their consideration of the application:

a) name, address and signature of the owner;
b) name, address signature of the applicant, if different from the owner;
c) legal description of the parcel;
d) civic address of the parcel;
e) legal title search for the parcel dated no more than 5 business days from the date of application submission;
f) copy of all relevant charges registered on the legal title of the parcel;
g) a scaled plan prepared by a British Columbia Land Surveyor showing the:
    i. designated flood plain, flood level and setback as prescribed by this Bylaw;
    ii. legal boundaries of the parcel;
    iii. existing and proposed buildings or other structures on the parcel, including the requested flood construction level;
    iv. location of existing and proposed landfill or structural support required to elevate a floor system or pad above the flood level;
    v. natural boundary of adjacent watercourse, body of water or dike;
    vi. location of drainage control works;
    vii. ocation of easements and rights of way;
    viii. the existing vertical contours of the parcel, and any relevant adjacent lands, at a scale of 1:1000 or larger, with a contour interval of 1 metre or less.
h) documents and plans which describe and justify the proposal;
i) a report, certified by a Professional Engineer or geoscientist with experience in geotechnical engineering, or a person in a class prescribed by the minister under s. 910 (7) of the *Local Government Act*, that the land may be used safely for the use intended; and

j) a peer review of the report described in sub-section i) if the Authorized Person reasonably determines it is required to assist Council or the Authorized Person in their consideration of the Application.
k) any additional information the Authorized Person reasonably determines is required to assist Council or the Authorized Person in their consideration of the Application.

Section 6 - Delegation

6.1 Council delegates to the Authorized Person the power of Council to exempt a person from the application of s. 910 (4) of the *Local Government Act* and this Bylaw, in relation to a specific parcel of land or a use, building or other structure on the parcel of land, in accordance with s. 910 (5) of the *Local Government Act*, and subject to any terms or conditions the Authorized Person considers necessary or advisable in accordance with s. 910 (6) of the *local Government Act*, except where an application is made for a variance to Section 3.2 of this Bylaw.

6.2 Within 30 days of the Authorized Person's decision to grant or refuse an exemption, the applicant may request that Council reconsider the decision subject to the following:

(a) the request shall be in writing, and include reason(s) in support of the reconsideration;
(b) upon receipt of a complete written request for Council's reconsideration, the Authorized Person shall prepare and forward a report to Council attaching the Application and setting out the reasons for the decision;
(c) at a date and time set by Council the Applicant shall have the opportunity to appear before Council and be heard regarding the decision of the Authorized Person; and
(d) following this, Council shall reconsider the decision of the Authorized Person and either uphold the decision or substitute the Council's decision for the Authorized Person's.

Section 7 - Severability

If any section, subsection, clause, sub-clause or phrase of this Bylaw is for any reason held to be invalid by the decision of any Court of competent jurisdiction, that section, subsection, clause, sub-clause or phrase shall be struck from the Bylaw and any decision shall not affect the validity of the remaining portions of this Bylaw.

Section 8 – Offence and Penalty

8.1 Offence

8.1.1 No person shall contravene, cause, or permit a contravention of this bylaw.

8.1.2 No person shall interfere with or obstruct the entry of the Authorized Person or a Bylaw Enforcement Officer or any other authorized City representative onto any land or into any building or structure to which entry is made or attempted.

8.2.1 Penalty

Any person contravening or committing any breach of or committing any offence against any provision of this Bylaw or who suffers or permits any act or thing to be done in contravention of in violation of any of the provisions of this Bylaw or refuses, omits, or neglects to fulfill, observe, carry out or perform any duty, obligation, matter or thing whatsoever by the Bylaw prescribed or imposed or required to be done is liable, on summary conviction, to a fine not less than $2,000 and not exceeding $10,000.00, or a term of imprisonment not exceeding three months, or both, and the cost of prosecution; and each day during which any violation, contravention or breach shall continue shall be deemed a separate offence.

READ A FIRST TIME THIS THE **5th** DAY OF **JULY , 2010.**

READ A SECOND TIME THIS THE **5th** DAY OF **JULY , 2010.**

First Two readings passed by a **unanimous** decision of Members of City Council present and eligible to vote.

SECOND READING RESCINDED THIS THE **13th** DAY OF **JUNE , 2011.**

Second reading rescinded by a **unanimous** decision of Members of City Council present and eligible to vote.

READ A SECOND TIME, AS AMENDED, THIS THE **13th** DAY OF **JUNE, 2011.**

Second reading passed by a **unanimous** decision of Members of City Council present and eligible to vote.

READ A THIRD TIME THIS THE **27th** DAY OF **JUNE , 2011.**

Third Reading passed by a **unanimous** decision of Members of City Council present and eligible to vote.

Certified correct as passed Third Reading, this the **4th** day of **JULY , 2011.**

CORPORATE OFFICER OF
THE CITY OF PRINCE GEORGE

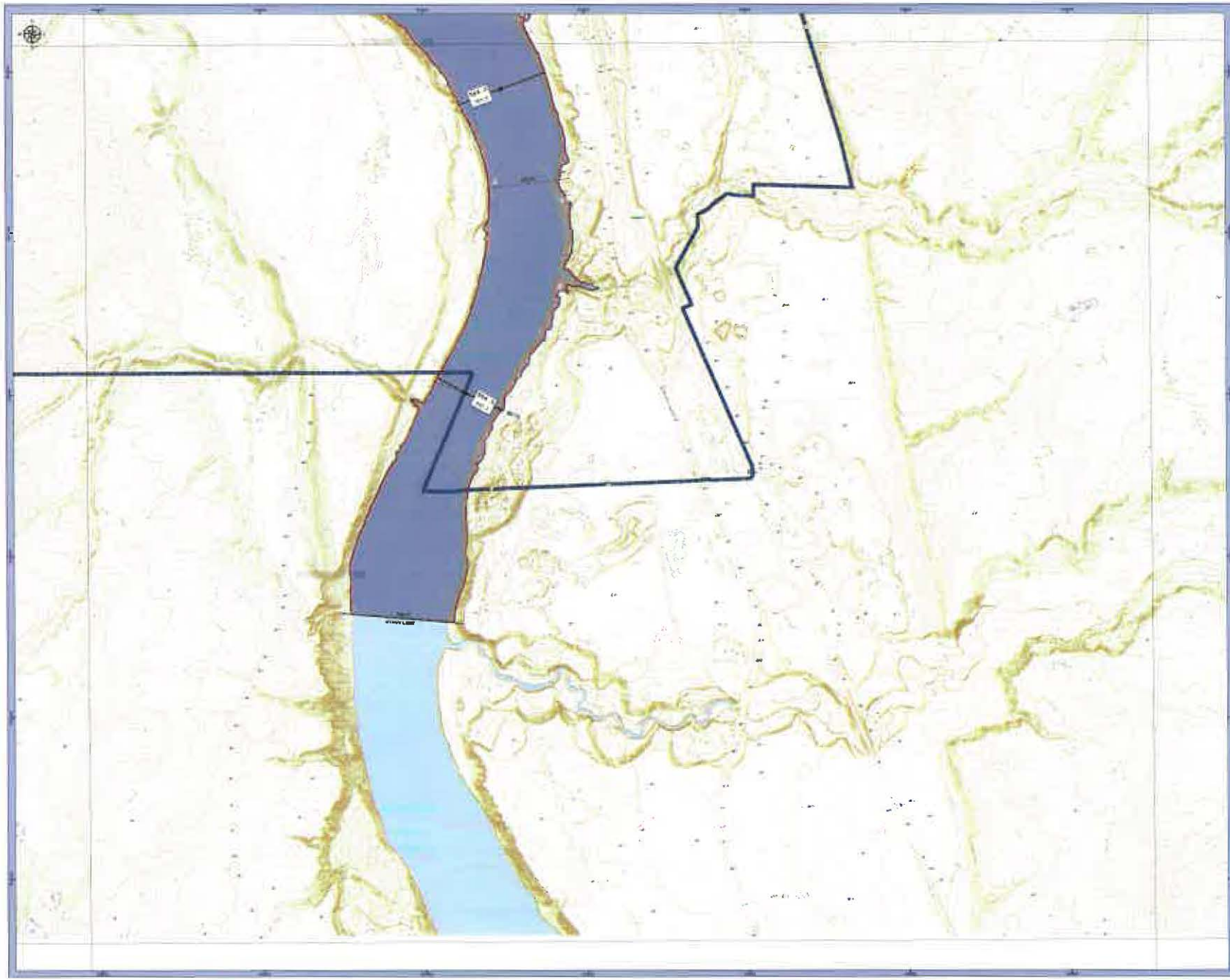
APPROVED BY THE MINISTER OF TRANSPORTATION AND INFRASTRUCTURE PURSUANT TO THE PROVISIONS OF SECTION 52(3)(a) OF THE TRANSPORTATION ACT THIS THE 20th DAY OF JULY **, 2011.**

for MINISTER OF TRANSPORTATION
AND INFRASTRUCTURE

ADOPTED THIS THE 8th DAY OF AUGUST **, 2011**, BY A UNANIMOUS DECISION OF ALL MEMBERS OF CITY COUNCIL PRESENT AND ELIGIBLE TO VOTE.

MAYOR

CORPORATE OFFICER



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Parcel Boundary
Building Outline
NTS 1:50K Grid
Hydrography

Transportation
Rail Line
Bridge
Centerline 2010
1m Interval
5m Interval

UTM Monument
Spot Heights
Definite
Indefinite
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with labels
FCL - Thalweg Intersection
Flood Construction Level Isoline
Flood Construction Level = 0.6 m

Flood Construction Level (FCL)
1 in 200 yr Flood Level (= 0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

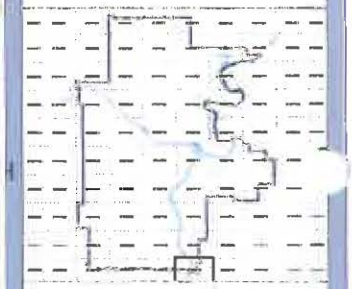
All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2006. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designations or failure to designate areas on this map.
3. Flood hazard maps do not provide information on site-specific hazards such erosion or sudden shifts in the water course.
4. Other sources of water such as roof runoff or other barriers can restrict water flo affect flood levels locally. Created obstructions, local storm water inflows, groundwa or other local drainage can cause flood levels to exceed those indicated on the map. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year)
2. Fraser flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Ice-related flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The included analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, named the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/roadways are not established as the ground by legal survey and are not delineated for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.



Mapsheet: 093G087I2
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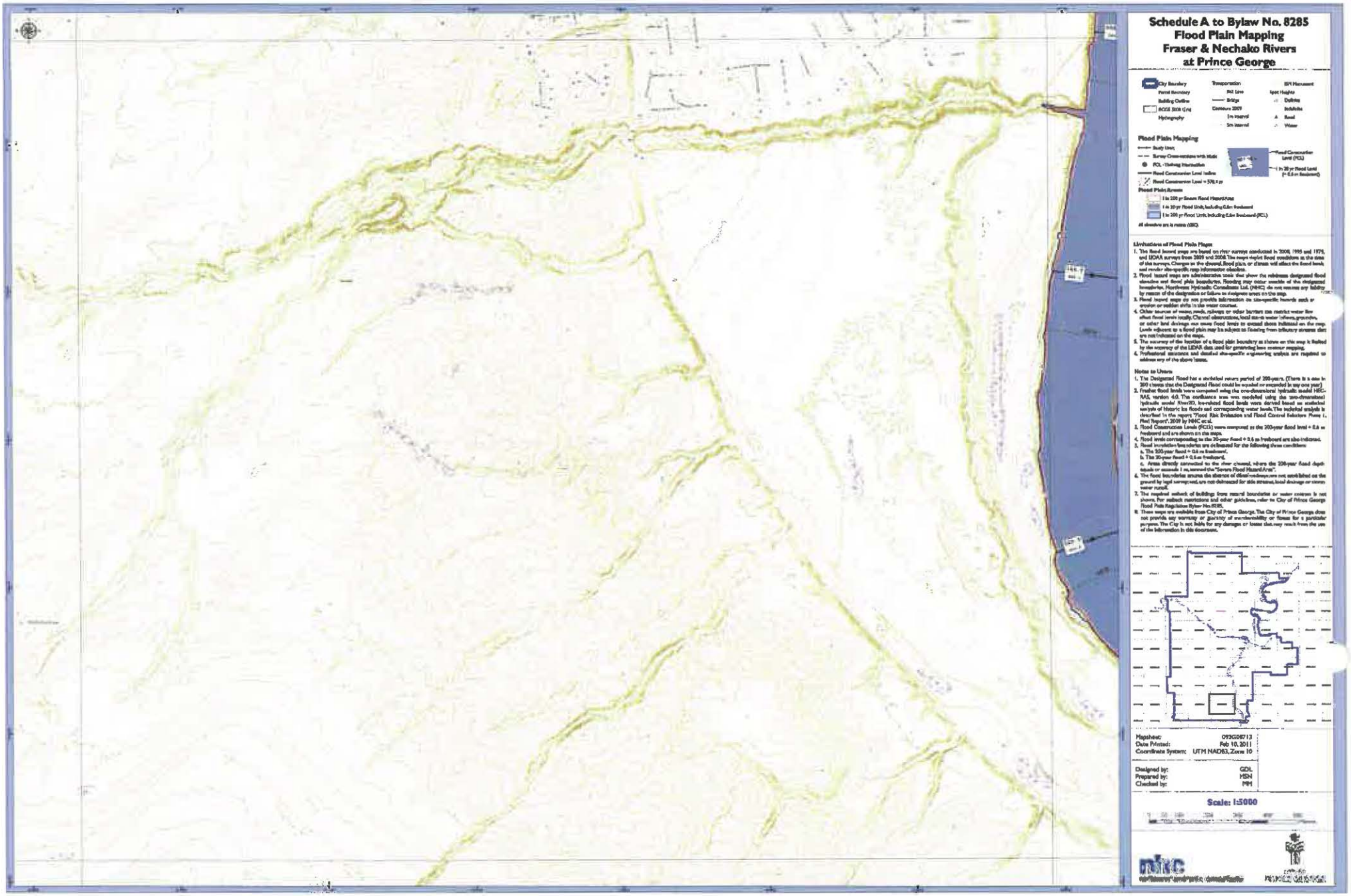
Coordinate System: UTM NAD83, Zone 10

Designed by: GDL
Prepared by: HSN
Checked by: MH

Scale 1:5000

nhc

CITY OF PRINCE GEORGE



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Parcel Boundary
Building Outline
BCGS 1:20K Grid
Hydrography

Transportation
Rail Line
Bridge
Contours 2005
1m Interval
5m Interval

BM Monument
Spot Heights
Buildings
Individuals
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with Width
FCL / Defining Intersection
Flood Construction Level Isoline
Flood Construction Level = 578.4 m

Flood Construction Level (FCL)
1 in 20 yr Flood Limit (+ 0.6 m freeboard)

Flood Plain Zones
1 in 200 yr Stream Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LIDAR surveys from 2005 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevations and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the map.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flow affect flood levels locally. Channel obstructions, local run-in water inflows, groundwater, or other land drainage can cause flood levels to exceed those indicated on the map. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LIDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year)
2. Fraser flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Ice-related flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Evaluation and Flood Control Selection Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard,
   b. The 20-year flood + 0.6 m freeboard,
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries around the absence of dikes/roadways are not established on the ground by legal survey and are not delineated for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
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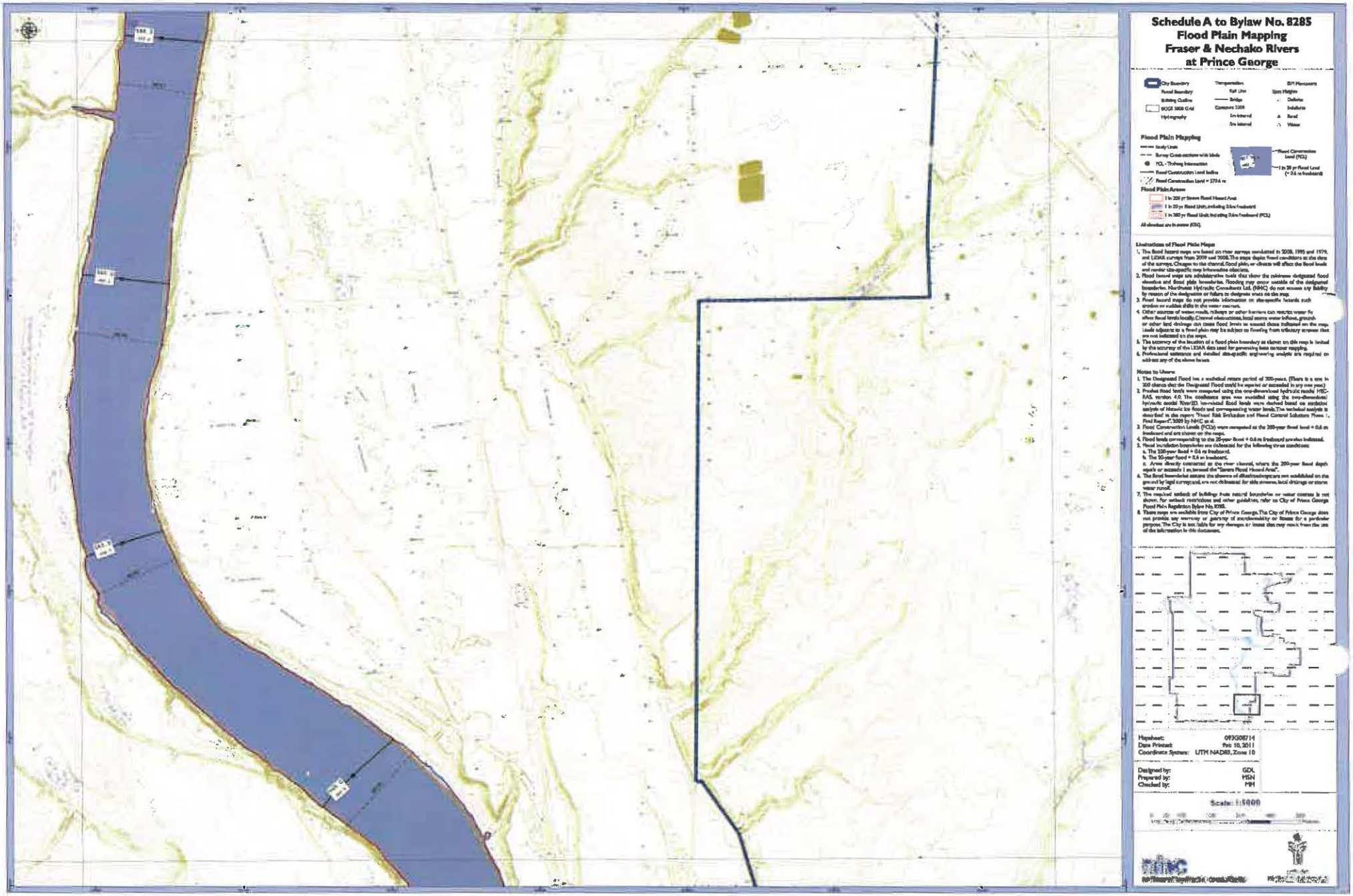
PRINCE GEORGE

2



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Rural Boundary
Existing Cadastre
BCGS 1000 Grid
Hydrography

Transportation
Rail Line
Bridge
Contours 2500
5m Interval
5m Interval

BM Monument
Spot Heights
Cadastre
Industrial
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with Ideals
TCL - Tributary Intersection
Flood Construction Level Indline
Flood Construction Level = 370.6 m

Flood Construction Level (FCL)
1 in 20 yr Flood Level (+ 0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m Freeboard
1 in 200 yr Flood Limit, including 0.6m Freeboard (FCL)

All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reasons of the designation or failure to designate areas on the map.
3. Flood hazard maps do not provide information on site-specific hazards such erosion or sudden shifts in the water courses.
4. Other sources of water-roads, railways or other barriers can restrict water to affect flood levels locally. Channel obstructions, local storm water inflows, ground- or other land drainage can cause flood levels to exceed those indicated on the maps. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year.)
2. Predicted flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Ice-related flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The technical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/embankments not established on the ground by legal survey and are not delineated for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
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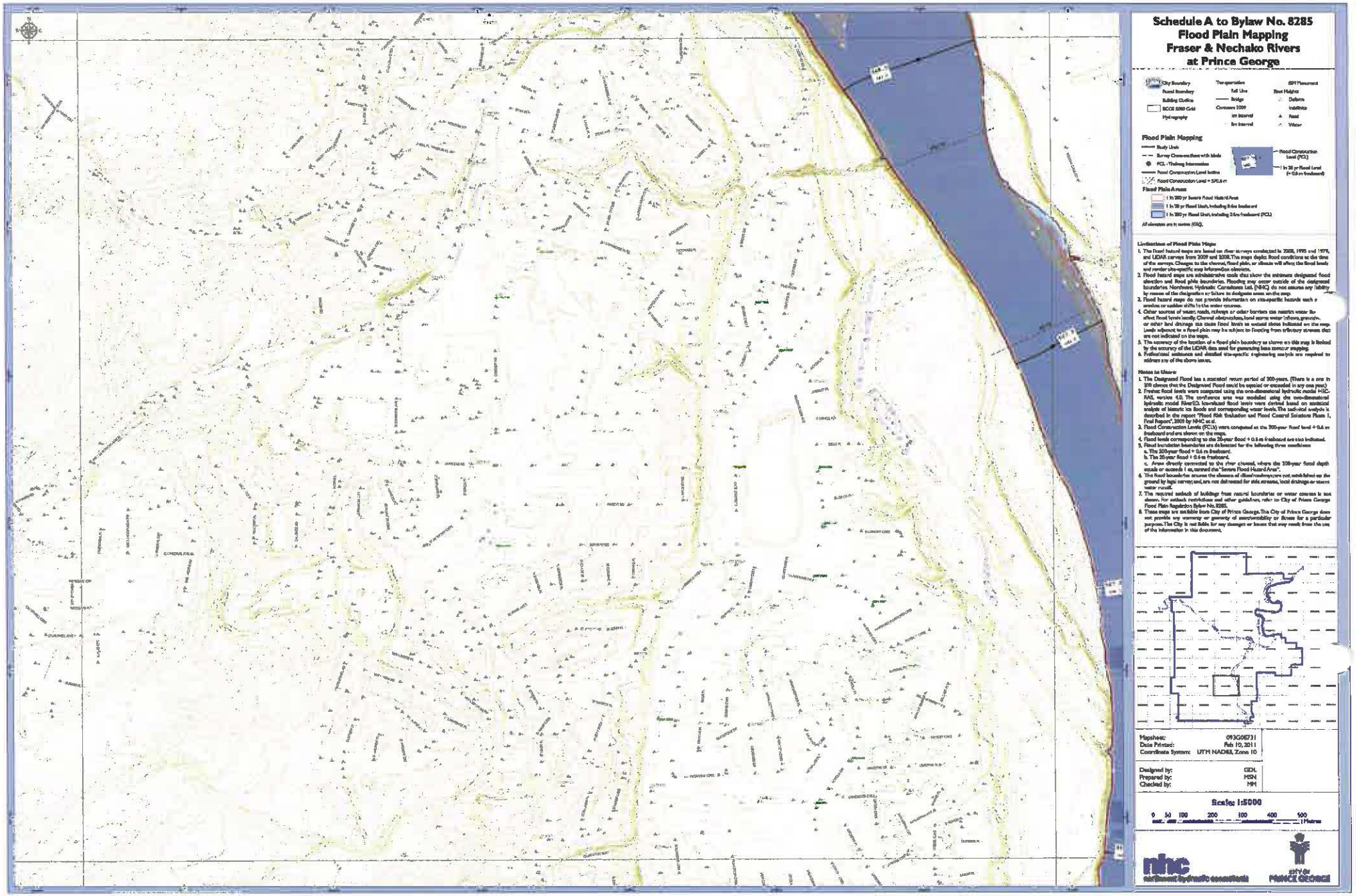


Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Rural Boundary
Building Outline
NTS Grid
Hydrography

Transportation
Toll Line
Bridge
Contours 2009
1m Interval
5m Interval

BM Placement
Spot Heights
Bollards
Indistinct
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with labels
FCL - Thalweg Intersection
Flood Construction Level Isoline
Flood Construction Level = XXX.X m

Flood Construction Level (FCL)
1 in 20 yr Flood Level (= 0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1978, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the maps.
2. Flood hazard maps do not provide information on site-specific hazards such a erosion or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flo affect flood levels locally. Channel obstructions, local storm water inflows, groundw, or other land drainage can cause flood levels to extend above indicated on the maps. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users:

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year.)
2. Freshet flood levels were computed using the one-dimensional hydraulic model MIKE-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model RiverFLO. Interpolated flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/roadways; are not established on the ground by legal survey; and, are not delineated for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.

Mapsheet:	093G0E731
Date Printed:	Feb 10, 2011
Coordinate System:	UTM NAD83, Zone 10
Designed by:	GDL
Prepared by:	MSN
Checked by:	MM

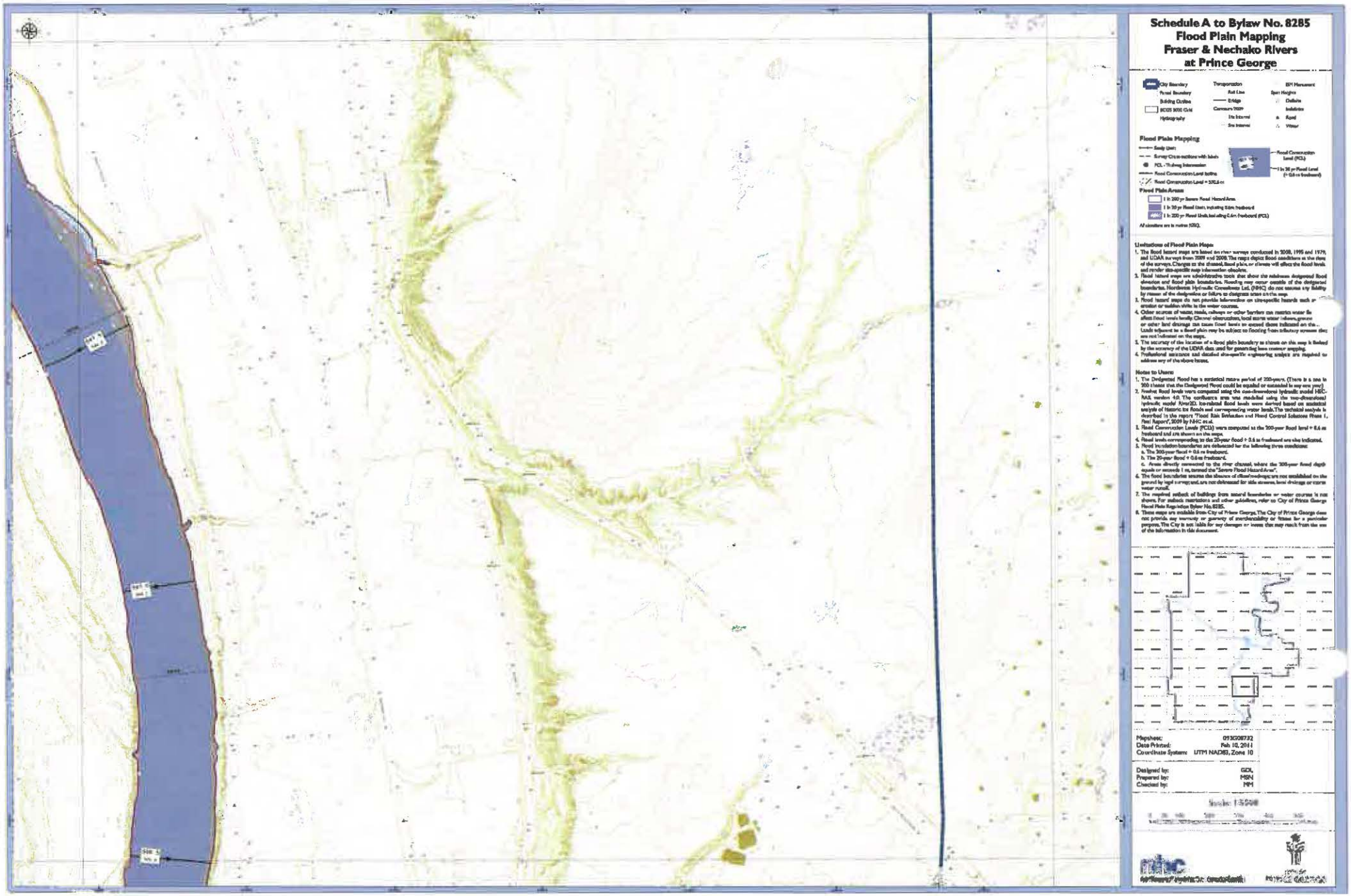
Scale: 1:5000

0 50 100 200 300 400 500 Metres

nhc northwest hydraulic consultants

CITY OF PRINCE GEORGE

4.



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Transportation
BM Monument
Flood Boundary
Rail Line
Spot Heights
Building Outline
Bridge
Definite
BCGS 5000 Grid
Causeway 2009
Indefinite
Hydrography
Dry Interval
Road
Wet Interval
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with labels
FCL - Flowing Intersection
Flood Construction Level Isoline
Flood Construction Level = XXX.X m
Flood Construction Level (FCL)
1 in 200 yr Flood Level (+ 0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the maps.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flow affect flood levels locally. Channel obstructions, local storm water inflows, groundwater or other land drainage can cause flood levels to exceed those indicated on the maps. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users:

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year)
2. Peaked flood levels were computed using the one-dimensional hydraulic model HEC-RAS version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Ice-related flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The technical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/roadways are not established on the ground by legal survey; and are not delineated for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.

Mapsheet:	093G08732
Date Printed:	Feb 10, 2011
Coordinate System:	UTM NAD83, Zone 10
Designed by:	GDL
Prepared by:	MSN
Checked by:	MM

Scale: 1:5000

0 50 100 150 200 250

NHC
Northwest Hydraulic Consultants

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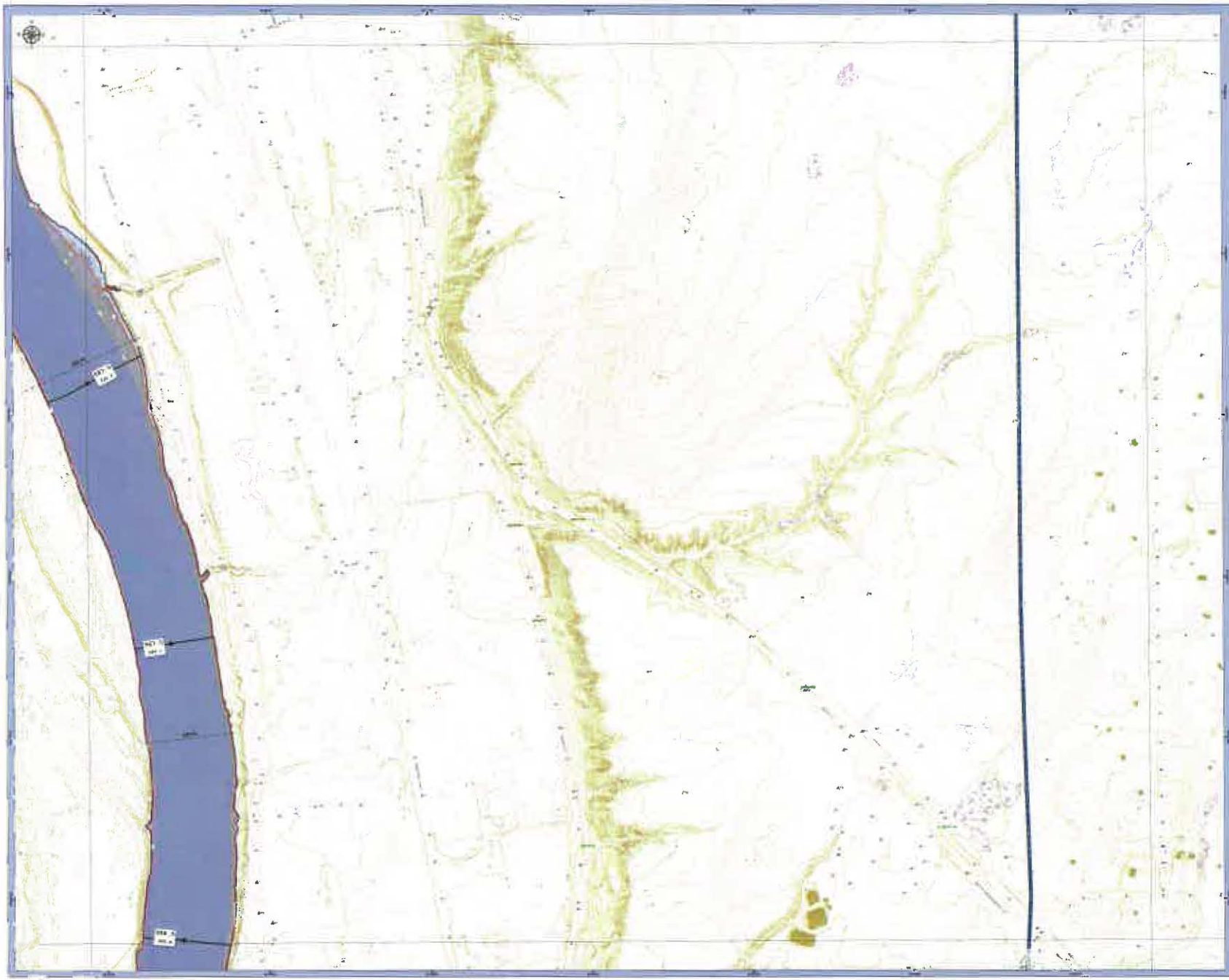


Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Flood Boundary
Building Outline
NTS 1:50K Grid
Hydrography

Transportation
Rail Line
Bridge
Contours 2009
1m Interval
5m Interval

BM Monument
Spot Heights
Elevator
Institution
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with ideals
PCL - Railway Intersection
Flood Construction Level buffer
Flood Construction Level = 574.6 m

Flood Construction Level (FCL)
1 in 20 yr Flood Level (= 0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2005, 1995 and 1979, and LiDAR surveys from 2009 and 2005. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the maps.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or debris drifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water to affect flood levels locally. Channel obstructions, local storm water inflows, ground or other land drainage can cause flood levels to exceed those indicated on the Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

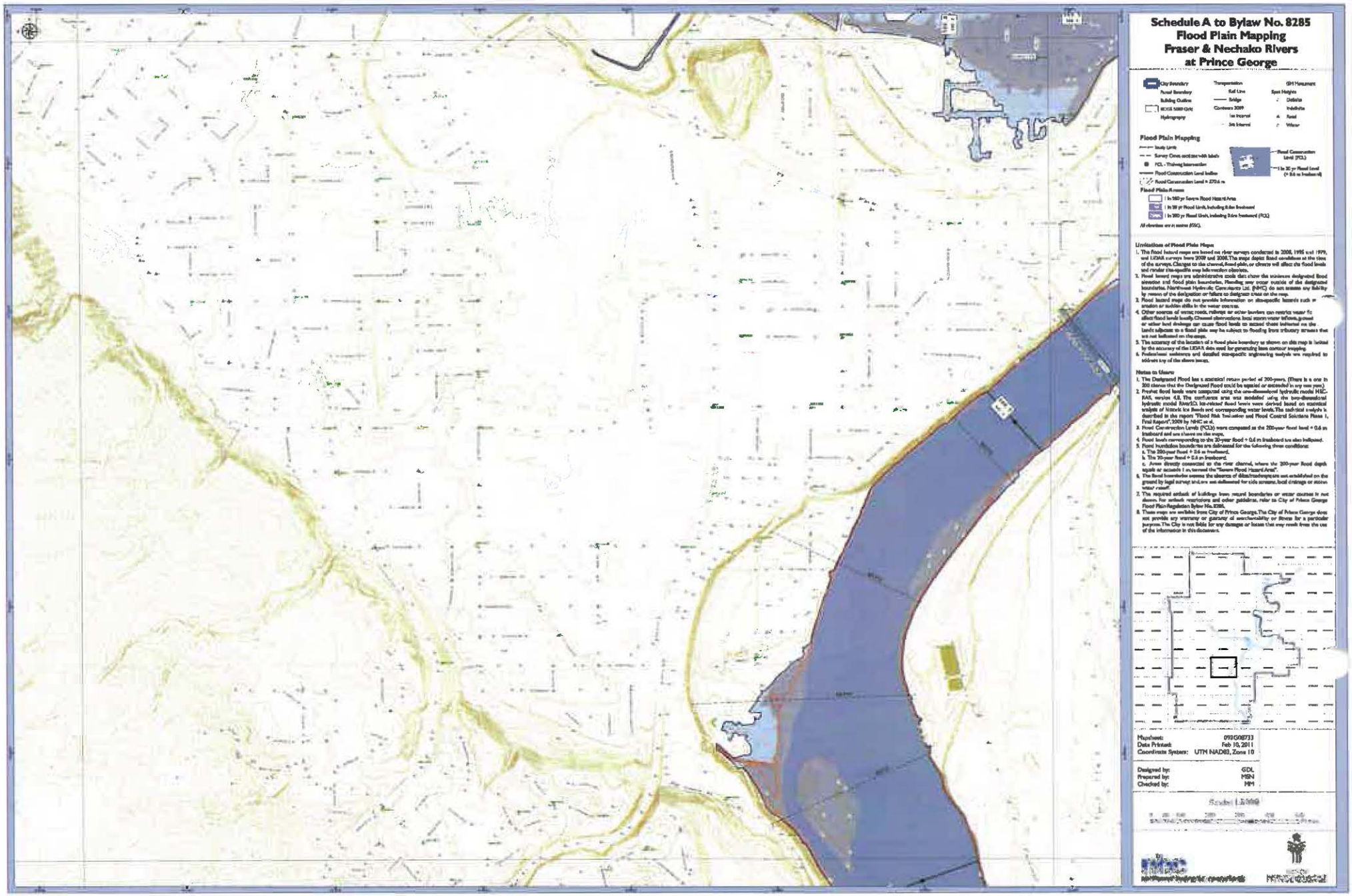
1. The Designated Flood has a statistical return period of 200-years, (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year).
2. Freshet flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Ice-related flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et.al.
3. Flood Construction Levels (FCL's) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/roadways are not established on the ground by legal survey; and, are not delineated for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.

Mapsheet:	093G08f32
Date Printed:	Feb 10, 2011
Coordinate System:	UTM NAD83, Zone 10
Designed by:	GDL
Prepared by:	MSN
Checked by:	MM

Scale: 1:5000

0 50 100 200 300 400 500

Northwest Hydraulic Consultants



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Parcel Boundary
Building Outline
BCGS 1:5000 GDB
Hydrography

Transportation
Rail Line
Bridge
Contours 2009
1m Interval
5m Interval

GPS Monument
Spot Heights
Orthometric
Ellipsoidal
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross section with label
FCL - Thalweg Intersection
Flood Construction Level Isoline
Flood Construction Level = 2716.6 m

Road Construction Level (FCL)
1 in 20 yr Flood Level (+ 0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2008 and 2006. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the maps.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water fr affect flood levels locally. Channel obstructions, local storm water inflows, ground or other local drainage can cause flood levels to exceed those indicated on the lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address use of the above maps.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year.)
2. Project flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Ice-related flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The technical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard,
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of obstructions not established on the ground by legal survey and are delineated for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback requirements and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.

Mapsheet: 093G08733
Date Printed: Feb 10, 2011
Coordinate System: UTM NAD83, Zone 10

Designed by: GDL
Prepared by: MSN
Checked by: MM

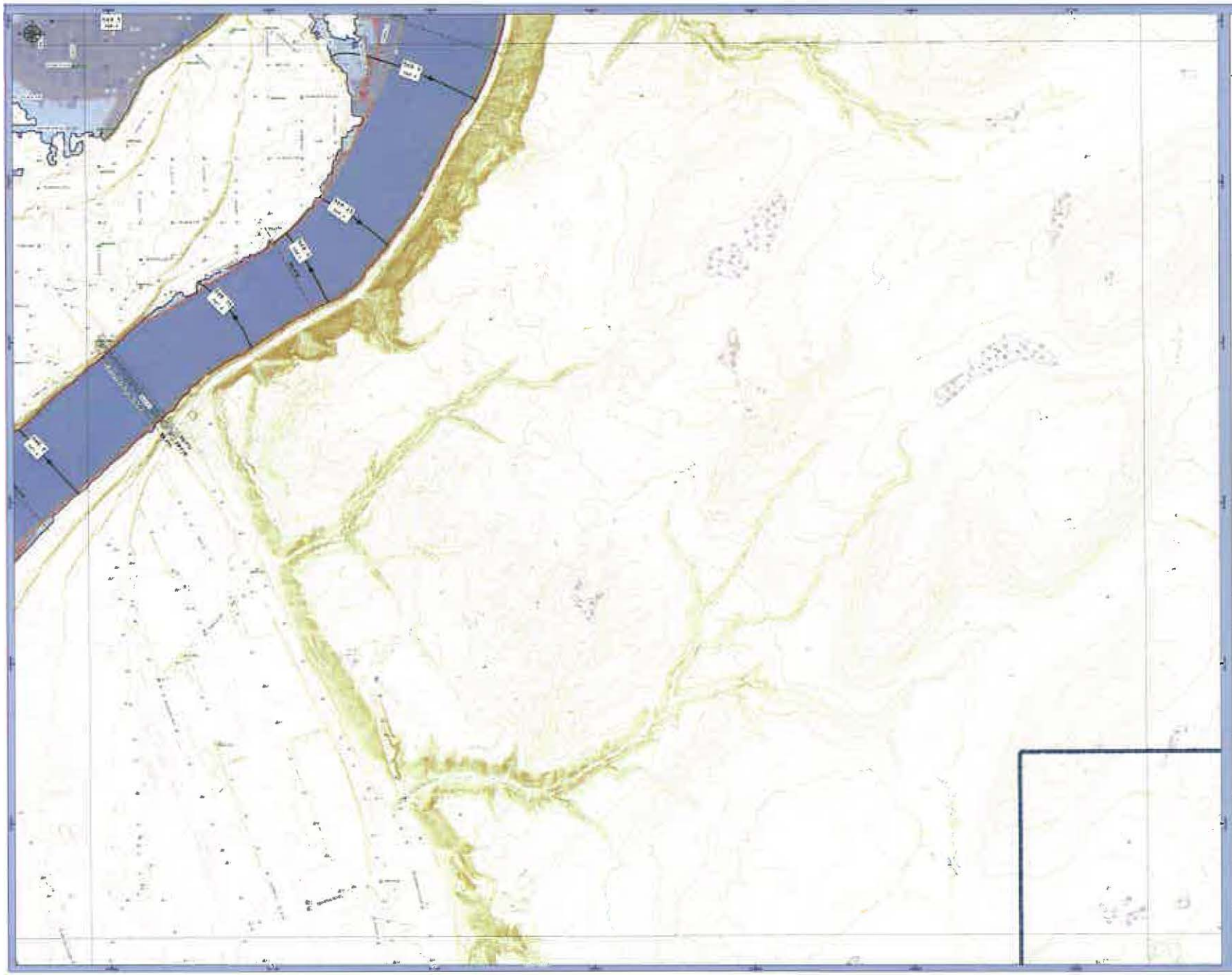
Scale 1:5000

0 50 100 200 300 400 500 Metres

NHC
Northwest Hydraulic Consultants

CITY OF PRINCE GEORGE

7.



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Parcel Boundary
Building Outline
BCGS 5000 Grid
Hydrography

Transportation
Rail Line
Bridge
Crescent 2009
5m Interval
5m Interval

DFI Placement
Spot Heights
Definite
Indefinite
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with labels
FCL - Thalweg Intersection
Flood Construction Level Isoline
Flood Construction Level = 576.1 m

Flood Construction Level (FCL)
1 in 20 yr Flood Level (+ 0.6 m freeboard)

Flood Plain Areas
1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

All elevations are in metres (GSC).

Limitations of Flood Plain Maps

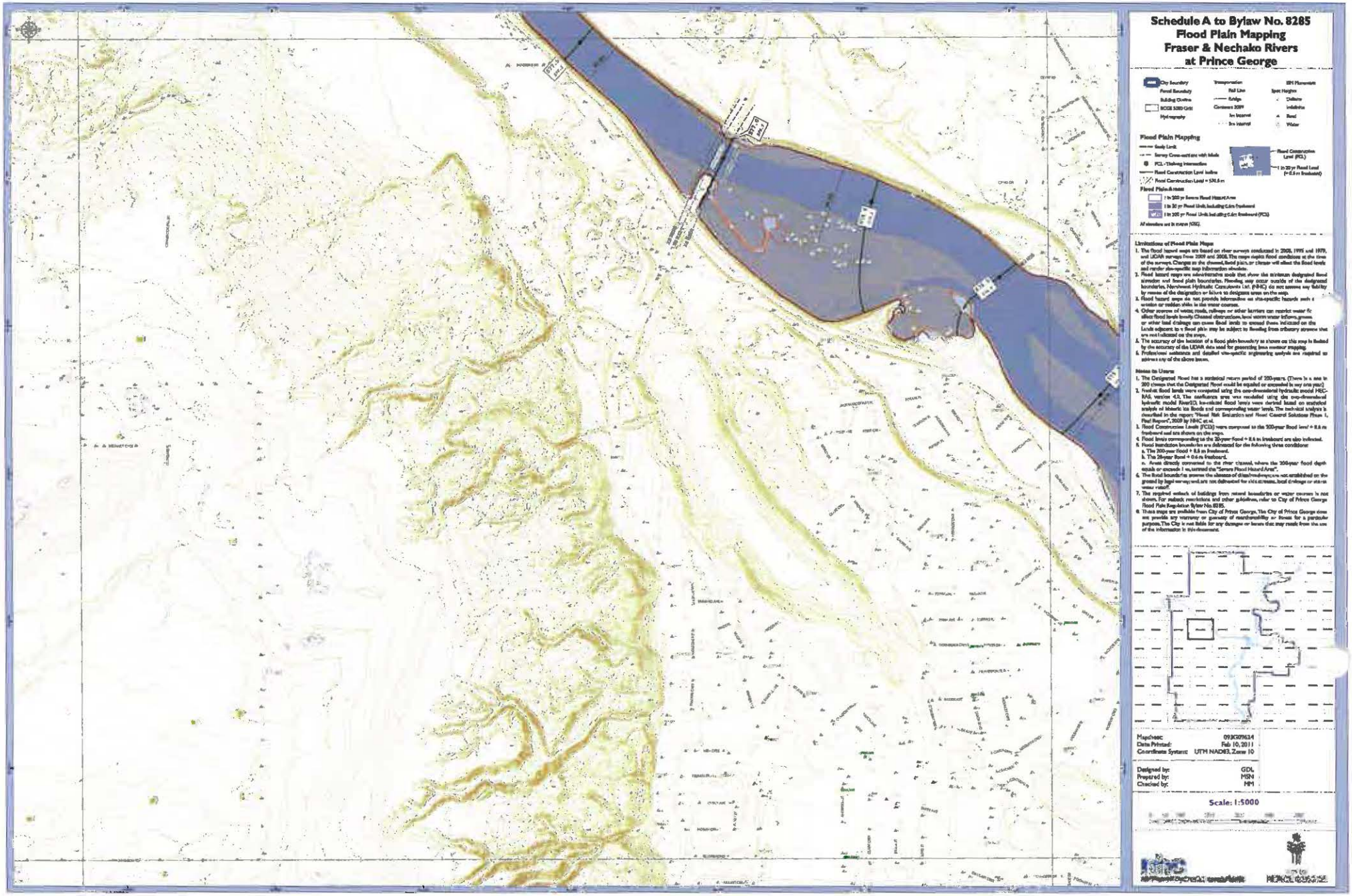
1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designations or failure to designate areas on the map.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flow and affect flood levels locally. Channel obstructions, local storm water inflows, groundwater or other local drainage can cause flood levels to exceed those indicated on the maps. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year.)
2. Flood level limits were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Ice-related flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The technical analysis is described in the report "Flood Risk Estimates and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood hazardous boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of flood control works are not established on the ground by legal survey and are not delineated for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.

Mapsec:	093G05234
Date Printed:	Feb 10, 2011
Coordinate System:	UTM NAD83, Zone 10
Designed by:	GDL
Prepared by:	HSN
Checked by:	MH

Scale: 1:2500



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City boundary
Flood Boundary
Building Outline
NCGR 5000 Grid
Hydrography

Transportation
Rail Line
Bridge
Centreline 2009
1m Interval
5m Interval

BM Monument
Spot Heights
Defence
Industrial
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with labels
FCL-Thalweg intersection
Flood Construction Level below
Flood Construction Level = 570.6 m

Flood Construction Level (FCL)
1 in 20 yr Flood Level (+0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

All elevations are in meters (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2005, 1995 and 1979, and LiDAR surveys from 2009 and 2005. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the maps.
3. Flood hazard maps do not provide information on site-specific hazards such a erosion or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water fr affect flood levels locally. Channel obstructions, low water water bottom, ground, or other land drainage can cause flood levels to exceed those indicated on the Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

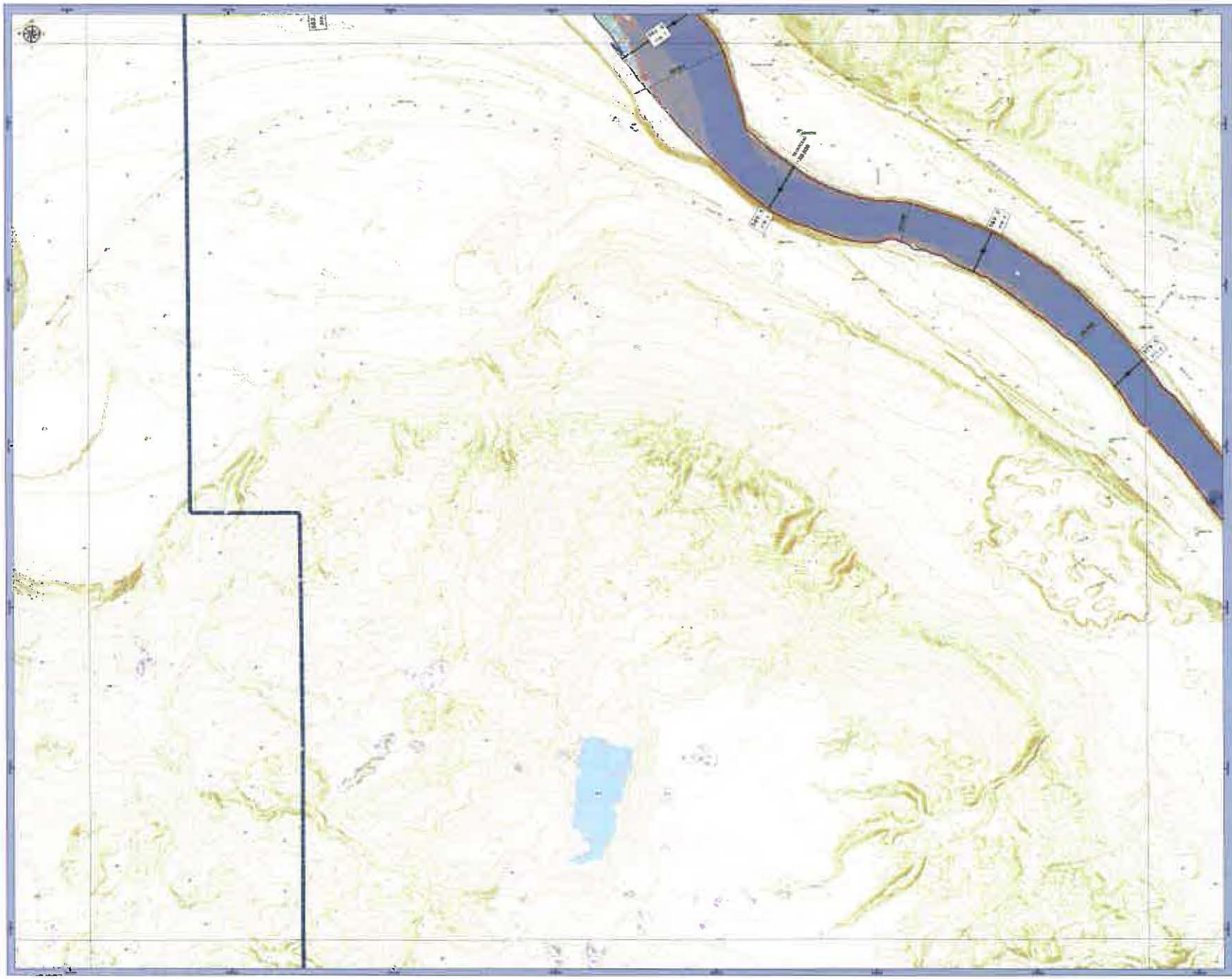
Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 change that the Designated Flood could be equaled or exceeded in any one year.)
2. Freshet flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Ice-related flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The technical analysis is described in the report "Flood Risk Estimation and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood hazard area boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/embankments not established on the ground by legal survey and are not delineated for minor streams, local drainage or storm sewer runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8185.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.

Mapsheet: 093G079634
Date Printed: Feb 10, 2011
Coordinate System: UTM NAD83, Zone 10

Designed by: GDL
Prepared by: MSN
Checked by: MM

Scale: 1:5000



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Flood Boundary
Building Outline
NAD83 UTM Grid
Hydrography

Transportation
Rail Line
Bridge
Contours 2009
5m interval
5m interval

191 Monument
Spot Heights
Definite
Indefinite
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with labels
FCL - Flathead Intersection
Flood Construction Level Isoline
Flood Construction Level = 576.0 m

Flood Construction Level (FCL)
1 in 20 yr Flood Limit (+ 0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2008. The maps display flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
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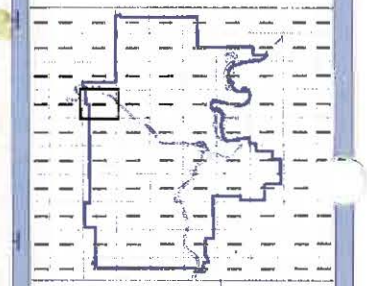
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year).
2. Project flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modeled using the two-dimensional hydraulic model River2D. Ice-related flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Estimates and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/roadways are not established on the ground by legal survey; and are not delineated for site-specific local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.



Map sheet:	093G09641
Date Printed:	Feb 10, 2011
Coordinate System:	UTM NAD83, Zone 10
Designed by:	GDL
Prepared by:	MSN
Checked by:	MM

Scale: 1:5000

nhc
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CITY OF PRINCE GEORGE

10

Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Flood Boundary
Building Outline
NTS 50K Grid
Hydrography

Transportation
Rail Line
Bridge
Contours 2009
1m Interval
5m Interval

BM Monument
Spot Heights
Outline
Indistinct
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with labels
FCL - Thalweg Intersection
Flood Construction Level Isoline
Flood Construction Level = 570.6 m

Flood Construction Level (FCL)
1 in 20 yr Flood Level (+ 0.6 m freeboard)

Flood Plain Areas:

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

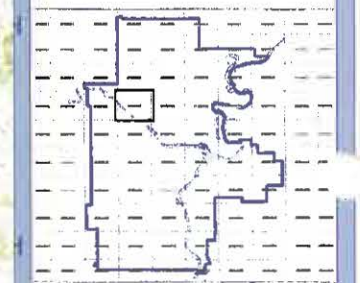
All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes in the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the maps.
3. Flood hazard maps do not provide information on site-specific hazards such a erosion or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flo affect flood levels locally. Channel obstructions, local sewer water inflows, groundw or other land drainage can cause flood levels to exceed those indicated on the maps. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year.)
2. Peak flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Interpolated flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Evaluation and Flood Control Selection Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas already encroached by the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/roadways/berms not established on the ground by legal survey, and are delineated for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of marketability or fitness for a particular purpose. The City is not liable for any damage or losses that may result from the use of the information in this document.



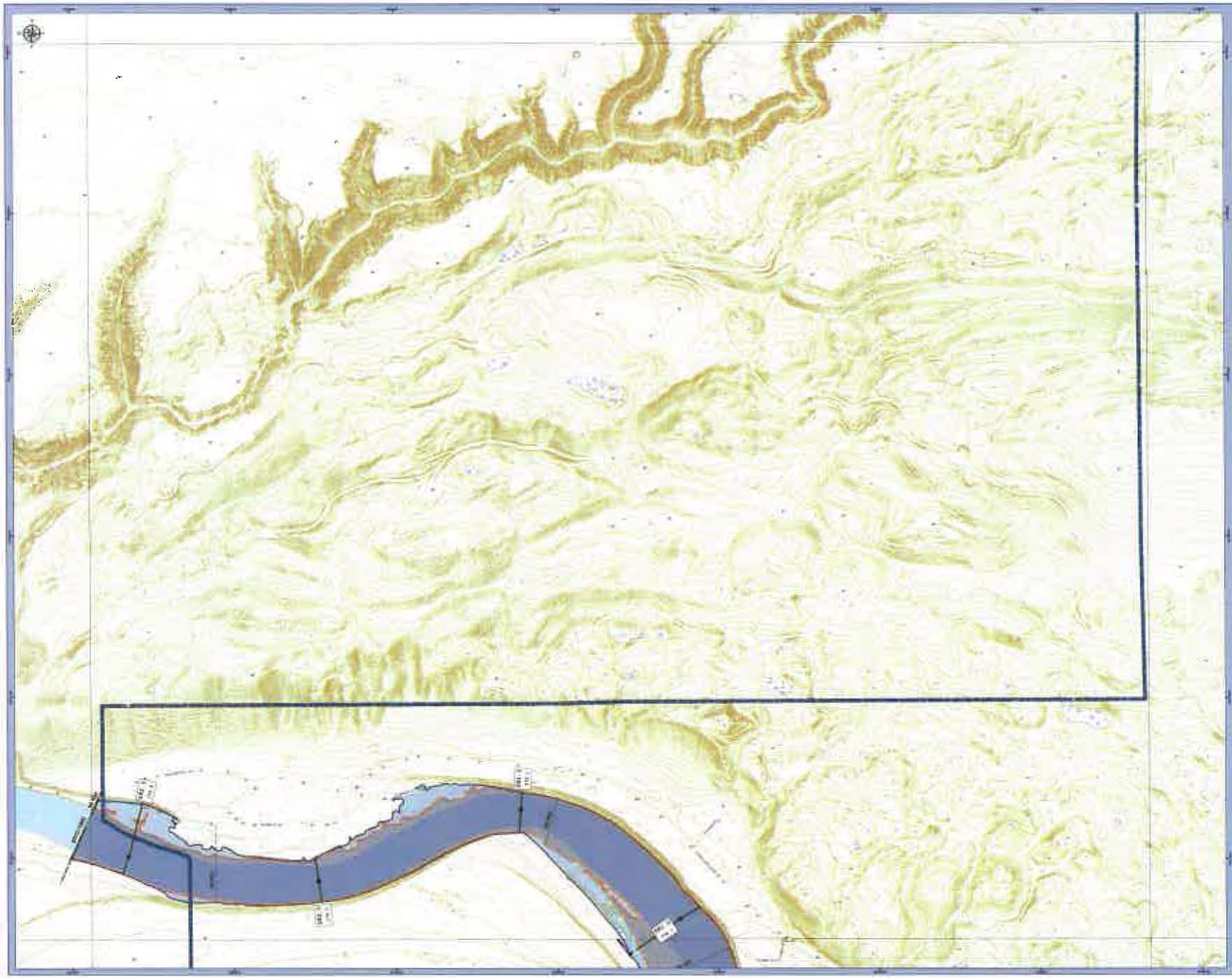
Mapsheet:	093G09fg2
Date Printed:	Feb 10, 2011
Coordinate System:	UTM NAD83, Zone 10
Designed by:	GDL
Prepared by:	MSN
Checked by:	MM

Scale: 1:5000

0 50 100 200 300 400 500 Metres

NHC Northwest Hydraulic Consultants

CITY OF PRINCE GEORGE



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Rural Boundary
Building Outline
BCGS 1:20D Grid
Hydrography

Transportation
Rail Line
Bridge
Centreline 2009
1m Interval
5m Interval

BM Monument
Spot Heights
Outline
Individual
Land
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with labels
FCL - Thalweg Intersection
Flood Construction Level Isoline
Flood Construction Level = 570.0 m

Flood Construction Level (FCL)
1 in 20 yr Flood Level (= 0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the map.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or sudden shifts in the water course.
4. Other sources of water, such as railways or other barriers can restrict water flow, affect flood levels locally. Channel obstructions, local storm water inflows, ground- or other land drainage can cause flood levels to exceed those indicated on the map. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating these coastal mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equalled or exceeded in any one year.)
2. Fraser flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Isovelocity flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2008 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of offset roadways; are not established on the ground by legal surveys; and, are not delineated for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.

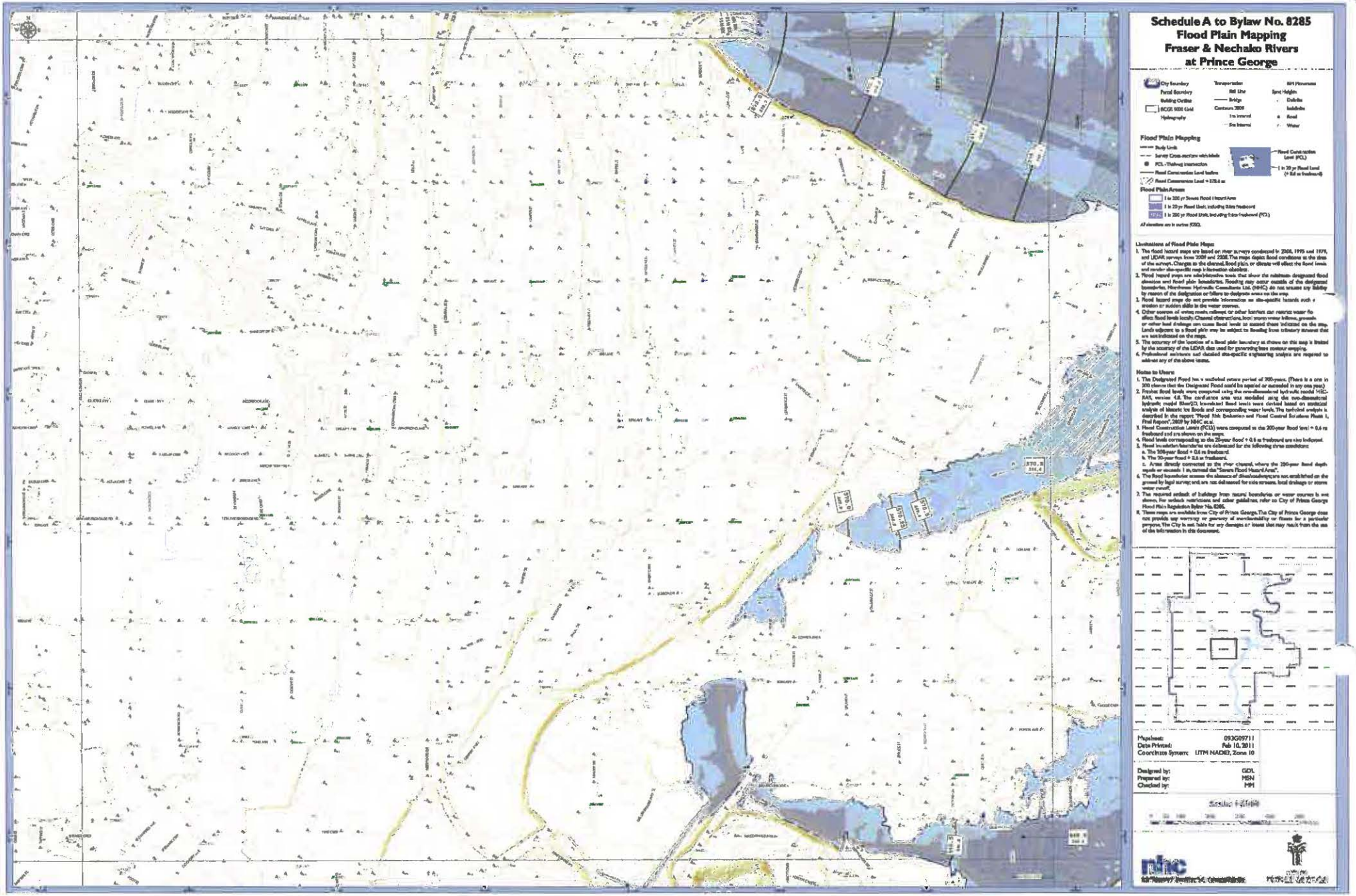
Mapsheet: 093G09643
Date Printed: Feb 10, 2011
Coordinate System: UTM NAD83, Zone 10

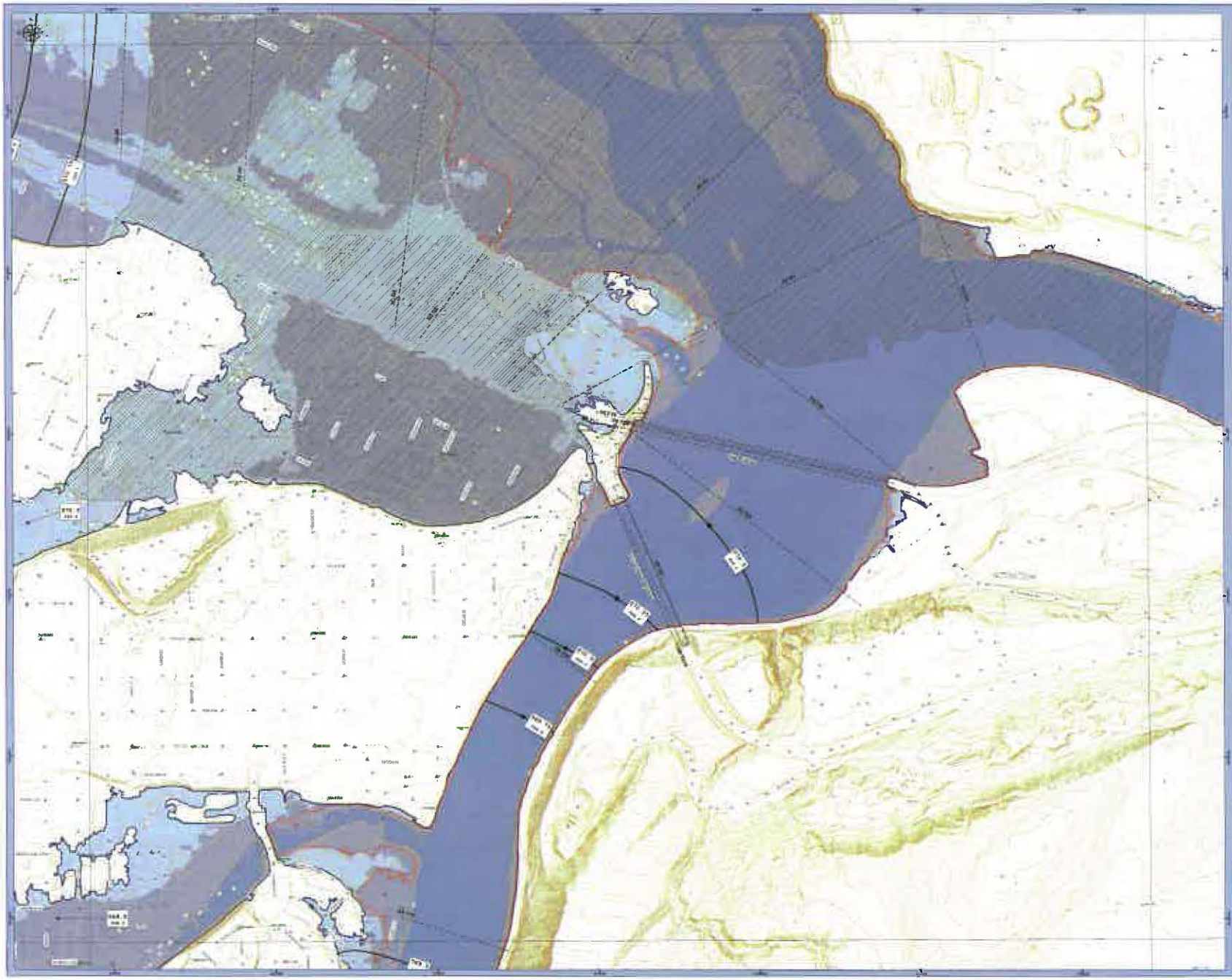
Designed by: GDL
Prepared by: MSN
Checked by: MH

Scale: 1:5000

0 50 100 200 300 400 500 Metres

nhc


Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George
Flood Plain Mapping
Flood Plain Areas
Limitations of Flood Plain Maps
Notes to Users
Mapsheet: 093G09711
Date Printed: Feb 10, 2011
Coordinate System: UTM NAD83, Zone 10
Designed by: GDL
Prepared by: MSN
Checked by: MH
nhc



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Parcel Boundary
Building Outline
NTS 1:5000 Grid
Hydrography

Transportation
Rail Line
B-Alps
Contours 2009
1m Interval
2m Interval

BM Monument
Spot Heights
Districts
Industries
Land
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with labels
FCL - Flooding intersection
Flood Construction Level (FCL) isoline
Flood Construction Level = 578.5 m

Flood Construction Level (FCL)
1 in 20 yr Flood Level (+ 0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

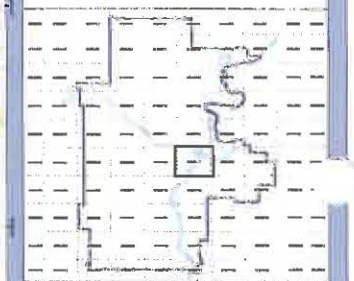
All elevations are in metres (CGD).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1998 and 1979, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the map.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or sudden shifts in the water courses.
4. Other sources of water such as roads, railways or other barriers can restrict water to affect flood levels locally. Channel obstructions, local storm water inflows, grounds or other land drainage can cause flood levels to exceed those indicated on the maps. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year.)
2. Product flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Ice-related flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 200-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/berms/dams are established on the ground by legal survey; and are not delineated for site erosion, local drainage or storm sewer runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.



Mapsheet: 093K097 13
Data Printed: Feb 10, 2011
Coordinate System: UTM NAD83, Zone 10

Designed by: GDL
Prepared by: MSN
Checked by: MH

Scale: 1:5000

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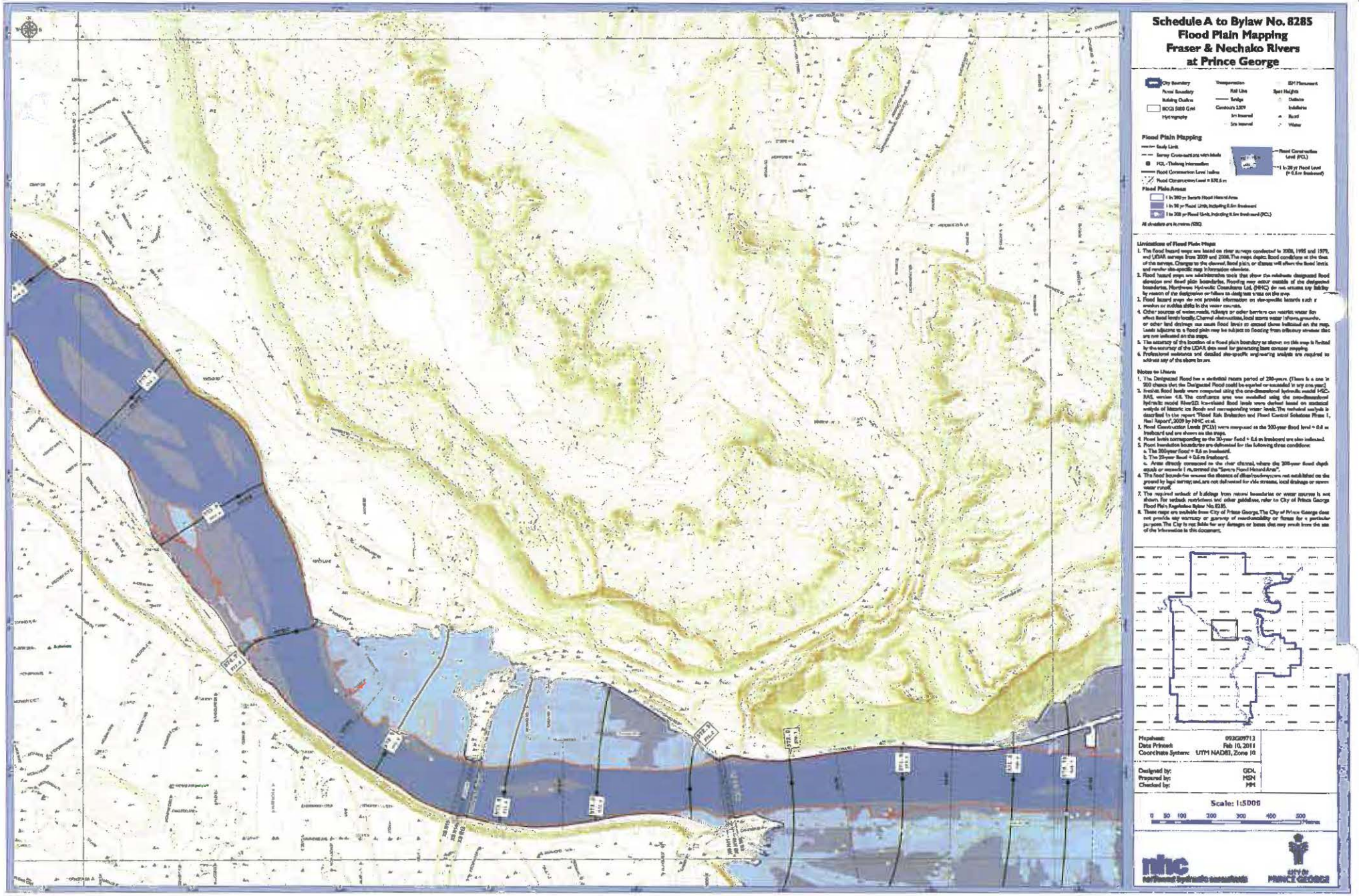
14.



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

Flood Plain Mapping

Flood Plain Areas

All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or dikes will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the relationship designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the maps.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or mobile shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flow affect flood levels locally. Channel obstructions, local storm water inflows, groundwater, or other land drainage can cause flood levels to exceed those indicated on the maps. Lands adjacent to a flood plain may be subject to flooding from inflowing streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes on Usage

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year.)
2. Inundation flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model RiverSED. Ice-related flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/spoilers/berms not established on the ground by legal survey; and, are not delineated for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.

Map sheet:	093G09713
Date Printed:	Feb 10, 2011
Coordinate System:	UTM NAD83, Zone 10
Designed by:	GDL
Prepared by:	MSN
Checked by:	MM

Scale: 1:5000

0 50 100 200 300 400 500 Metres

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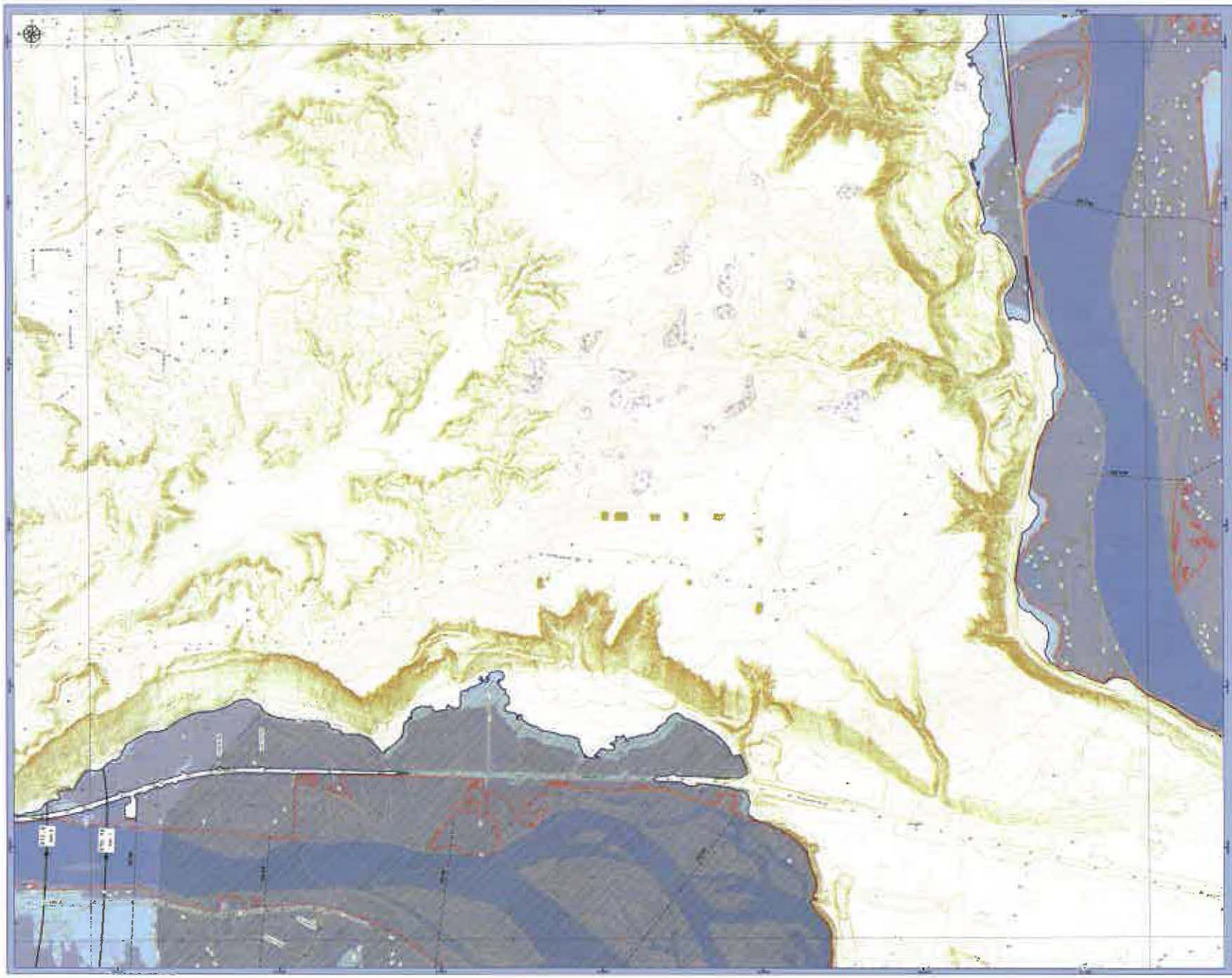
CITY OF PRINCE GEORGE

15



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Parcel Boundary
Building Outline
BCGS 5000 Grid
Hydrography

Transportation
Rail Line
Bridge
Contours 2009
1m Interval
5m Interval

BM Monument
Spot Heights
Outcrop
Indistinct
Land
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with labels
FCL - Flooding Intersection
Flood Construction Level Isoline
Flood Construction Level = 578.4 m

Flood Construction Level (FCL)
1 in 20 yr Flood Level (+ 0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

All elevations are in metres (CGVD).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1978, and LiDAR surveys from 2009 and 2006. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or dikes will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the maps.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flow, affect flood levels locally. Channel obstructions, local storm water inflows, ground- or other land drainage can cause flood levels to exceed those indicated on the map. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year)
2. Peakest flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Ice-related flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/roadways not established on the ground by legal survey, and are not delineated for site specific local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.

Mapsheet: 093G09714
Data Printed: Feb 10, 2011
Coordinate System: UTM NAD83, Zone 10

Designed by: GDL
Prepared by: MSN
Checked by: MM

Scale: 1:5000

0 50 100 150 200 250 300 400 500 Metres

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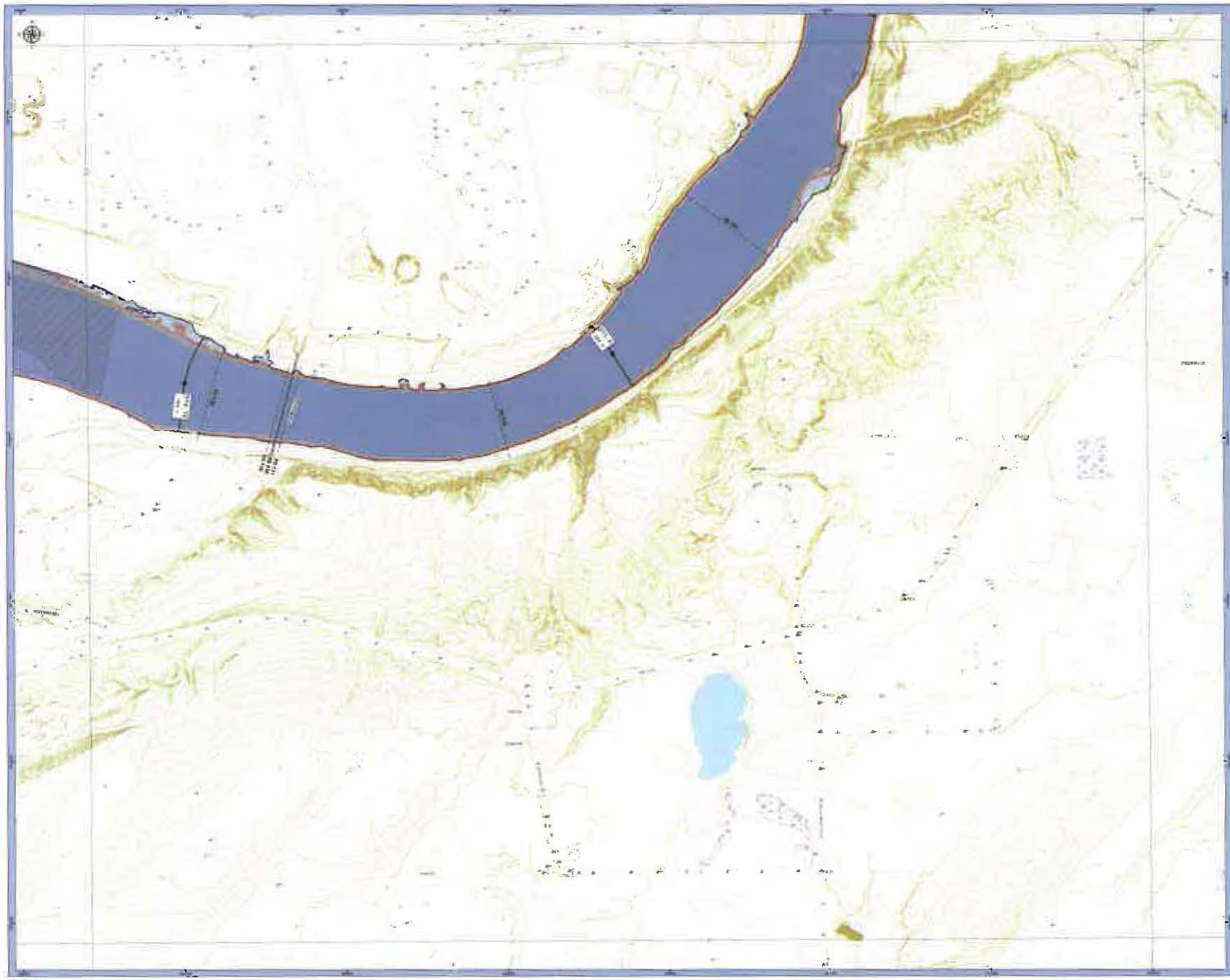
northwest hydraulic consultants

CITY OF PRINCE GEORGE

16.



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Rural Boundary
Building Outline
BCGS 2500 Grid
Hydrography

Transportation
Rail Line
Bridge
Contours 2009
1m Interval
5m Interval

Elevation
Spot Heights
Dikette
Instrument
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with Ids
FCL - Tripleg Intersection
Flood Construction Level Isoline
Flood Construction Level = 572.6 m

Flood Construction Level (FCL)
1 in 20 yr Flood Level (+ 0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the map.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flow affect flood levels locally. Channel obstructions, local storm water inflows, groundwater or other local drainage can cause flood levels to exceed those indicated on the map. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

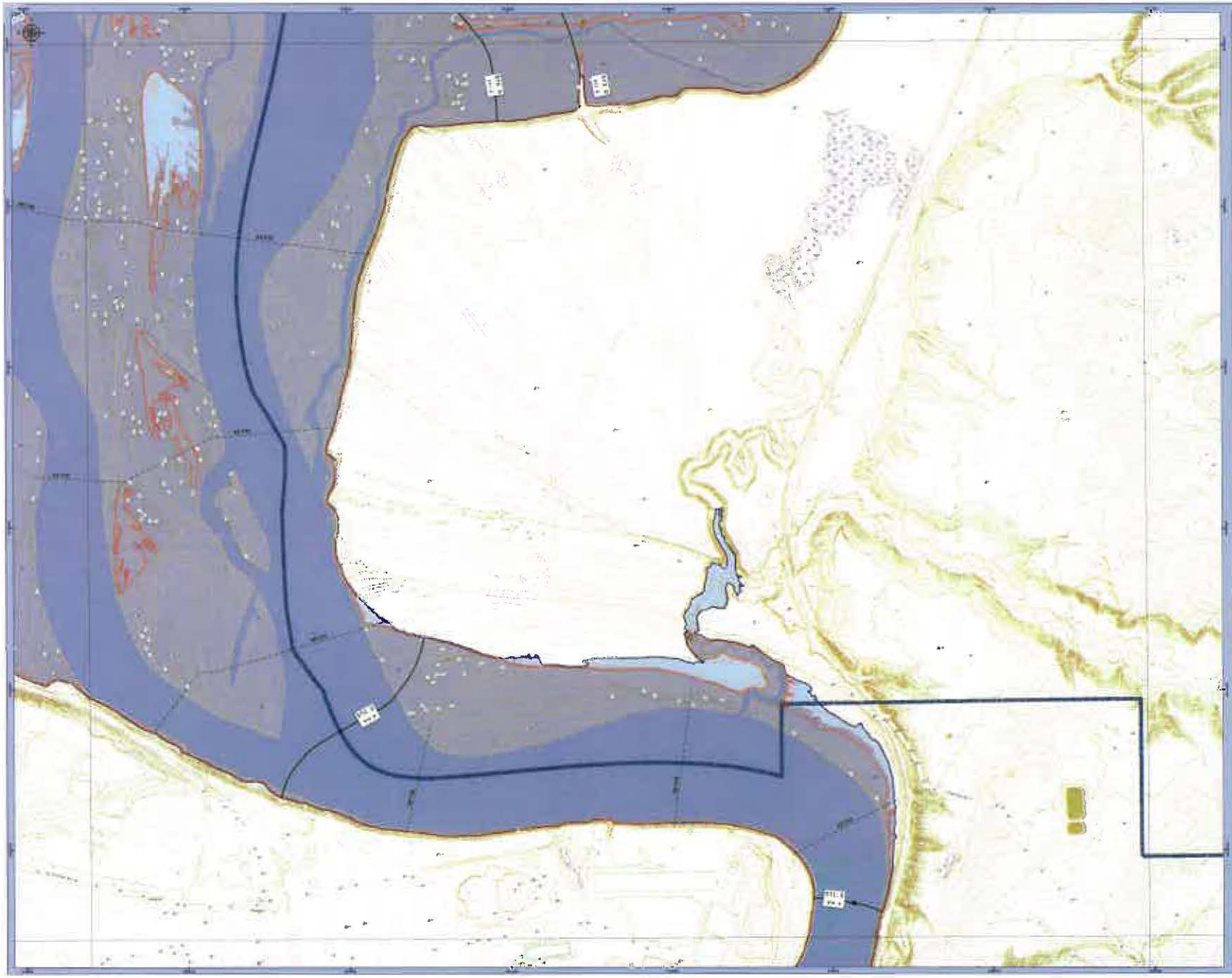
1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year)
2. Freshet flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Ice-related flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Evaluation and Flood Control Selection Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/roadways; are not established on the ground by legal survey; and are not delineated for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8185.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.

Mapsheet: 093G09721
Date Printed: Feb 10, 2011
Coordinate System: UTM NAD83, Zone 10

Designed by: GDL
Prepared by: MBN
Checked by: MM

Scale: 1:5000

nhc



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Flood Boundary
Building Outline
BCGS 1:20k Grid
Topography

Transportation
Rail Line
Bridge
Contours 2009
1m interval
5m interval

ISM Placement
Spot Heights
Bathtub
Intersection
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-section with Label
FCL - Thalweg Intersection
Flood Construction Level Isoline
Flood Construction Level = 370.6 m

Flood Construction Level (FCL)
1 in 20 yr Flood Level (= 0.6 m Freeboard)

Flood Plain Areas

1 in 200 yr Sevens Flood Hazard Area
1 in 20 yr Flood Level, including 0.6m freeboard
1 in 200 yr Flood Level, including 0.6m freeboard (FCL)

All elevations are in metres (SEC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the map.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flow, affect flood levels locally. Channel obstructions, local storm water inflows, groundwater, or other land drainage can cause flood levels to exceed those indicated on the map. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on the map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assessment and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year)
2. Project flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Interrelated flood levels were checked based on statistical analysis of historic ice floods and corresponding water levels. The technical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/roadways are established on the ground by topo survey and are not delineated for site screens, local drainage or storm sewer runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.

Mapsheet: 093G09723
Date Printed: Feb. 10, 2011
Coordinate System: UTM NAD83, Zone 10

Designed by: GDL
Prepared by: HSN
Checked by: MH

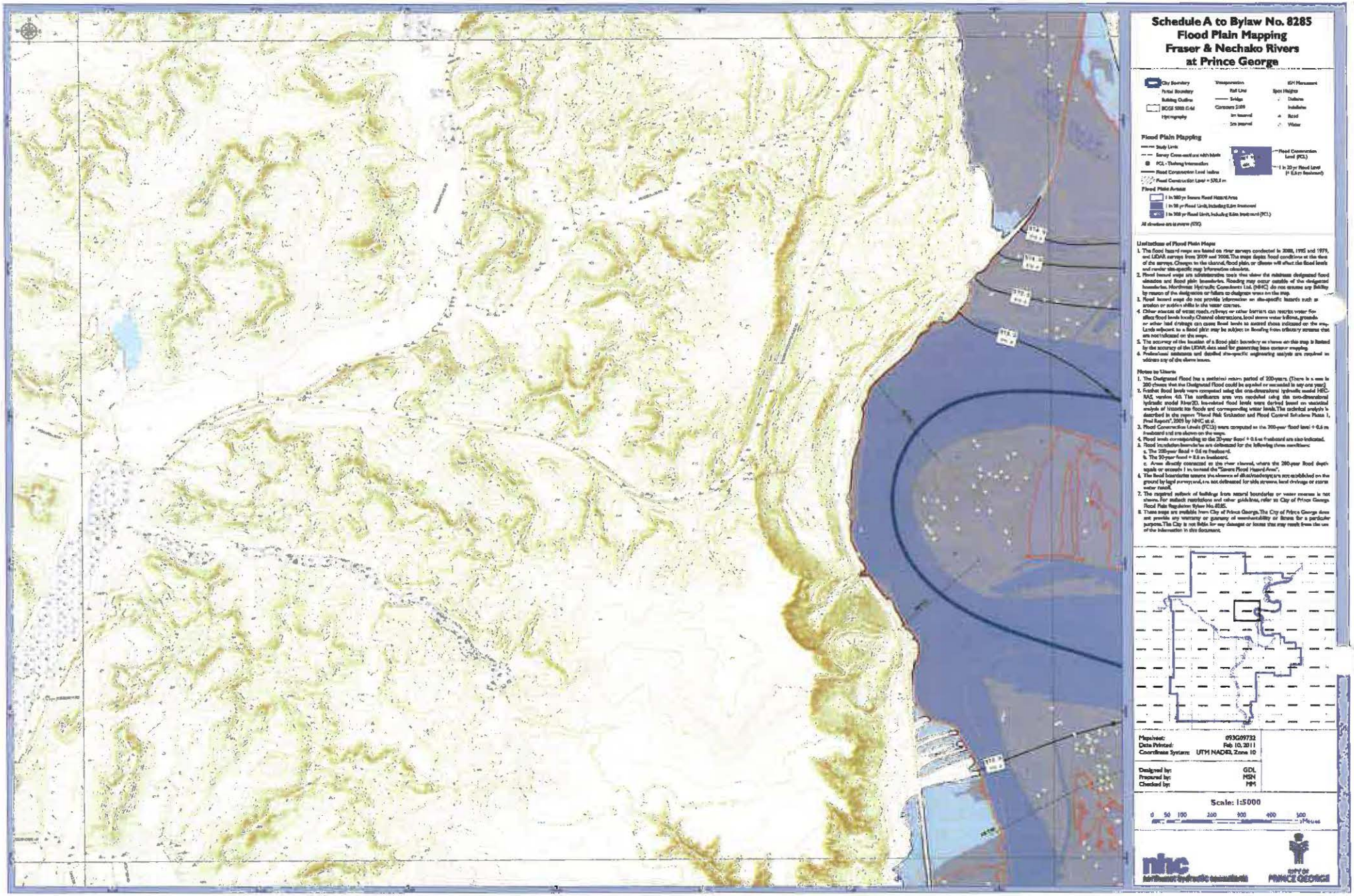
Scale: 1:5000

0 50 100 200 300 400 500 Metres

nhc
Northwest Hydraulic Consultants

City of Prince George

18.



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Postal Boundary
Building Outline
BCGS 1000 (1:5k)
Hypsography

Transportation
Rail Line
Bridge
Contours 2.5m
1m lowered
5m lowered

ISM Monument
Spot Heights
Dwelling
Industrial
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-section with labels
FCL - Thalweg intersection
Flood Construction Level isoline
Flood Construction Level = 570.5 m

Flood Construction Level (FCL)
1 in 20 yr Flood Level (+ 0.6 m freeboard)

Flood Plain Areas

1 in 100 yr Severe Flood Hazard Area
1 in 50 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

All elevations are in metres (CGVD).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevations and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the map.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or sudden shifts in the water courses.
4. Other sources of water (roads, railways or other barriers can restrict water flow affect flood levels locally. Channel obstructions, local storm water inflows, grounds or other land drainage can cause flood levels to exceed those indicated on the map. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year).
2. Further flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The northwest area was modelled using the two-dimensional hydraulic model River2D. Interpolated flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2005 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of all structures; are established on the ground by legal surveys; and, are not delineated for site erosion, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8185.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.

Mapsheet:	093G09732
Date Printed:	Feb 10, 2011
Coordinate System:	UTM NAD83, Zone 10
Designed by:	GDL
Prepared by:	MSN
Checked by:	MM

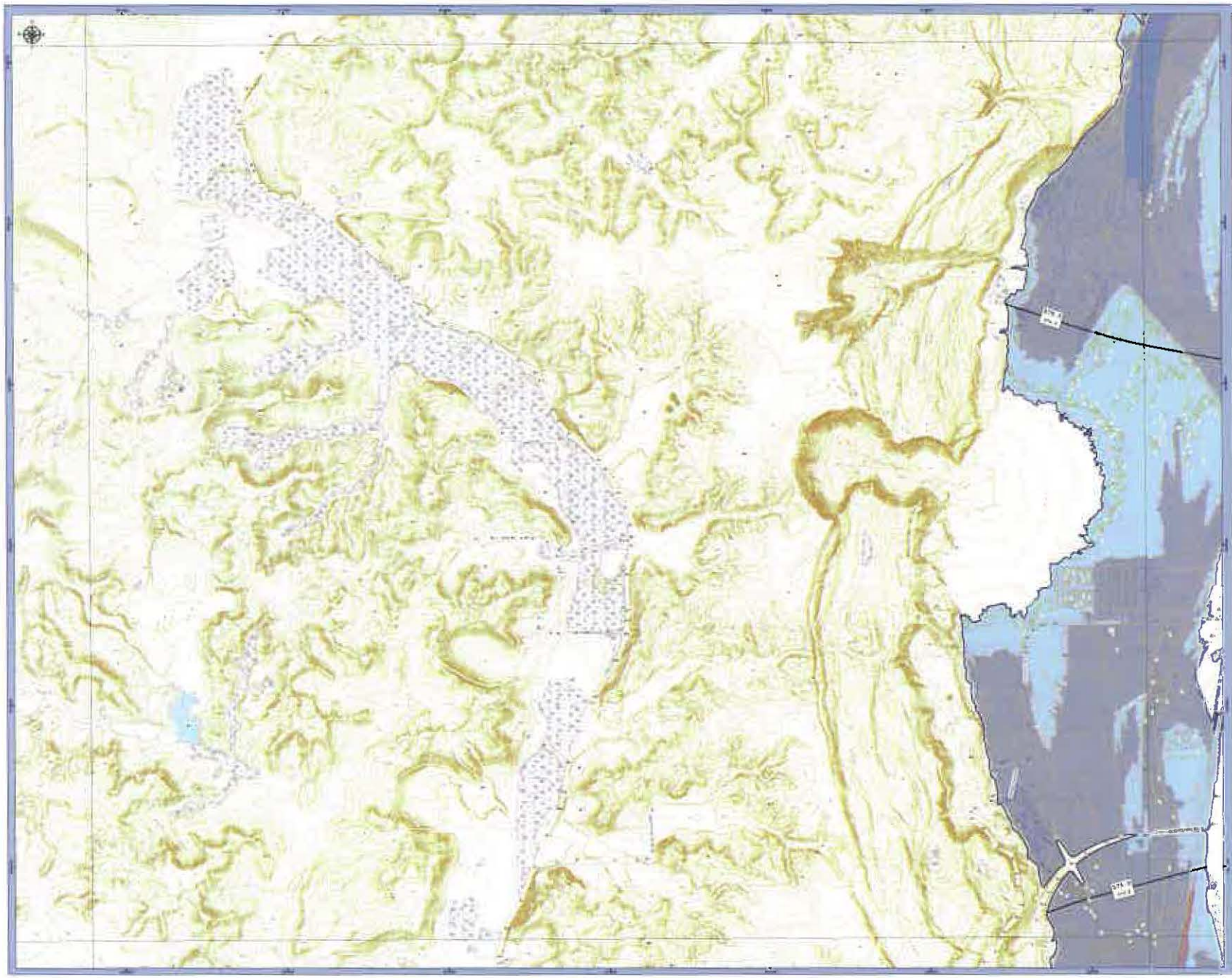
Scale: 1:5000

0 50 100 200 300 400 500 Metres

nhc Northwest Hydraulic Consultants

CITY OF PRINCE GEORGE

19.



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Rural Boundary
Building Outline
BCGS 1:5000 (Cnt)
Hydrography

Transportation
Rail Line
Bridge
Contours 2009
Intermittent
Intermittent

BM Monument
Spot Heights
Bathelite
Indistinct
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-section with Width
PCL - Thalweg Intersection
Flood Construction Level below
Flood Construction Level = 576.6 m

Flood Construction Level (FCL)
1 in 20 yr Flood Level (= 0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

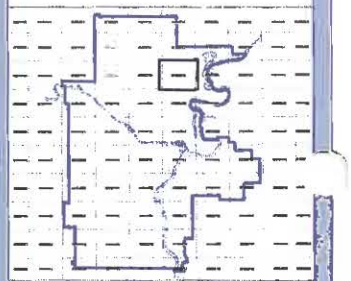
All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or dikes will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevations and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the maps.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flow, affect flood levels locally. Channel obstructions, local storm water inflows, groundwater, or other local drainage can cause flood levels to exceed those indicated on the maps. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year.)
2. Positive flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Low-related flood levels were derived based on statistical analysis of historic low floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Reduction and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/levees/berms, are not established on the ground by legal survey and are not delineated for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.



Mapsheet:	093G09734
Date Printed:	Feb 10, 2011
Coordinate System:	UTM NAD83, Zone 10

Designed by:	GDL
Prepared by:	MSN
Checked by:	MM

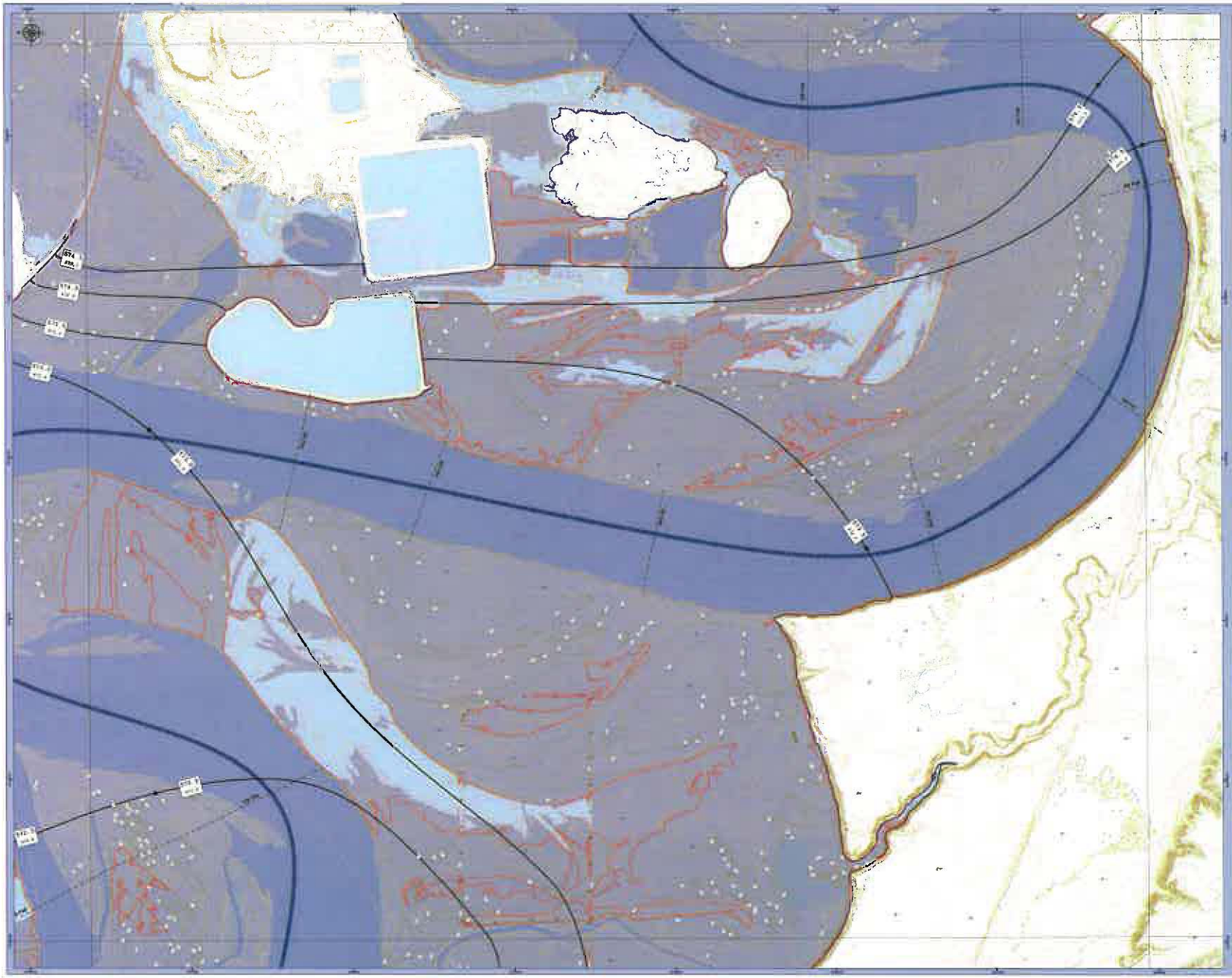
Scale: 1:5000

0 50 100 200 300 400 500 Metres

nhc Northwest Hydraulic Consultants

CITY OF PRINCE GEORGE

20.



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Parcel Boundary
Building Outline
BCGS 1000 Grid
Hydrography

Transportation
Rail Line
Bridge
Contours 2009
1m Interval
5m Interval

NH Monument
Spot Heights
Definite
Indistinct
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with labels
FCL - Working Intersection
Flood Construction Level Isoline
Flood Construction Level = 570.6 m

Flood Construction Level (FCL)
1 in 50 yr Flood Level (+ 0.6 m freeboard)

Flood Plain Areas
1 in 200 yr Severe Flood Hazard Area
1 in 50 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

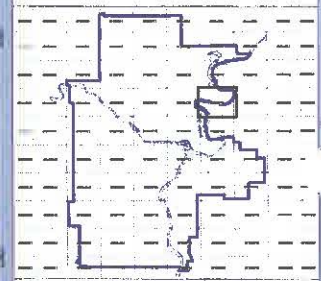
All elevations are in metres (CSG).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the map.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flow, affect flood levels locally. Channel obstructions, local storm water inflows, groundwater or other land drainage can cause flood levels to exceed those indicated on the maps. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assessment and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users:

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year).
2. Fraser flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model RMA-2D. Low-valued flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2005 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/roadways are not established on the ground by legal survey; and, are not delineated for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.



Map Sheet: 093G097#1
Date Printed: Feb 10, 2011
Coordinate System: UTM NAD83, Zone 10

Designed by: GDL
Prepared by: MSN
Checked by: MM

Scale: 1:5000

nhc
northwest hydraulic consultants

CITY OF PRINCE GEORGE

21.

Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Flood Boundary
Building Outline
BCGS 1:20K Grid
Hydrography

Transportation
Rail Line
Bridge
Contours 20m
1m Interval
5m Interval

BM Monument
Spot Heights
Deciduous
Coniferous
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with labels
FCL - Thalweg Intersection
Flood Construction Level Isoline
Flood Construction Level = 572.6 m

Flood Plain Areas
1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

Flood Construction Level (FCL)
1 in 20 yr Flood Level (+ 0.6 m freeboard)

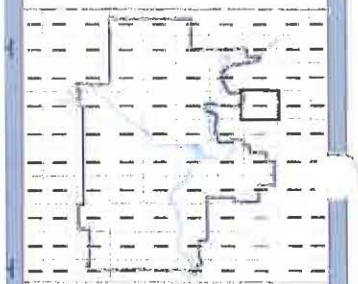
All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2005. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevations and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the map.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flow affect flood levels locally. Channel obstructions, local severe water inflows, grounds or other land drainage can cause flood levels to exceed those indicated on the map. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users:

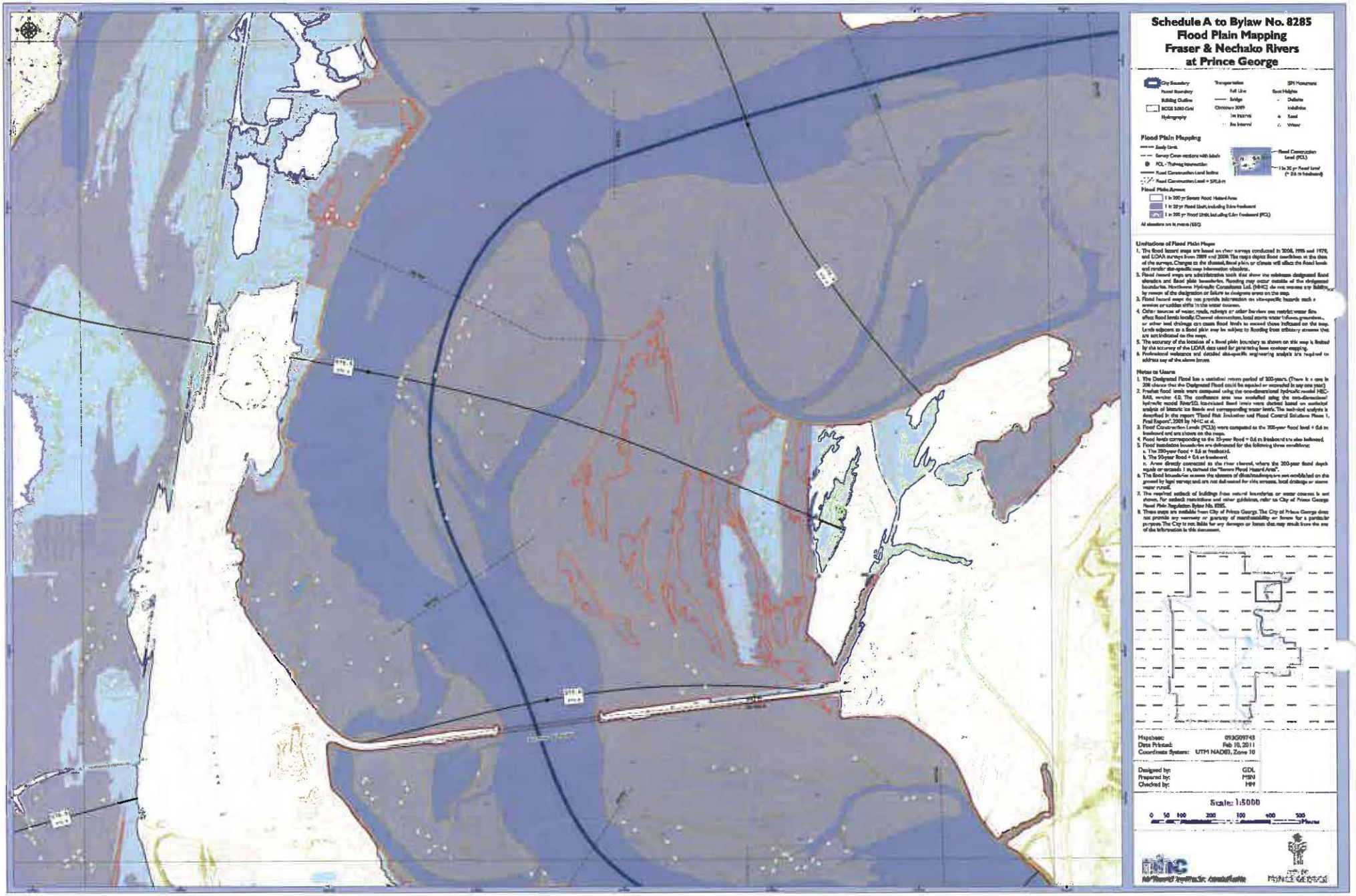
1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year.)
2. Freshet flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Ice-related flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The technical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCDs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are determined for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/roadways not established on the ground by legal survey and are not determined for site erosion, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.



Map sheet: 093G097-02
Date Printed: Feb 10, 2011
Coordinate System: UTM NAD83, Zone 10

Designed by: GDL
Prepared by: MSN
Checked by: MM

Scale: 1:5000



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Rural Boundary
Building Outline
BCGS 5000 Grid
Hydrography

Transportation
Rail Line
Bridge
Contours 2009
(m interval)
(m interval)

SPH Nomenclature
Spot Heights
Definite
Indefinite
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with Label
FCL - Railway Intersection
Flood Construction Level Isoline
Flood Construction Level = 529.6 m

Flood Construction Level (FCL)
1 in 20 yr Flood Level (= 0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes in the channel, flood plain or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administration tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the map.
3. Flood hazard maps do not provide information on site-specific hazards such a erosion or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flow affect flood levels locally. Channel obstructions, local storm water inflows, groundwa... or other local drainage can cause flood levels to exceed those indicated on the map. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year).
2. Predicted flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Ice-induced flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The technical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth and/or velocity is high, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/roadways are not established on the ground by legal survey and are not delineated for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.

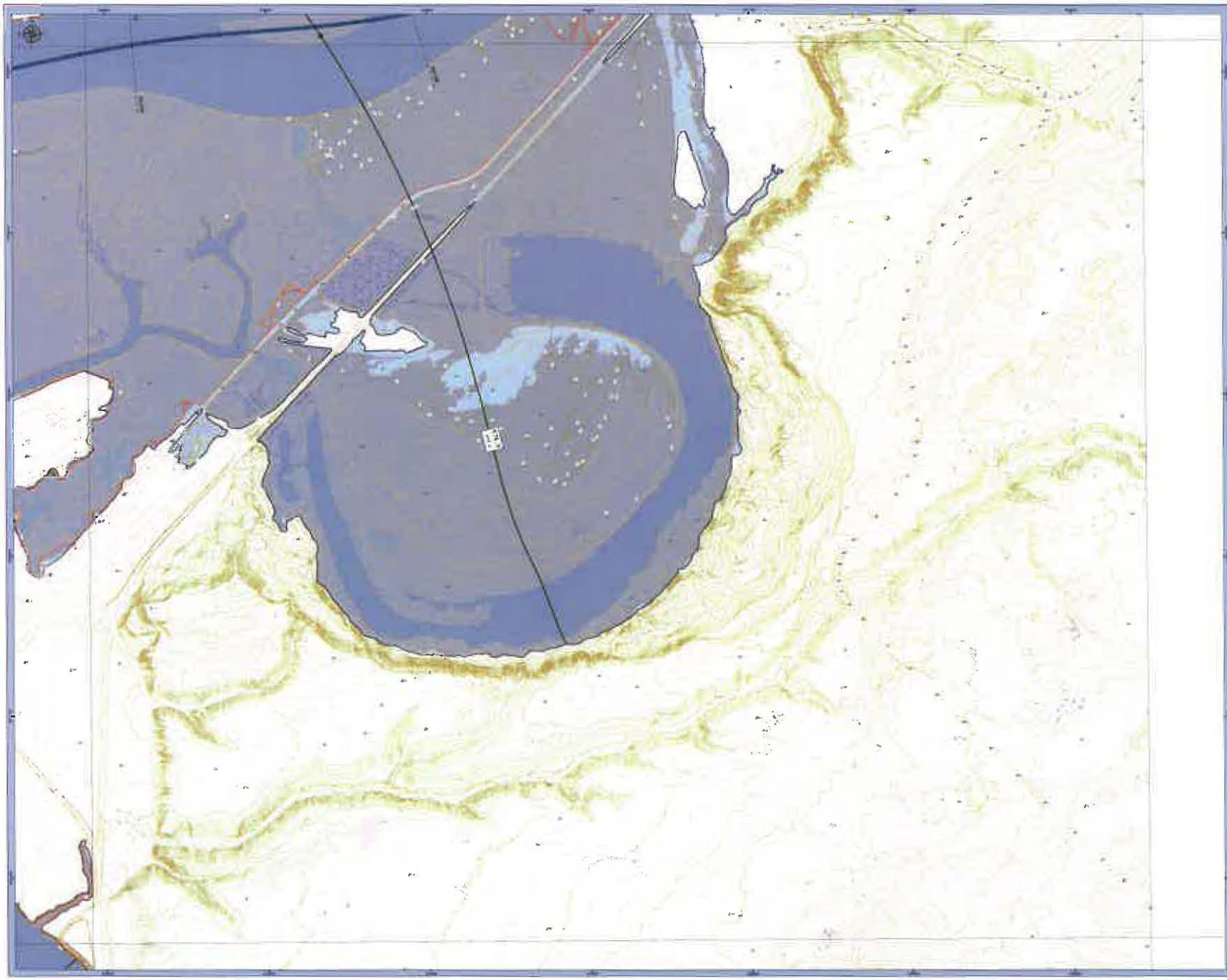
Mapsheet: 093G09743
Date Printed: Feb 10, 2011
Coordinate System: UTM NAD83, Zone 10

Designed by: GDL
Prepared by: MSN
Checked by: MM

Scale: 1:5000

0 50 100 200 300 400 500 Metres

NHC



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers at Prince George

City Boundary
Rural Boundary
Existing Centre
BCGS 1:20K Grid
Hydrography

Transportation
Rail Line
Bridge
Contours 2008
1m Interval
5m Interval

1991 Measured
Spot Heights
Definite
Indefinite
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with labels
FCL - Railway Intersection
Flood Construction Level Outline
Flood Construction Level = 570.6 m

Flood Construction Level (FCL)
1 in 200 yr Flood Level (~0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

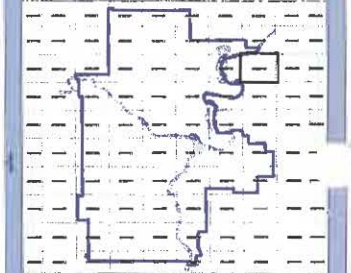
All elevations are in metres (GSC)

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or dikes will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the map.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flow affect flood levels locally. Channel obstructions, local storm water inflows, groundwater, or other local drainage can cause flood levels to exceed those indicated on the maps. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year)
2. Present flood levels were computed using the one-dimensional hydraulic model HEC-RAS version 4.0. The confluence area was modelled using the two-dimensional hydraulic model RMA2D. Ice-related flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/riverwalks not established on the ground by legal survey; and, are not delineated for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in the document.



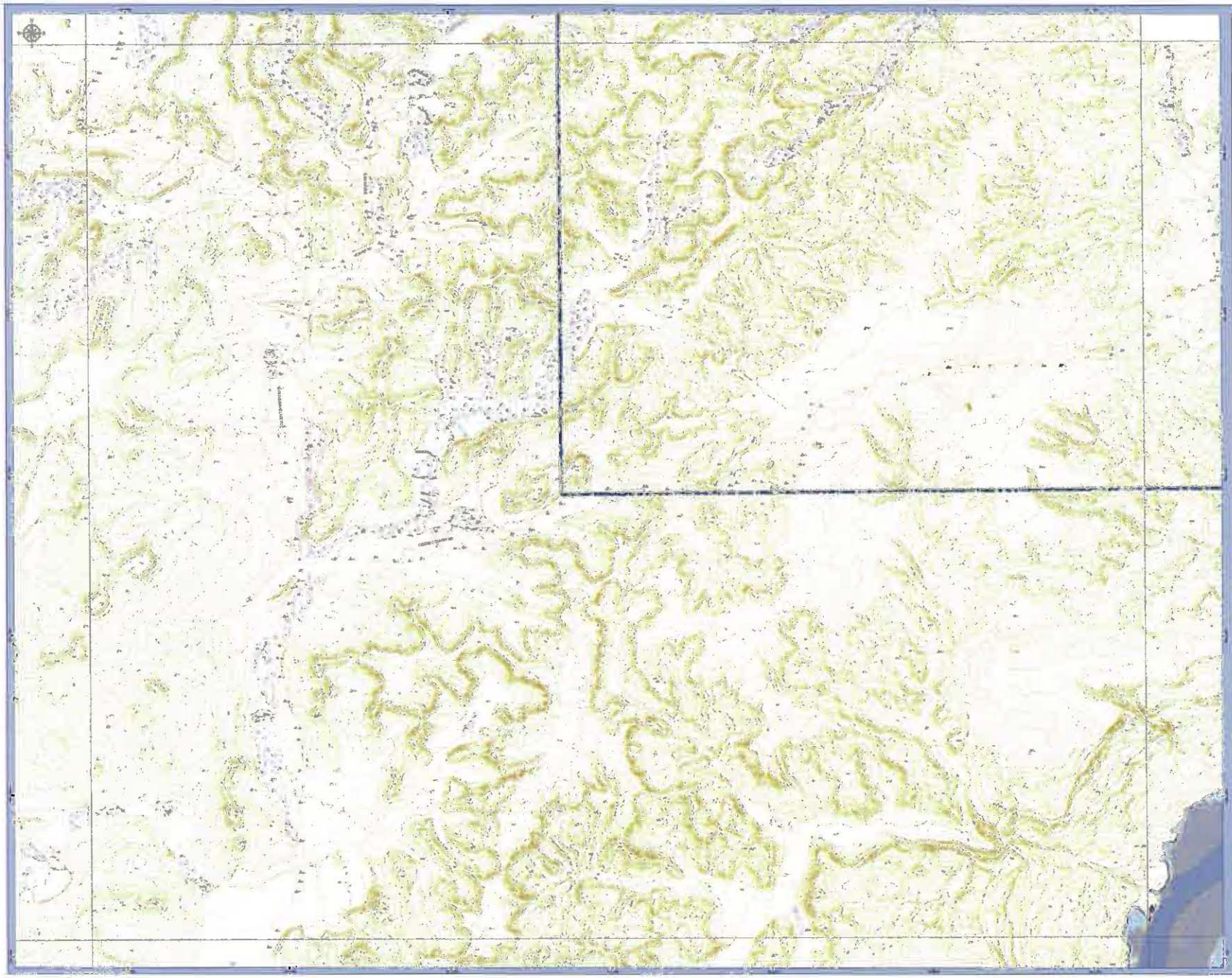
Mapsheet:	093G097744
Date Printed:	Feb 10, 2011
Coordinate System:	UTM NAD83, Zone 10
Designed by:	GDL
Prepared by:	HSN
Checked by:	MH

Scale: 1:5000

nhc

CITY OF PRINCE GEORGE

2.2



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Rural Boundary
Building Outline
NCGS 5000 Grid
Hydrography

Transportation
Rail Line
Bridge
Contours 2009
- 1m Interval
- 5m Interval

BM Placement
Spot Heights
- Bathtub
- Helistrip
- Road
- Water

Flood Plain Mapping

- Study Limit
- Survey Cross-section with Node
- FCL-Highway Intersection
- Flood Construction Level Isoline
- Flood Construction Level = 578.6 m

Flood Construction Level (FCL)
1 in 20 yr Flood Level (+ 0.6 m freeboard)

Flood Plain Areas

- 1 in 200 yr Severe Flood Hazard Area
- 1 in 20 yr Flood Limit, including 0.6m freeboard
- 1 in 200 yr Flood Limit, including 0.6m freeboard (FCL)

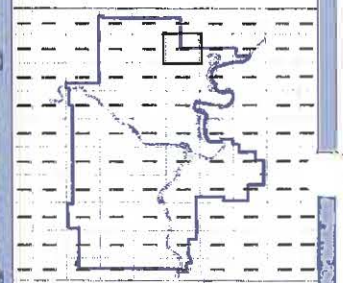
All elevations are in meters (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1979, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the maps.
3. Flood hazard maps do not provide information on site-specific hazards such as sensitive or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flow affect flood levels locally. Channel obstructions, local storm water inflows, groundwater, or other land drainage can cause flood levels to exceed those indicated on the maps. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users:

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year)
2. Freshet flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Ice-related flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood hazard boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/roadways are established on the ground by legal survey; and are not delineated for side streams, local drainage or storm sewer runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damage or losses that may result from the use of the information in this document.



Mapsheet:	093J007.12
Date Printed:	Feb. 10, 2011
Coordinate System:	UTM NAD83, Zone 10
Designed by:	GDL
Prepared by:	MSN
Checked by:	MH

Scale: 1:5000

0 50 100 200 300 400 500 Metres

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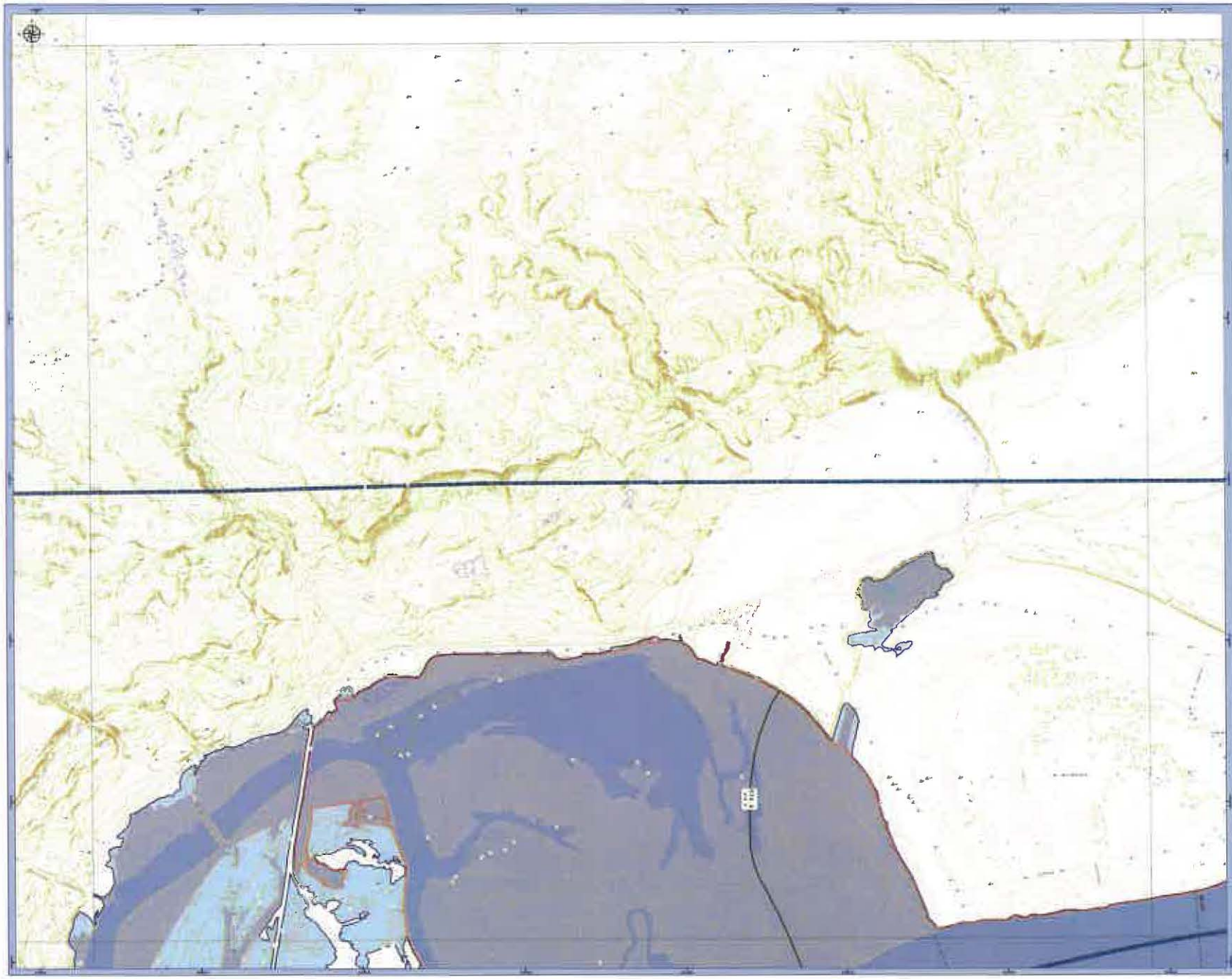
CITY OF PRINCE GEORGE

25.



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Parcel Boundary
Building Outline
BCGS 1000 GMI
Hydrography

Transportation
Rail Line
Bridge
Contours 100m
1m Interval
5m Interval

BM Monument
Spot Heights
Definite
Indefinite
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with labels
PCL - Tieback Intersection
Flood Construction Level Isoline
Flood Construction Level = 576.5 m

Road Construction Level (PCL)
1 in 20 yr Flood Level (+ 0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 20 yr Flood Limit, including 0.6m freeboard
1 in 200 yr Flood Limit, including 0.6m freeboard (PCL)

All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2008, 1995 and 1978, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and monitor site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the map.
3. Flood hazard maps do not provide information on site-specific hazards such as erosion or sudden shifts in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flow affect flood levels locally. Overall observations, local storm water inflows, groundwater, or other local drainage can cause flood levels to exceed those indicated on the map. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
6. Professional conference and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year.)
2. Predict flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Simulated flood levels were checked based on statistical analysis of historic ice floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1: Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas already connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/berms/berms are established on site ground by legal surveys and are not delineated for this purpose, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8285.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.

Mapsheet:	093I007.21
Date Printed:	Feb 10, 2011
Coordinate System:	UTM NAD83, Zone 10
Designed by:	GDL
Prepared by:	MSN
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Scale: 1:2500

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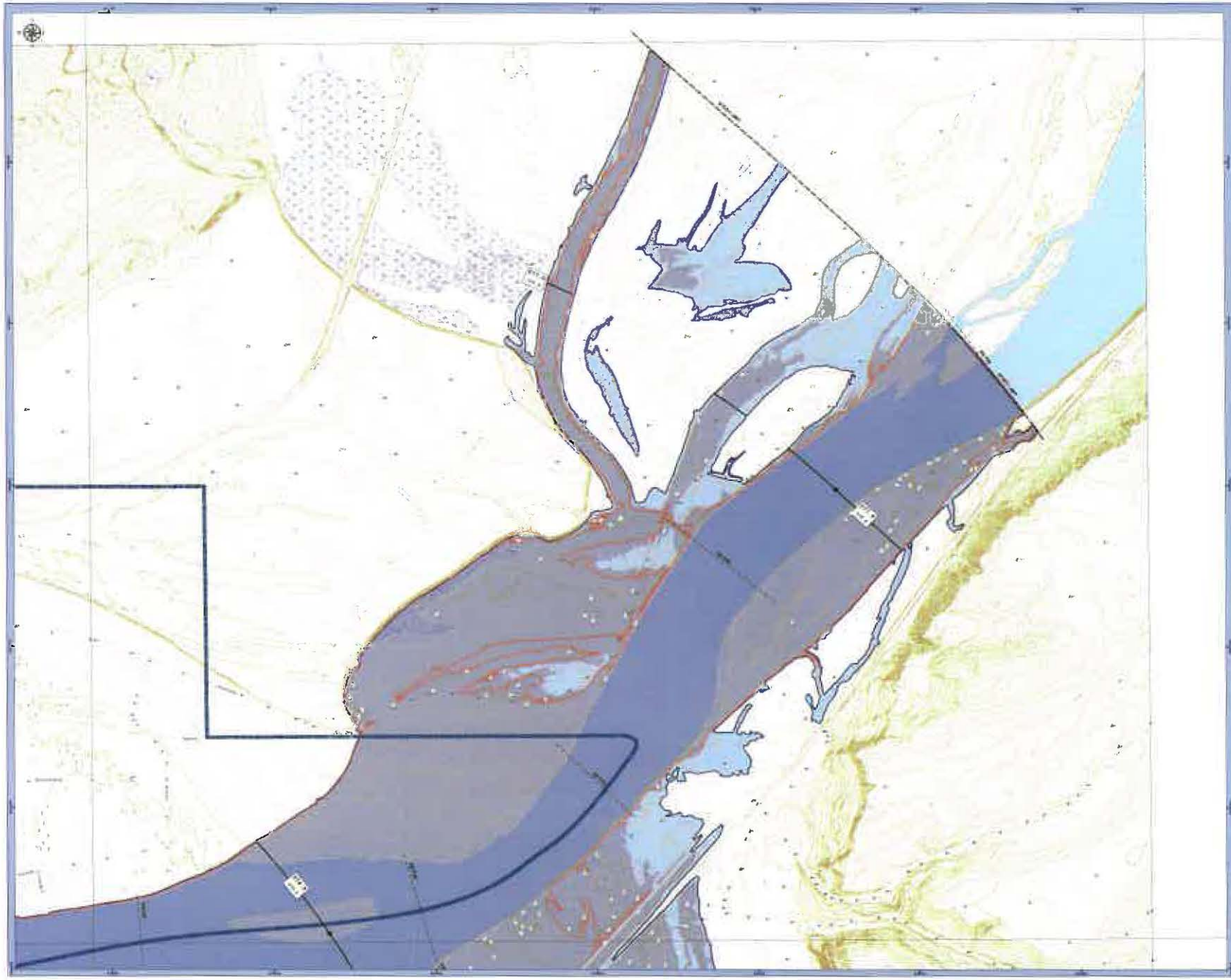
PRINCE GEORGE

26.



Schedule A to Bylaw No. 8285
Flood Plain Mapping
Fraser & Nechako Rivers
at Prince George

City Boundary
Parcel Boundary
Building Outline
BCGS 1000 Grid
Hydrography

Transportation
Rail Line
Bridge
Contours 2009
1m Interval
5m Interval

DM Monument
Spot Heights
Definite
Indefinite
Road
Water

Flood Plain Mapping

Study Limit
Survey Cross-sections with label
FCL - Tieback Intersection
Flood Construction Level Incline
Flood Construction Level = 570.6 m

Flood Construction Level (FCL)
1 in 20 yr Flood Level (+ 0.6 m freeboard)

Flood Plain Areas

1 in 200 yr Severe Flood Hazard Area
1 in 50 yr Flood Limit, including 0.6m Freeboard
1 in 200 yr Flood Limit, including 0.6m Freeboard (FCL)

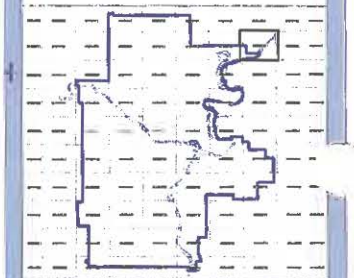
All elevations are in metres (GSC).

Limitations of Flood Plain Maps

1. The flood hazard maps are based on river surveys conducted in 2010, 1996 and 1979, and LiDAR surveys from 2009 and 2008. The maps depict flood conditions at the time of the surveys. Changes to the channel, flood plain, or climate will affect the flood levels and render site-specific map information obsolete.
2. Flood hazard maps are administrative tools that show the minimum designated flood elevation and flood plain boundaries. Flooding may occur outside of the designated boundaries. Northwest Hydraulic Consultants Ltd. (NHC) do not assume any liability by reason of the designation or failure to designate areas on the map.
3. Flood hazard maps do not provide information on site-specific hazards such a erosion or sudden rise in the water courses.
4. Other sources of water, roads, railways or other barriers can restrict water flow effect flood levels locally. Channel obstructions, local storm water inflows, groundwater or other local drainage can cause flood levels to exceed those indicated on the map. Lands adjacent to a flood plain may be subject to flooding from tributary streams that are not indicated on the maps.
5. The accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating these contour mapping.
6. Professional assistance and detailed site-specific engineering analysis are required to address any of the above issues.

Notes to Users

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equaled or exceeded in any one year.)
2. Feather flood levels were computed using the one-dimensional hydraulic model HEC-RAS, version 4.0. The confluence area was modelled using the two-dimensional hydraulic model River2D. Inundated flood levels were derived based on statistical analysis of historic ice floods and corresponding water levels. The statistical analysis is described in the report "Flood Risk Evaluation and Flood Control Solutions Phase 1, Final Report", 2009 by NHC et al.
3. Flood Construction Levels (FCLs) were computed as the 200-year flood level + 0.6 m freeboard and are shown on the maps.
4. Flood levels corresponding to the 20-year flood + 0.6 m freeboard are also indicated.
5. Flood inundation boundaries are delineated for the following three conditions:
   a. The 200-year flood + 0.6 m freeboard.
   b. The 20-year flood + 0.6 m freeboard.
   c. Areas directly connected to the river channel, where the 200-year flood depth equals or exceeds 1 m, termed the "Severe Flood Hazard Area".
6. The flood boundaries assume the absence of dikes/roadways are not established on the ground by legal survey, and are not determined for side streams, local drainage or storm water runoff.
7. The required setback of buildings from natural boundaries or water courses is not shown. For setback restrictions and other guidelines, refer to City of Prince George Flood Plain Regulation Bylaw No. 8185.
8. These maps are available from City of Prince George. The City of Prince George does not provide any warranty or guaranty of merchantability or fitness for a particular purpose. The City is not liable for any damages or losses that may result from the use of the information in this document.



Mapsheet:	093J0722
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Designed by:	GDL
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Scale: 1:5000

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CITY OF PRINCE GEORGE

27

Schedule "B"
To Bylaw No. 8285, 2010

Definitions for key words and phrases not contained in legislation or other bylaws are listed below. In this bylaw:

"**application**" means a written request by an applicant for an exemption to the flood level or setback provisions of this Bylaw in a form and content prescribed by the Authorized Person and this bylaw;

"**applicant**" means the owner or a representative of the owner duly authorized to act on the owner's behalf in relation to the application;

"**Authorized Person**" means the head of the Planning and Development Department, or a person designated in writing by the head of the Planning and Development Department to carry out any act or function under this *Bylaw*;

"**Council**" means the elected officials of the City of Prince George;

"**flood construction level**" means the Designated Flood Level plus the allowance for freeboard and issued to establish the elevation of the underside of a wooden floor system or top of concrete slab for habitable buildings and areas. In the case of a manufactured home, the ground level or top of concrete or asphalt pad, on which it is located shall be equal to or higher than the above described elevation.

"**habitable area**" means any room or space within a building or structure that is or can be used for human occupancy, commercial sales, or storage of goods, possessions or equipment (including furnaces) which would be subject to damage if flooded.

"manufactured home" means a structure manufactured as a unit, intended to be occupied in a place other than at its manufacture, and designed as a dwelling unit, and includes mobile homes, and specifically excludes Recreation Vehicles;

"**natural boundary**" means the visible high watermark of any lake, river, stream or other body of water where the presence and action of the water are so common and usual and so long continued in all ordinary years as to mark upon the soil of the bed of the lake, river, stream or other body of water a character distinct from that of the banks thereof, in respect to vegetation, as well as in respect to the nature of the soil itself;

"**owner**" means a person listed in the land title office as the owner of a parcel;

"**pad**" means a compacted gravel, paved or concrete surface on which blocks, posts, runners or strip footings are placed for the purpose of supporting a manufactured home or unit;

"**parcel**" means any lot, block or other area of land that is the subject of an application;

"**Professional Engineer**" means a person who is registered or licensed under the provisions of the *Engineers and Geoscientists Act*;

"**Provincial guidelines**" means the policies, strategies, objectives, standards, guidelines and environmental management plans, in relation to flood control, flood hazard management and development of land that is subject to flooding, as contained within the Province of British Columbia, Ministry of Water, Land and Air Protection, Flood Hazard Area Land Use Management Guidelines dated May 2004.

"**Severe Flood Hazard Area**" as delineated on Schedule A includes those areas directly connected to the river channel, where the 200-year flood depth is equal to or exceeds 1 metre above the current ground level.

"**standard dike**" means a dike built to a minimum crest elevation equal to the flood level and meeting standards of design and construction approved by the Ministry of Environment and maintained by an ongoing authority such as a local government body;

"**watercourse**" means any natural or man-made depression with well-defined banks and a bed 0.6 metres or more below the surrounding land serving to give direction to a current of water at least 6 months of the year or having a drainage area of 2 square kilometers or more upstream of the point of consideration.