BC Hydro
Silverdale Substation Project
Ensuring a Safe and Reliable Supply of Electricity to Mission For Generations

Project Overview

BC Hydro is investing now in the projects needed to keep the lights on in our province for the next 50 years. The proposed Silverdale Substation will reinforce the Mission area's electricity supply to ensure that the residents and businesses of Mission continue to enjoy reliable electricity for generations.

The new substation located at Silverdale Avenue in the District of Mission will transform power from two single-circuit 69 kilovolt (kV) overhead transmission lines that will connect the substation to an existing 69 kV transmission estimated to be 600 metres south of the substation site. The new transmission poles will be designed to minimize visual impact using post insulators as opposed to suspension. The substation itself will be a small enclosed control building with an adjacent one-story building that will house the electricity distribution equipment. Two transformers and associated electrical equipment will be in the open air. Please see the attached rendering.

The project will cost approximately $35 million and will be in-service in August 2014. Preparation of the site for construction is scheduled to begin in mid-February 2012 with construction starting in spring 2012.

Project purpose and benefits

Long-term access to safe, reliable and reasonably priced electricity is critical for our economy and the quality of life families enjoy.

The district of Mission's population is growing, and so is its demand for electricity.

The district of Mission is presently served by the Mission Substation alone. The distribution lines from the Mission Substation that deliver electricity to homes and businesses have reached capacity. Within the next few years, the Mission Substation will no longer meet the electricity demands of the growing community with winter peak load expected to exceed Mission Substation capacity by 2013/14. The substation lacks the necessary room to fully accommodate the future electricity requirements of the Mission area. If Mission substation were to be expanded, the area would still require a new substation in a few years.

The new Silverdale Substation, located on Silverdale Avenue, will reliably deliver electricity to and will serve the electrical needs of the community well into the future. It will also add to the area's electricity reliability by providing a second substation to supply electricity.

The Silverdale Substation is a part of BC Hydro's overall regeneration phase over the next three years to invest and renew the province's electricity system. These investments are required to improve and replace aging facilities that were built primarily between 1950 and 1980, ranging from upgrading dams and generating stations, to building entirely new transmission lines linking existing and new substations, and much more.

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Grants-in-lieu

BC Hydro will be paying a grant-in-lieu of approximately $32,400 for the new Silverdale Substation site. This will be paid directly to the District of Mission and will be retained by the municipality.

Sites Considered

Based on the following criteria, BC Hydro examined 8 possible locations (see Map 1 and Table 1) for siting a second substation in Mission:

Criteria	Best Option
• flood plain	• Located above 1:200 year flood level
• proximity to existing transmission line(s)	• Adjacent to, or close proximity to, existing transmission line(s)
• Proximity to future demand area	• 25 kV distribution feeders will be as close to the area of future demand as possible (based on proximity to existing transmission lines)
• topography	• Level site exists already or can be achieved
• accessibility	• Good road access
• visual screening	• Limited visibility of equipment
• land use designation	• Private properties with minimal development (i.e. undeveloped/vacant land) • Industrial area if available and if limited cost to ratepayers • If not in industrial area, see visual screening and environmental considerations
• environmental considerations	• Environmental impacts, if they exist, can be mitigated

* See Attachment: MAP – All sites considered; and MATRIX – Additional Site Options Analysis for Locating New Silverdale Substation

Preferred Site

The preferred site located on Silverdale Avenue offered the best location for the new substation.

- It is closest to the service area and transmission line and will not be visible from residential areas.
- The location is above the flood plain to ensure Mission's electricity security.
- The site meets the technical requirements for a substation.
- It can be well-screened from the surrounding area. Existing vegetation would provide a natural screen to the substation once built and BC Hydro will plant additional vegetation to increase this screen.

Addressing visual impacts

It is our goal to design the substation to be aesthetically pleasing.

- The substation and transmission lines will not be visible from residential areas.
- The substation equipment closest to Nelson Street will be in an enclosed building or screened.
- The majority of the equipment will be housed in indoor buildings with architectural treatments.
- The existing vegetation provides a tree screen to the substation and BC Hydro will plant additional vegetation to increase the natural screen.
- The use of a simple pole design will lessen the visual impact of the transmission line.

Community Input

Over the coming months, BC Hydro will engage in dialogue with the public to build the best substation for the community. We will be meeting with local government, golf course and wetland partners and interested parties.

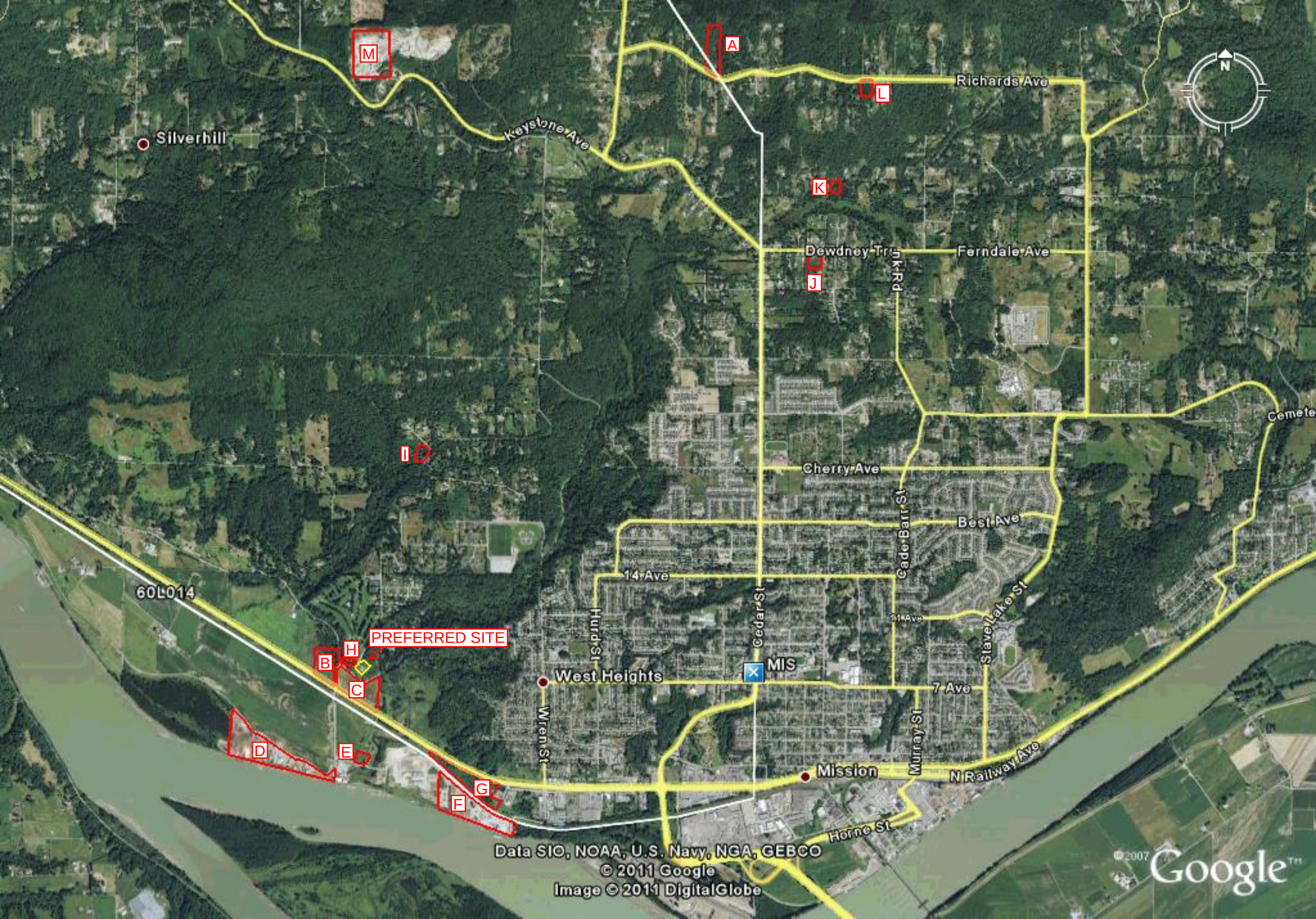
A dedicated project website and a contact person will be made available to answer questions and provide information. To help ensure the public is informed we will also include notifications through newspaper advertisements, mail outs to nearby residents and businesses and a Public Information Session will be held. Input gathered will be taken into account as we design the project.

Summary of discussions to date

Topic	Response
Alternate use for the house on the property There was a suggestion that the house currently on the property could be moved to city property near the wetlands and be used as a caretakers house or for storage of kayaks and fish traps	A Hazardous Building Materials Assessment determined the presence of hazardous materials: • Asbestos in floor backing, floor materials and electrical panels • Mercury in fluorescent light tubes • PCBs in kitchen ballasts • Potential for lead in paints inside the house • Silica in the building foundation pilings • Significant quantities of visible mould growth throughout the residence BC Hydro does not recommend that the house be used as a community facility. BC Hydro will proceed with demolition under the guidance of a qualified professional and in accordance with Occupational Health and Safety Regulations.

Topic	Response
Electric and Magnetic Fields This was identified as a topic requiring clarification.	BC Hydro understands that some people are concerned about the perceived health effects of electric and magnetic fields and we take these concerns seriously. In response, BC Hydro: • complies with all existing guidelines; • openly communicates accurate and balanced information to British Columbians so that they can make informed decisions; and, • monitors the science on electric and magnetic field research. An electric and magnetic field profile will be prepared for the Silverdale Substation Project and will be available to the public.
Vegetation plan Interest in the use of vegetation to provide a visual screen for the substation and to promote wildlife habitat	The largest components of the substation will be housed in buildings with architectural treatments on the exterior. Outdoor equipment will be low-profile and will not significantly exceed the height of the buildings. A vegetation screen for the south and west sides of the site will be planted after construction is complete. BC Hydro will provide a planting plan, including species and placement, before construction is complete. For the east end of the site BC Hydro has committed to planting Broad Leaf Maple to support habitat for the Oregon Forest Snail, as per discussions with the Stave Valley Salmonid Enhancement Society and the Fraser Valley Watershed Coalition.
Lighting Interest in how BC Hydro will address light spillover	Lighting is an important security feature of BC Hydro's facilities and will be required for the Silverdale Substation. Fortunately, the potential for light spillover from the Silverdale Substation will be minimal as it has been sited away from residences. To further address this, the architect hired for the exterior design of the substation will develop a lighting mitigation plan for consideration.

Topic	Response
Transformer noise Interest in whether the two transformers will be audible from neighouring properties.	Fortunately, the potential for the transformer hum to be heard from the Silverdale Substation will be minimal as it has been sited away from residences. To further address this, BC Hydro may incorporate noise abatement into the design of the substation. Further information on this will be determined after a noise study is completed.
Future use of the east end of the property Interest in BC Hydro gifting the unused portion of the property, the east end, to the District of Mission to form a part of the district's Silver Creek parkway.	BC Hydro is unable to commit to gifting the property at this time; however, we can explore other options for the district's use of the land; i.e. a lease agreement or allowing use of the land to build a trail system or other community use. BC Hydro will be prepared to discuss this issue in the future as Hydro's maintenance and access requirements are clarified.
Engaging the community Interest in how the public will be notified about the project and what opportunities for comment will be provided.	BC Hydro has committed to the District of Mission to host a Community Information Session about the proposed Silverdale Substation Project. As well, a dedicated project website and a contact person will be made available to answer questions and provide information throughout the project. Input is welcome on: • the appearance of the substation • vegetation material for screening • identifying construction-related effects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PREFERRED SITE
Silverhill
Keystone Ave
Richards Ave
Ferndale Ave
Dewdney Trunk Rd
Cherry Ave
Best Ave
14 Ave
11 Ave
7 Ave
Cedar St
Hurd St
Wren St
Cade Barr St
Stave Lake St
Murray St
West Heights
MIS
Mission
N Railway Ave
Horne St
60L014
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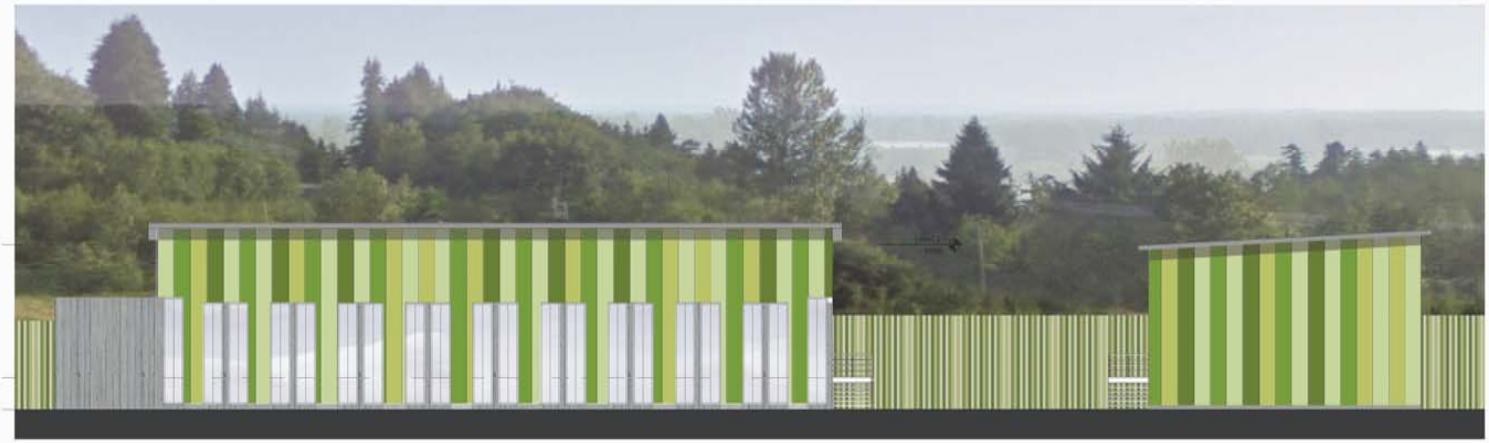
BC Hydro – Additional Site Options Analysis for Locating New Silverdale Substation

	Option A	Option B	Option C	Option D	Option E	Option F	Option G	Option H	Option I	Option J	Option K	Option L	Option M	Preferred Site
Flood Plain	Above	Below	Below	Below	Below	Below	Below	Below	Above	Above	Above	Above	Above	Above
Proximity to Existing Transmission Line(s) (approx.)	Adjacent	200 m	150 m	600 m	250 m	30 m	30 m	320 m	2000 m	400 m	550 m	1050 m	2500 m	600 m
Proximity* to future demand area (approx.)	4.5 km	2 km	2 km	3 km	3 km	3.5 km	3.5 km	2 km	1 km	3.7 km	4 km	4.6 km	2 km	2 km
Topography	2 flat areas, some cut and fill required	Mostly flat	Mostly flat	Mostly flat	Mostly flat	Mostly flat	Mostly flat	Mostly flat	Mostly flat	Mostly flat	Mostly flat	Mostly flat	Mostly flat	Mostly flat
Accessibility	Good (Richards Ave)	Good (Nelson St.)	Good (Nelson St.)	Good (Nelson St.)	Good (Gill Ave.)	Good (Gill Ave.)	Good (Gill Ave.)	Good (Nelson St.)	Good (Grove Ave.)	Good (Dewdney Trunk Rd.)	Good (Cameron Ave.)	Good (Richards Ave.)	Good (Shaw St.)	Good (Nelson St.)
Visual Screening	Limited. The substation would be visible to neighbouring residents	None	None	None	None	None	Limited.	Limited	Well screened from neighbours, visible from road	Limited	Limited	Limited, visible from road	None	Well screened from Nelson St, Hemlock St, Silverdale Ave. Limited screening from Lougheed Hwy.
Environment	Observed 2 creeks on the property. Overview environmental assessment not undertaken	Overview environmental assessment not undertaken	Overview environmental assessment not undertaken	Close proximity to Fraser River. Overview environmental assessment not undertaken	Close proximity to Silverdale Creek. Overview environmental assessment not undertaken	Close proximity to the Fraser River. Overview environmental assessment not undertaken	Overview environmental assessment not undertaken	Overview environmental assessment not undertaken	Overview environmental assessment not undertaken	Overview environmental assessment not undertaken	Overview environmental assessment not undertaken	Overview environmental assessment not undertaken	Overview environmental assessment not undertaken	Initial assessment complete. Further studies and testing to be undertaken
Other Considerations	Close to residents		Reserved for future commercial development		In the Agricultural Land Reserve			Close to the golf course	Very wet site. Drainage issues	Too far from future demand area, too close to residents	Too far from future demand area, too close to residents	Too far from future demand area, too close to residents		

* Distribution feeders are placed along existing roadways, so while the distance is measured “as the crow flies”, the distribution feeders will cover a much longer distance.

Note: options with red highlighted text do not meet key requirements



2 West
1 : 100

1 East
1 : 100

VERDALE SUBSTATION

ELEVATIONS

scale 1 : 100

OCTOBER 13, 2011

A6

drawing

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