REGIONAL MUNICIPALITY OF OTTAWA-CARLETON
MUNICIPALITÉ RÉGIONALE D'OTTAWA-CARLETON

REPORT
RAPPORT

Our File/N/Réf. **25** RS 241-29
Your File/V/Réf.

DATE 23 May 1997

TO/DEST. Co-ordinator, Transportation Committee

FROM/EXP. Environment and Transportation Commissioner

SUBJECT/OBJET **PLAZA BRIDGE REHABILITATION**

DEPARTMENTAL RECOMMENDATIONS

That the Transportation Committee:

1. **Approve the rehabilitation of the Plaza Bridge over the Rideau Canal as outlined in the Project Report and detailed on the presentation drawings;**

2. **Authorize that a Public Hearing be held by the Transportation Committee as required by Sections 297 and 300 of the Ontario Municipal Act;**

3. **Authorize the Environment and Transportation Department to proceed with the relocation of utilities as shown on the presentation drawings;**

4. **Refer this report to Council following the Public Hearing process.**

BACKGROUND

Plaza Bridge is an integral part of Confederation Square and is the connecting link between the downtown core of the City of Ottawa and Lowertown. It is a critical link in the Regional transportation and transit networks and is the most northerly of the three crossings of the Rideau Canal in the downtown core north of the Queensway.

It provides access for the general public and tourists to many destinations including the Chateau Laurier and Westin Hotels, Congress Centre, Rideau Centre, Rideau Canal, Parliament Hill, the Sparks Street Commercial area, and the National Arts Centre. In its immediate environs it provides direct links to the Canadian Museum of Contemporary Photography and the Bytown Museum (Figure # 1).

Although the bridge has no historical designation, it's predecessors were some of the first bridges in the Ottawa area and it has, throughout the years, been a prominent landmark in that many of the important historical functions and ceremonies take place within its environs.

The Region is undertaking this project in partnership with the National Capital Commission and is incorporating the Confederation Boulevard and the Confederation Square Redevelopment Plan in this project (Figure # 2).

The bridge has served the community for over eighty-four years and is now in a generally deteriorated condition.

On 12 March 1997, Regional Council approved the assumption of the Plaza Bridge from Public Works and Government Services Canada, (PWGSC). A Contribution Agreement has been signed by PWGSC under which terms the Region received an amount of $20,375,000 for the bridge works, of which $375,000 was dedicated to the transfer of the lands to the Region known as the Metcalfe Street Extension. A Divestiture Agreement between the PWGSC, the National Capital Commission, the Minister of Canadian Heritage and the Regional Municipality is currently being finalized. The Agreement will include property transfers and easements for construction purposes, Licences and Rights Clauses, Contribution Agreement reference, Liability and Indemnity Clauses and General Provisions and Closing articles. The Plaza Bridge will become part of the Regional bridge inventory.

From the historic perspective, this crossing has seen many of the most important assemblages in Canada. Many Canadians marched proudly along this stretch of road for the last time on the way with their Regiments to two World Wars. Courage itself is enshrined on this site by the presence of the adjacent Terry Fox Statue.

EXISTING CONDITIONS

The existing conditions and problems are summarized as follows:

Site Environment

The Plaza Bridge is a three span arch structure with a central span over the Rideau Canal and two adjacent spans (Figure # 1). The west arch span is over the roadway for access to the Ottawa Locks and Bytown Museum. The east arch originally spanned the railway tracks running north from Central Station. The tracks were removed in the 1960's and the train station was redeveloped as a Government Conference Centre.

The Canadian Museum of Contemporary Photography has been built under the north end of this span. The south end of this span is presently closed to public access with the presence of a block wall closure structure and washroom facilities. Only emergency access from the Museum is available at this end of the span.

The bridge is bordered by the War Memorial, the Chateau Laurier Hotel, the Conference Centre, the National Arts Centre, the Parliamentary Precinct and the Canadian Museum of Contemporary Photography. The bridge is part of the Capital Ceremonial Route known as Confederation Boulevard.

Access to the Rideau Canal and the underside of the west arch from the upper deck level is via stairways located at the north-west and south-west corners of the structure. Access to the Canal and south-east Canal promenade is via a circular staircase located at the south-east corner adjacent to the Conference Centre. Access to the Canadian Museum of Contemporary Photography, Chateau Laurier Hotel and Conference Centre is only from the upper deck level. Access to the Bytown Museum and Ottawa Locks is via the existing roadway under the west arch.

Structural

The structure is of reinforced concrete construction with spandrel filled arches. The bridge is asymmetric with 18.3 metre spans over the canal and west opening and a 15.4 metre span over the east opening. The solid arch barrels are supported on concrete encased piers and concrete abutments which in turn are founded on old masonry blockwork or bedrock. The bridge is very wide forming the 'Plaza' area. The width over the arch structure at the east end is 65.2 metres and at the west end it is 83.5 metres.

The arch width is made up of numerous individual arch barrels with varying widths. The arches have a circular profile with the radius of the obvert being larger than the radius of the invert. The bridge cross section consists of an asphalt roadway over granular fill supported by the solid arch barrels. Sidewalks are of concrete construction while balustrades, located on the north and south sides of the bridge, are of an ornamental sandstone construction interrupted only by the projections of the piers above the upper deck level. These pier projections are faced with granite stone blocks.

In 1938, the bridge was widened to the south using concrete encased steel girders and beams. At the time that this work was completed, the balustrades and pier nosings were dismantled, salvaged and reconstructed on the new south facade. Some modifications were made to the balustrade to accommodate the new alignment. A portion of the 1938 widening extended west of the bridge to form a storage and electrical room which is under the roadway and sidewalk. Three vaults were formed west of the west abutment between some remaining walls of the old Post Office building that existed between the original two bridges on the site.

Due to concerns relating to the condition of the structure and safety of the users underneath, as a result of the dilapidated appearance and extensive delamination of the soffit concrete, which has led to incidents of falling concrete, a number of studies were completed since 1980. Apart from attempts to improve the appearance and efforts to reduce the incidence of falling concrete, there have been no significant maintenance works completed in the life of the structure which address the structural deficiencies.

In 1975 the underside of the west arch was covered with a metal liner ceiling to improve the appearance and to prevent debris falling onto the roadway and parking area below. This metal ceiling was removed in the early 1990's, parking was eliminated and a chain link fence erected to restrict vehicles and pedestrians to the central roadway.

In 1995 the underside of the centre arch was covered with a vinyl membrane to protect the canal navigation traffic from falling debris.

In 1996 the north traffic lane of Wellington Street was closed due to concerns about the load carrying capacity of the most northern arch barrel of the centre arch span.

The bridge is in a generally deteriorated condition throughout the arch structure and 1938 extension structure, with extensive water leakage, cracking, spalling, loss of material at the underside of the arches, beams, and spandrel walls. Extensive structure rehabilitation is necessary.

Vehicular Traffic

The bridge, at the west end, carries four lanes of traffic on Elgin Street (east leg) and six lanes of traffic on Wellington Street. The two streets converge over the bridge and the bridge carries seven lanes at the east end. The bridge is on a truck route as well as bus and cycling routes. The bridge is heavily used by pedestrians with sidewalks on both the north and south roadsides. In the vicinity of the bridge, there is only one pedestrian crossing linking these two sidewalks. This is a signalized traffic installation located in front of the west entrance to the Chateau Laurier Hotel at the Elgin Street (east leg) and Rideau Street intersection on the bridge.

The Average Annual Daily Traffic (AADT) in 1995 was 28,900 vehicles, approximately 5% of which are heavy vehicles. This translates into 2,600 vehicles per hour and 130 heavy vehicles per hour.

The signalized intersection at Sussex Drive is operating near or at capacity, level of service D-E in the a.m. peak and F in the p.m. peak. Two left-turn lanes onto Sussex Drive north bound are required. Similarly the signalized intersection at Elgin Street (west leg) is operating at level of service C-D in both peaks. Two left-turn lanes onto Elgin Street south bound are required. This leaves only two through lanes in each direction along Wellington Street.

The signalized intersection at Elgin Street (east leg) accommodates vehicle access to the Chateau Laurier Hotel. The north lane on Wellington Street, immediately adjacent to the Chateau Laurier, is used by buses for off-loading.

A road under the west arch provides access to the Colonel By Museum and Canal Locks for emergency and maintenance vehicles.

Transit

The bridge is on a major transit route with approximately 250 buses per hour in the a.m. peak, from OC Transpo and Société de Transport de l'Outaouais, travelling east and west along Wellington Street.

Cyclist

Cyclists have to share the traffic lanes and travel mixed flow with other traffic.

Under the bridge the recreational pathway along the Canal connects to the access road via a flight of stairs making this a difficult access for cyclists. This recreational path continues along the Canal and Ottawa River and is extensively used by cyclists, walkers and joggers.

Pedestrian

Pedestrian traffic across the bridge is heavy at certain times during the day but is at a high level of service because of the width of the existing sidewalks on both the north and south side. At the p.m. peak the maximum pedestrian hourly counts are 570 east bound on the north sidewalk.

The sidewalk on the south side is quite wide but narrows adjacent to the east side of the Conference Centre where the grade increases to approximately 8%. At the Colonel By crossing to the Rideau Centre the p.m. hourly count is 1100.

This area is used extensively by tourists so that other locations and times have high pedestrian counts especially during the noon luncheon times. The highest counts occur on Elgin Street on the east side of the east leg where the counts are highest north bound at 1375 pedestrians per hour. The maximum combination of north bound and south bound 15 minute counts is 631 pedestrians.

There is no at-grade crossing of the ramp onto Colonel By Drive and all pedestrians are forced to use the underpass to continue along the south side of Rideau Street or to the Rideau Centre.

The sidewalk on the north side of the bridge narrows down from the wide boulevard along Wellington Street forming a restriction at the bridge.

Access to the Canal level is provided by staircases at the north-west, south-west and south-east corners of the bridge, none of which provide for a handicapped access.

Pedestrian crosswalks across Wellington Street at the Chateau Laurier are quite long making it difficult to cross in the available signal time.

Pedestrian access under the west arch is intimidating due to lack of natural light, low ceiling and claustrophobic feeling produced by the long tunnel.

There is no pedestrian access under the east arch which is physically closed off, except for an emergency exit from the Canadian Museum of Contemporary Photography.

Navigation

The navigation clearance under the centre arch is at a minimum and cannot be reduced any further. Access to boats is provided by Parks Canada with a floating walkway, under the Canal arch, on the west side of the Canal.

Excursions and Tours

Ottawa River Boat Tours and Paul's Boat Lines operate from the bridge sidewalks. Piccadilly Bus Tours, Capital Trolley Tours and Gray Line Sightseeing operate from the Confederation Plaza area. Silver Skates operates from the Rideau Canal. Street vendors operate under the Colonel By Ramp underpass.

Provision for Future Growth

Traffic is predicted to grow to 33,600 AADT by the year 2005. Proposed developments, including the Daly Building site, the new United States of America Embassy building, the Terry Fox Statue area could influence pedestrian and vehicular traffic considerably.

ENVIRONMENTAL ASSESSMENT

The Plaza Bridge Rehabilitation Project is classified under Schedule 'A' of the Class Environmental Assessment for Municipal Road Projects and is therefore pre-approved.

FEASIBILITY STUDY

During early stages of discussions with Federal partners, a structural feasibility study was undertaken, with a goal to assess existing structure condition, the feasibility of rehabilitation and to develop rehabilitation and replacement alternatives. The study included in-depth inspection, extensive material testing, limited load testing and structural analytical work

On the basis of the detailed investigation, it was concluded that rehabilitation of the existing structure was technically feasible and should be considered in the alternatives.

For this study, the following criteria were set with respect to each alternative. These criteria were developed on the basis of the terms of reference for this study including input from stakeholders.

1) Urban landscaping, pedestrian walkways and street layout through the site is to conform to the proposed NCC concept plan (Figure # 2).
2) The project is to be constructed within the time period of 1997 to 1999.
3) All rehabilitation schemes must have a minimum design life of 25 years.

4) The roadway design with all other geometric requirements are to be maintained at the current clearances and widths and the elevations of Wellington Street are to be approximately as they exist prior to construction. The navigational clearances over the Rideau Canal are to be maintained.
5) Pedestrian, cyclist and vehicle access must be maintained under the west arch span of the bridge to the north side to the Bytown Museum and Canal Lock area.
6) Four lanes of traffic must be maintained as a minimum over the bridge at all times during construction. Lane widths of 3.0 metres are adequate for detours and this includes any setback or clearance allowance. As well, north and south sidewalks must be provided for pedestrian movements.
7) The Canal must be available for navigation at all times through the period of 15 May to 15 October.
8) All existing pedestrian linkages are to be maintained. As well, wherever possible, allowance should be made for future linkages.
9) The construction plans are to comply with the short term operations needs and the long term planning aspirations of Parks Canada for the site below the bridge.
10) The views and vistas now presently enjoyed by the public are to be maintained.
11) Access to all adjacent properties is to be maintained.

The following alternatives were developed. Preliminary initial and life cycle cost estimates were prepared for each alternative.

Alternative 1 - Do nothing.
Alternative 2 - Rehabilitation (Figure # 3).
Alternative 3 - Replacement of superstructure with cast-in-place arches (Figure # 4).
Alternative 4 - Replacement of superstructure with precast arches (Figure # 5).
Alternative 5 - Replacement of superstructure with highway type structure (Figure # 6).
Alternative 6 - Complete replacement with highway type structure

The most appropriate rehabilitation or replacement alternative for the Plaza Bridge depends on a number of parameters and for this study, the following evaluation criteria were selected.

1) Cost - This was considered to be an essential parameter in the evaluation process in order to assess the most effective alternative.
2) Structural - From a structural perspective this parameter includes the constructability of the alternative, aesthetics and effect on future maintenance. Constructability is important from the point of view of the ability to meet the required project schedule. Aesthetics has been considered at the Technical Advisory and Public Advisory Committee meetings as an important factor due to the prominence of the location of the bridge. Because of the potential disruption to the site during future maintenance, the effects of the disruption on the normal activities occurring over and under the bridge are significant.
3) Construction - Due to the prominence of the location of the bridge, the influence of the construction on the pedestrian, cycle and vehicle traffic throughout the site and the influence on the adjacent property owners and stakeholders is of prime concern.
4) Environmental - The construction will have an influence on environmental aspects of the site such as the aquatic environment of the Rideau Canal, recreation, as it pertains to pedestrian and boat traffic, and vegetation. For this parameter, it is expected that all

alternatives will have approximately the same influence and therefore this parameter is not considered prominent in the selection process.

5) Post Construction Vehicle and Pedestrian Operations - Following the completion of construction, the levels of service, and safety of operations pertinent to a particular alternative are important.

RECOMMENDED ALTERNATIVE

As a result of the assessment of rehabilitation and replacement alternatives, Alternative 2 - Rehabilitation was deemed to be the most appropriate solution for this site. This alternative has the following attributes:

a) The most economical alternative both from a capital cost and life cycle cost perspective;
b) The best potential for being completed within the period allotted for construction;
c) Preserves the heritage fabric of the area while maintaining the existing views and vistas;
d) Least disruptive to the site during construction.

It is also anticipated that this alternative will provide the minimum service life of 25 years for a rehabilitated structure.

The rehabilitation alternative is detailed in plan on Drawing No. P1, with typical elevations and section shown on Drawing No. P2.

The key features of the rehabilitation alternative are listed in Annex E.

STAKEHOLDER CONSULTATION

On this project there are a large number of stakeholders. These have been divided into three categories, Major Partners, Adjacent Landowners and Users and are shown in Annex A.

Throughout the study, there were ongoing consultations with the major partners. A Technical Advisory Committee, to include Partners and Adjacent Landowners, and a Public Advisory Committee to include all of the stakeholders were formed. The Technical Advisory Committee and Public Advisory Committee members are shown in Annex B.

The Technical Advisory Committee met with the project team on 4 October, 24 October, 14 November and jointly with the Public Advisory Committee on 12 December 1996. This committee was directly involved in providing background data, expressing the concerns and needs of the involved authorities and adjacent landowners and participating in the review, planning and design aspects of the project as related to the terms of reference of the study. At a Technical Advisory Committee meeting on the 29 May 1997, general approval was given to the recommended alternative and the structural plans.

As a result of the meetings with stakeholders, a detailed list of concerns was prepared and reviewed with stakeholders at the final meetings during the study period. The concerns are listed under the various stakeholders in Annex C.

A Public Open House was held on 17 April 1997, between 3:00 p.m. and 8:00 p.m. in the Rotunda of the Ottawa-Carleton Centre to seek public input on the project before initiating the detailed design phase. A total of 89 people attended the Open House. Overall response to the proposals was very favourable. A handout, including a request for comments was provided to each visitor. A total of 9 written responses were received from those who attended. These are summarized in Annex D.

CONSTRUCTION

These works must be co-ordinated with the Wellington Street Reconstruction (Phase III) and other projects, immediately adjacent to the bridge, which will be undertaken in the same timeframe.

The limits of the project are the Wellington Project in the west and approximately the west side of Mackenzie Avenue in the east. The eastern limit has been chosen because of the decisions pending on other projects such as Mackenzie Avenue reconstruction and the Daly Site project. Depending on the timing of the decisions and construction plans for these projects, some alterations in the contract limits may be possible later in 1997.

The objective is to have no construction in the downtown core in the year 2000 for the millennium celebrations. To meet this schedule construction of the Plaza Bridge must commence in November 1997 and be completed by December 1999. This will entail work during the winter months to avoid interfering with the Rideau Canal navigation season. The winter work on the bridge will consist of work below the bridge under the east and canal arches and will not interfere with traffic. Other utility work and the implementation of road detours are necessary to ensure an early start on the main above arch work in early spring 1998.

This utility work will include a 600 mm diameter water main along Wellington Street and under the bridge and this will be constructed in late summer or fall/winter 1997. The work will require pits either side of the bridge on Wellington Street to facilitate installation of the water main. These construction areas will require detours and will also provide an opportunity to relocate existing Ottawa Hydro and Bell Canada underground plant (Drawing No. P11).

In conjunction with this work it is planned to undertake some work in advance of that originally planned on the west side of the west leg of Elgin Street in the fall of 1997. This is necessary to ensure continuity of the various services and also to mitigate as much as possible the effect of construction activity on the Chambers Complex. The fall and early winter are the time during the year when pedestrian traffic and business customers are less frequent.

Rehabilitation of the top of the bridge will be in three main stages as follows.

a) Phase 1 (Drawing No. P4) involves work on the northern portion of the 1912 structure, from the spring of 1998 to fall 1998. Traffic will be detoured onto the east leg of Elgin Street with two lanes in each direction. Pedestrian movement along the north sidewalk of Wellington Street will be maintained with a temporary footbridge across the Canal located just north of the bridge (Drawing No. P9). A single bus lane west bound on Wellington Street will be maintained. Vehicular traffic to the Chateau Laurier will be maintained. The west leg of Elgin Street will be reconstructed.

b) Phase 2 (Drawing No. P5) involves work on the southern portion of the 1912 structure, from the fall 1998 to Summer 1999. Traffic will be detoured back onto the north side of Wellington Street with two lanes in each direction on the newly completed bridge structure. Traffic will be detoured onto the west leg of Elgin Street with two lanes in each direction. Pedestrian routes will be maintained. Vehicular traffic to the Chateau Laurier will be maintained. The east leg of Elgin Street will be reconstructed.

c) Phase 3 (Drawing No. P6) involves removal of the 1938 structure extension and reconstruction of the south-west and south-east staircases. This is currently planned in the summer and fall of 1999.

Rehabilitation of the underside of the bridge is partly determined by the requirement to maintain navigation along the Rideau Canal. This is possible only in the winter months and options for access to work on the east and Canal spans have been planned during the winters of 1997-98 and 1998-99 (Drawing Nos. P7 and P8).

Work under the west arch, including lowering the road grade, will not affect Canal operations and can be undertaken at any time. Pedestrian, bicycle and vehicular traffic will be maintained under the west arch at all times in order to ensure emergency and other traffic to the Bytown Museum and the Ottawa Locks of Parks Canada. Drawing No. P10, shows the location of this service road.

PROJECT MANAGEMENT

Concurrent with the bridge rehabilitation, the National Capital Commission are planning to construct those portions of the Confederation Boulevard within the limits of the Plaza Bridge and along the east and west legs of Elgin Street. It is within their mandate to carry out the urban design and renewal of the urban landscape for the War Memorial and in other areas in the immediate vicinity of the Plaza Bridge including the Rideau Canal verge lands and the Federal lands adjacent to the National Arts Centre.

In order for the Plaza Bridge rehabilitation to be completed by the millennium and in order to complete various works that the National Capital Commission also wish to complete, the only practical and realistic method of realizing both goals is to enter a partnership and combine certain functions and construction contracts. This will result in the work being undertaken at the Plaza Bridge, along the Confederation Boulevard, in the Cenotaph itself and along a section of the Rideau Canal in a minimum number of contracts that are managed by the RMOC, with the RMOC responsible for implementing the goals of its partners.

It is proposed to manage the various projects in this area, along similar lines to the Wellington Project, but under the umbrella of the Plaza Bridge Project. There is an Agreement in principle between all parties for the Wellington Project and it is proposed to use this agreement with clauses redefined that are specific to the Plaza Bridge Project.

The parties, with construction works planned, will enter into an Agreement for cost sharing with the cost of construction and engineering split, on the basis of their construction and consultant costs apportioned for each element of their own work, or on an agreed cost breakdown for works that are in common.

The Region has appointed the consulting firm of McNeely Engineering Ltd. as its prime consultant for the Plaza Bridge Rehabilitation and the National Capital Commission has appointed the firm of Phillips Farevaag Smallenberg Inc. to prepare the urban design for this section of Confederation Boulevard and Confederation Square.

The Region has developed a Terms of Reference for the implementation of this Project and it is available in Department files if required. The Project Organization Structure from this Terms of Reference is included as Annex G.

FUNDING

Funds have been provided in the 1997 Capital Budget, Account No. 912-31060, Plaza Bridge (reference page 95 and as amended by CSEDC 4 Mar 97).

The overall Project Budget is estimated to be in the order of $28,000,000. The estimate is conceptual only and is not based on detailed design drawings. The expected cost breakdown of the Region's contribution for the structural work is $17,000,000 with engineering and utility contributions bringing the Regional total to $21,500,000. The remaining funds are to be recovered from the other Government partners in the project.

The project cost estimate and baseline budget will be prepared and presented for approval after the National Capital Commission have finalized the urban design features to be incorporated in the Project.

Approved by
M.J.E. Sheflin, P.Eng.

JBE/DCM

ANNEX A - STAKEHOLDER LIST

The individual stakeholder members in three categories are:

Major Partners

Public Works and Government Services Canada
Regional Municipality of Ottawa-Carleton
National Capital Commission
Parks Canada
City of Ottawa

Adjacent Landowners

Chateau Laurier Hotel
Canadian Museum of Contemporary Photography
National Arts Centre
Conference Centre
Parliamentary Precinct

Users

Action Sandy Hill
Bytown Museum
Centretown Citizens Comm.
Comité du rèveil de la Basse-Ville
Downtown Business Network
Greater Ottawa Truckers
Heritage Ottawa
Ministry of Environment and Energy, Ottawa
Ministry of Environment & Energy, Kingston
Ministry of Natural Resources, Carleton Place
Ministry of Transportation, Ottawa
National Gallery of Canada
OC Transpo
Ontario Taxi Union
Ottawa-Carleton Board of Trade
Ottawa-Carleton Economic Development Corp.
Ottawa-Carleton Police Department
Ottawa-Carleton Regional Ambulance Service
Ottawa Congress Centre
Ottawa Fire Department
Ottawa Historical Society
Ottawa Taxi Owners
Ottawa Tourism & Convention
Ottawalk
Parliamentary Precinct
Paul's Boat Lines
Piccaddilly Bus Tours
Royal Canadian Mounted Police (RCMP)
Regional Cycling Group
Rideau Centre
Rideau Street Business Improvement
Royal Canadian Legion
Silver Skates
Société Transport de l'Outaouais
Sparks Street Mall Management Board
Veterans Affairs Canada

ANNEX B - COMMITTEE MEMBERS

TECHNICAL ADVISORY COMMITTEE

- Public Works Government Services Canada (PWGSC)
- Regional Municipality of Ottawa-Carleton (RMOC)
- National Capital Commission (NCC)
- City of Ottawa
- Parks Canada
- Chateau Laurier Hotel
- Canadian Museum of Contemporary Photography (CMCP)
- National Gallery of Canada
- National Arts Centre
- OC Transpo
- Societé de Transport de l'Outaouais (STO)
- Ministry of Transportation (MTO)

PUBLIC ADVISORY COMMITTEE

- Action Sandy Hill
- Bytown Museum
- Centretown Citizens Comm.
- Comité du rèveil de la Basse-Ville
- Downtown Business Network
- Greater Ottawa Truckers
- Heritage Ottawa
- Ministry of Environment and Energy, Ottawa
- Ministry of Environment & Energy, Kingston
- Ministry of Natural Resources, Carleton Place
- Ministry of Transportation, Ottawa
- National Gallery of Canada
- OC Transpo
- Ontario Taxi Union
- Ottawa-Carleton Board of Trade
- Ottawa-Carleton Economic Development Corp.
- Ottawa-Carleton Police Department
- Ottawa-Carleton Regional Ambulance Service
- Ottawa Congress Centre
- Ottawa Fire Department
- Ottawa Historical Society
- Ottawa Taxi Owners
- Ottawa Tourism & Convention
- Ottawalk
- Parks Canada, Smith Falls
- Parliamentary Precinct
- Paul's Boat Lines
- Piccaddilly Bus Tours
- Royal Canadian Mounted Police (RCMP)
- Regional Cycling Group
- Rideau Centre
- Rideau Street Business Improvement
- Royal Canadian Legion
- Silver Skates
- Transport de l’Outaouais
- Sparks Street Mall Management Board
- Veterans Affairs Canada

ANNEX C - STAKEHOLDER CONCERNS

The stakeholder concerns are as follows:

Canadian Museum of Contemporary Photography

- concern that the building envelope or system will be overwhelmed or damaged during the construction period. Temperature and humidity levels are critical to the preservation of the exhibits.
- the effects of dust and vibration, generated by the construction, on the operation and longevity of the building mechanical systems. Pigeon fouling of systems a problem in the past. Will there be any associated health problems for employees.
- construction may suspend Museum programming. Exhibit programming is as much as two years in advance.
- construction site in itself will be an impediment to visitors. Most important to maintain summer presence and attendance.
- co-ordination of snow removal operations.
- access on Wellington/Rideau; maintain clear, clean and safe.
- "quiet time" is crucial to operation of the business. Museum operation from 11:00 a.m. to 5:00 p.m.
- maintain visibility of signs. The free standing sign in front of the Wellington/Rideau entrance is fragile. Sign on west side requires protection and cleaning.
- maintain fire vehicle access.
- maintain emergency exit out of south end of Museum under east span of bridge.
- maintain security of the facility.
- if east span is opened up to public access, a need for architectural treatment of the south facade is required.
- disturbance of soils at the site could result in an infestation of book lice.

Chateau Laurier Hotel

- maintain entrance off Wellington/Rideau.
- noise levels (no noisy construction before 9:30 a.m.)
- fresh air intakes to be maintained.
- advise of road closures.
- no service vehicles in front of Hotel at anytime.
- make provisions for bus off-loading in front of Hotel main entrance.

Note: As a result of the Chateau Laurier Hotel and the Canadian Museum of Contemporary Photography concerns, a noise and vibration study was completed. As well, an elevated walkway was to be provided to maintain pedestrian access on the north side of the bridge during construction.

Conference Centre

- access from Wellington Street to be maintained.
- the Centre is a Heritage structure and this must be taken into account in any reconstruction scheme.
- sidewalk in front of Conference Centre should remain as a sidewalk on grade.
- security of the facility to be maintained.
- dust and noise, generated by the construction, is a concern; especially noise.
- vibration affecting the integrity of the interior finishes is a concern.

National Arts Centre

- concerned about construction equipment exiting via their exit road along the Canal and this is to be limited.
- use of the road under the west arch should be restricted in the final (after construction) configuration.
- with lowering of grades under the west arch, provisions of a ramp connection from the Canal walkway to the reconstructed road should be made.
- NAC has a concept plan for washrooms along the Canal in the Park area. These should be co-ordinated with any planned Parks Canada facilities.
- provide ample advance notification of any planned access restrictions and construction activities so that patrons can be advised.
- concerns for effects of dust and noise.
- provision of access to the NAC from Mackenzie King (as a result of new west bound lane provision in Mackenzie King construction).
- when the spiral staircase is removed at the end of the east arch, could this be relocated to the north-west corner of the Mackenzie King Bridge at the Canal.
- if the Public Works storage room is to remain at the south-west corner of the bridge, NAC would like to have part of that area for their use.

Parks Canada

- navigation/boating on the Rideau Canal to be maintained.
- navigation clearances to be maintained.
- the access corridor under the west arch to be maintained for Public and emergency vehicle use.
- no work to be undertaken on Parks Canada lands without prior approval.
- the Cultural elements of the existing bridge should be maintained.
- any alternative should not prejudice future Parks Canada development plans under the West Arch.
- any construction work is not to result in any damage or other adverse impact to the Rideau Canal.
- improvements should be made to the existing West Arch access to make the entrance more inviting to the public.
- linkages and public access to the Canal should be improved on the West and Canal Arches.
- no public access to the Canal level on the East Arch be considered.

- public security and safety conditions under the West Arch be improved.

National Capital Commission

- design for the bridge and related works must be submitted to the NCC for approval and presentations to the Design Committee will be required. An environmental assessment will be required.
- the proposed NCC concept plan to serve as the basis for the final design. Removal of the 1938 addition to provide better access to the Canal area and give better definition of the bridge itself.
- urban design component of the project to be managed by the NCC.
- all surface materials, details of street elements and urban furniture to conform with Confederation Boulevard standards.
- lighting levels are not to reflect typical bridge standards and shall conform to Confederation Boulevard lighting standards.
- special consideration be given to lighting the bridge as an architectural element in the landscape.
- the existing design character and architectural vocabulary of materials and details of the bridge must be maintained overall.
- disruption to special "events" such as Remembrance Day, Canada Day, Winterlude, etc. should be avoided or minimized.
- access to the Museum must be provided at all times.
- pedestrian access along both sidewalks will have to be maintained throughout the construction period.
- access to the Canal on both sides should be maintained open as much as possible throughout the construction period.
- The central arch walls need to be designed to provide pedestrian access to the Canal edges beneath the bridge.
- parking under the West Arch must be eliminated.
- pedestrian safety is to be a priority in relation to the Canal edge.
- the NCC is to confirm, ASAP, it's interest in maintaining the PWGSC storage room accessible by the West Arch *(It was later confirmed that NCC had an interest in maintaining this room).*

STO/OC Transpo

- buses are to be given priority.
- loading/unloading areas to be co-ordinated.

Linkages Initiative Steering Committee

- principally supports the identification and protection of existing and potential pedestrian linkages which may be incorporated in a rehabilitated or new Plaza Bridge Structure and in the vicinity of the bridge.
- maintain and enhance barrier-free pedestrian access.
- create an improved (more animated and secure) pedestrian environment.
- maintain views and vistas from, and of, Plaza Bridge (both from top and under the bridge).
- improve opportunities for lateral movement under the bridge (opening portals in piers).

- consider removal of vehicular parking and the service road under the West Arch. Pursue improved pedestrian pathway or enclosed pedestrian way, lighting, signs, kiosks.
- connect floating boardwalk (under Canal span) to the pathway running along the Canal past the NAC. Consider permanent sidewalk if boardwalk is safety concern.
- consider opening the south end of the East Arch and provide weather protected pedestrian linkage through this space.
- provide for continuous at grade movement/pedestrian crossing at south-west corner of Rideau/Sussex/Colonel By intersection. Protect opportunity for below grade linkage at this location as well.
- relocate Terry Fox monument to a more suitable setting.
- protect options for linkages development to and through area beneath Confederation Square.
- enhance pedestrian environment on east side adjacent to the Conference Centre.
- enhance access to the Canal area particularly along the west side.

City of Ottawa

- ensure that the pedestrian and cyclist environment is maintained or ideally that it is improved. This applies to both over and under the Bridge.
- preserve, or enhance, the views and vistas that are possible from the bridge.
- promote and enhance the area as the symbolic and ceremonial heart of the nation.
- encourage a continuous, safe, interesting and comfortable pedestrian circulation network.
- further pedestrian links between the east and west sides of the Bridge.
- support increased enjoyment of the Ottawa River and Rideau Canal.
- include better north-south crossings and at-grade pedestrian circulation along the south side of Wellington Street from the Conference Centre to Rideau Street. A crossing from the Chateau Laurier Hotel and Museum to the south side and a crossing from the north-west corner of Mackenzie Avenue across Wellington Street would be preferred.
- enhance the space and activity level near the Conference Centre 'i.e.' patio, plaza or vending.
- improved signs to help visitors locate stairs/access to the Canal area.
- barrier-free access is an objective.
- concern as to how a new structure may impact the site from a heritage perspective.
- protect existing City of Ottawa services.

Bytown Museum

- pedestrian and vehicular access to the Museum must be maintained for the duration of the project.
- provide restrictions on parking during construction so that access to the Museum is not effected.
- concern that the construction may deter visitors to the Museum. Erection of signs around the site directing visitors to the Museum will be important.
- concern regarding the preservation of archaeological resources on and under the site. These need to be maintained.

RMOC Environment and Transportation Department (Mobility Service)

- pedestrian access to all destinations within the study area must be maintained during the construction and reinstated or enhanced at the end of the construction period. The pedestrian facilities should include wide sidewalks, shortened crosswalks, refuges in wider crossings, non-circuitous routes to major destinations and clear directional/information signs.
- the turning radii of the intersection at Elgin Street (east leg)/Wellington Street and Colonel By Drive/Wellington Street are currently very wide and pose a hazard for pedestrians. The free-flow right turn lanes, in particular, are undesirable from a pedestrian point of view. These two corners should be tightened to slow traffic down at critical pedestrian crossing points.
- improved access under the Plaza Bridge for pedestrians and cyclists should be provided. This linkage with the recreational pathway system along the Rideau Canal is key to pedestrian/cyclist movement throughout the area. In light of the proposed changes to the National Arts Centre, this is an opportunity to incorporate good pedestrian/cycling facilities and provide a continuous network.
- provide enhanced cycling facilities across and under the Plaza Bridge. This crossing is the connection between the cycling facility on Rideau Street and that on the reconstructed Wellington Street. This is critical in both directions.

RMOC Planning and Development Approvals Department

- public safety at night is of major concern. There should be no hidden access only open visual linkages for the Public.
- consideration should be given to diversity of usage under the bridge, i.e. shops, bistros, etc.
- recommendation should be made in the proposed NCC concept plan to have the new south limit of the structure coincident with the 1912 structure southern extremity. This is especially true for rehabilitation alternatives.

ANNEX D - PUBLIC OPEN HOUSE COMMENTS

- Concerns for adequate pedestrian linkages across and below the bridge have generally been addressed although amore direct linkage from the CMCP and Chateau Laurier to the Congress Centre is desirable and “universal” access should remain as a primary goal.

- The desire to maintain both views from the bridge and views of the bridge have generally been addressed.

- The reduction in sidewalk width on Elgin Street (east leg), at the south-west corner of the bridge, is too narrow for the number of pedestrians using this area. Pedestrian counts should be made and correlated with sidewalk needs.

- The proposed stairway through the west arch, at the north-east corner of the Cenotaph, is viewed as:

  a) an enhancement to the project which has universal support;

  b) an opening which would allow natural light to the roadway under the west arch, and increased air flow to improve the micro-climate humidity problems;

  c) provide an easy and “elegant” access to the Bytown Museum and Rideau Canal Locks area;

  d) the provision of a “monumental” plinth at the base of the stairs with pedestrian traffic flow “spilling north and south”;

  e) use of the cutaway areas on top of the retained arches as planting beds;

- It is important to complete the pedestrian connection under the east arch. This has the potential to become an extremely useful link in the central area’s network of pedestrian/cycle paths;

- Cyclist accommodation both on and under the structure requires addressing. This is of particular concern on Wellington Street for west bound cyclists from Rideau Street and on the west leg of Elgin Street;

- Make allowance for the future provision of an elevator from the Plaza level to the underside of the west arch.

ANNEX E - REHABILITATION ALTERNATIVE

The key features that are included in the Rehabilitation Design are:

a) Complete structural refurbishment of the bridge, including removal of deteriorated concrete on the piers and abutments, underside and top of the arches, new waterproofing membrane, deck drainage system, and concrete load distribution slab;

b) Removal of the 1938, concrete encased steel beam, extension structure back to the 1912 arch structure;

c) Retention and refurbishment of the underground PWGSC shop for use by the NCC;

d) Rebuild the staircases at the south-west and south-east corners of the bridge to match the new south elevation;

e) Provide an opening in the west arch for a new pedestrian staircase from the Cenotaph level to the Canal level to improve pedestrian linkages, to increase natural light under the west arch, and to increase the security and comfort of pedestrians;

f) Lower the road grade under the west arch to provide better pedestrian and cycling linkages and to improve pedestrian comfort under the west arch (subject to the archaeological findings);

g) Open up the existing portals in the piers to provide natural light and views to the Canal from the east and west arches;

h) Reinstate the architectural features of the bridge including the sandstone railing and granite pilasters;

i) Close the north lane on Wellington Street to provide a wider sidewalk for the Confederation Boulevard esplanade;

j) Modify the lane widths and roadway geometry to provide wider (4.25 m minimum) lanes for shared use by cyclists and vehicles;

k) Modify the roadway geometry at the intersections to provide a new pedestrian cross-walks, reduce pedestrian crossing times, and improve safety;

l) Provide new lighting features for the Plaza Bridge underside and to highlight the Bridge features at the fascias and balustrades.

ANNEX F - DRAWINGS LISTED IN REPORT

Figure # 1 Existing Structure

Figure # 2 NCC Concept Plan

Figure # 3 Alternative 2 - Rehabilitation of Existing Structure

Figure # 4 Alternative 3 - Superstructure replacement with Cast-in-Place Arch Structure

Figure # 5 Alternative 4 - Superstructure replacement with Precast Arch Structure

Figure # 6 Alternative 5 - Superstructure Replacement with Highway Type Structure

Drawing P1 General Arrangement - Plan

Drawing P2 General Arrangement - Elevations and Sections

Drawing P4 Pedestrian/Vehicle Detours - Phase I

Drawing P5 Pedestrian/Vehicle Detours - Phase II

Drawing P6 Pedestrian/Vehicle Detours - Phase III

Drawing P7 Access to Underside of Structure and Coffer Dam

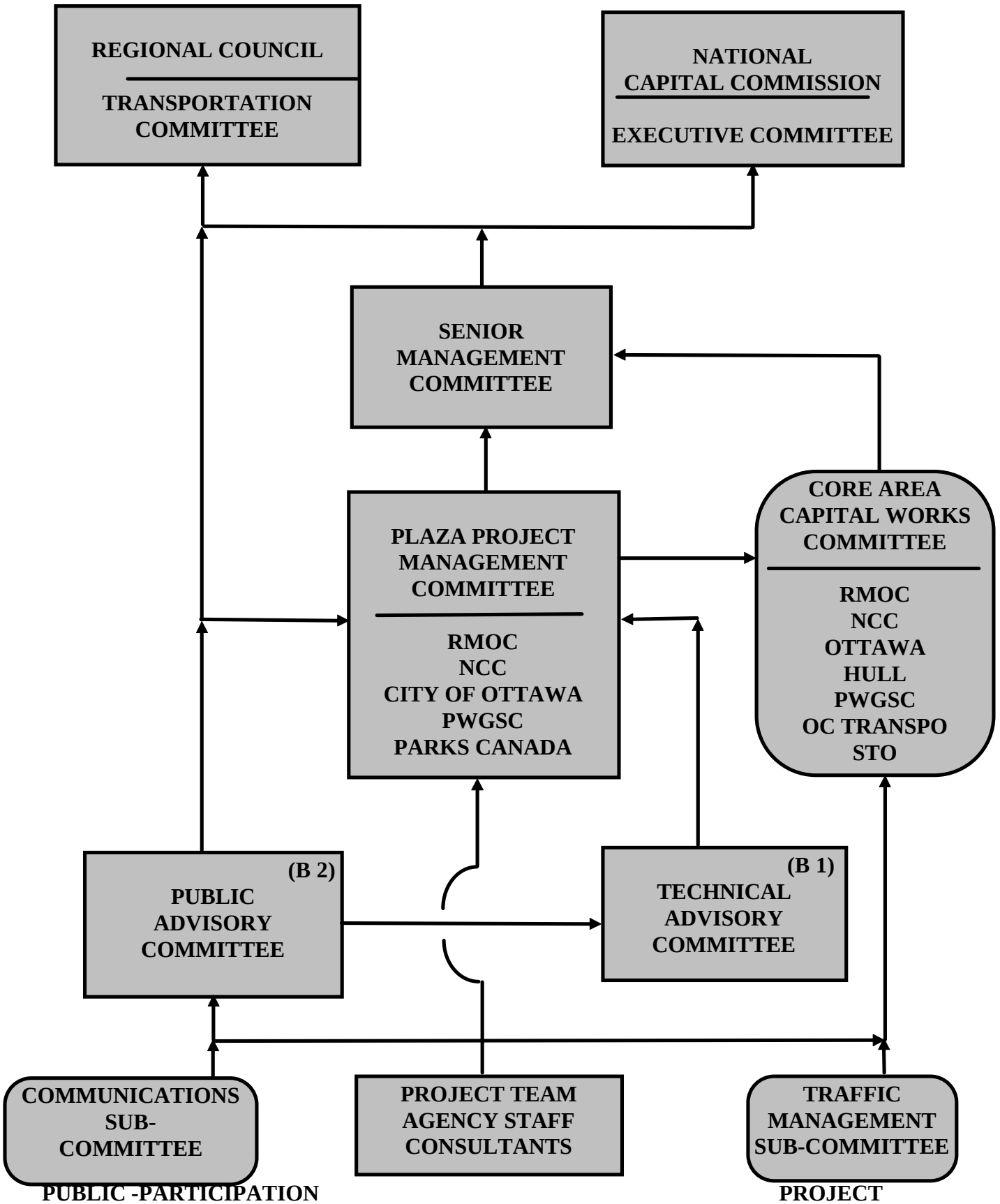
Drawing P8 Access and Coffer Dam Details

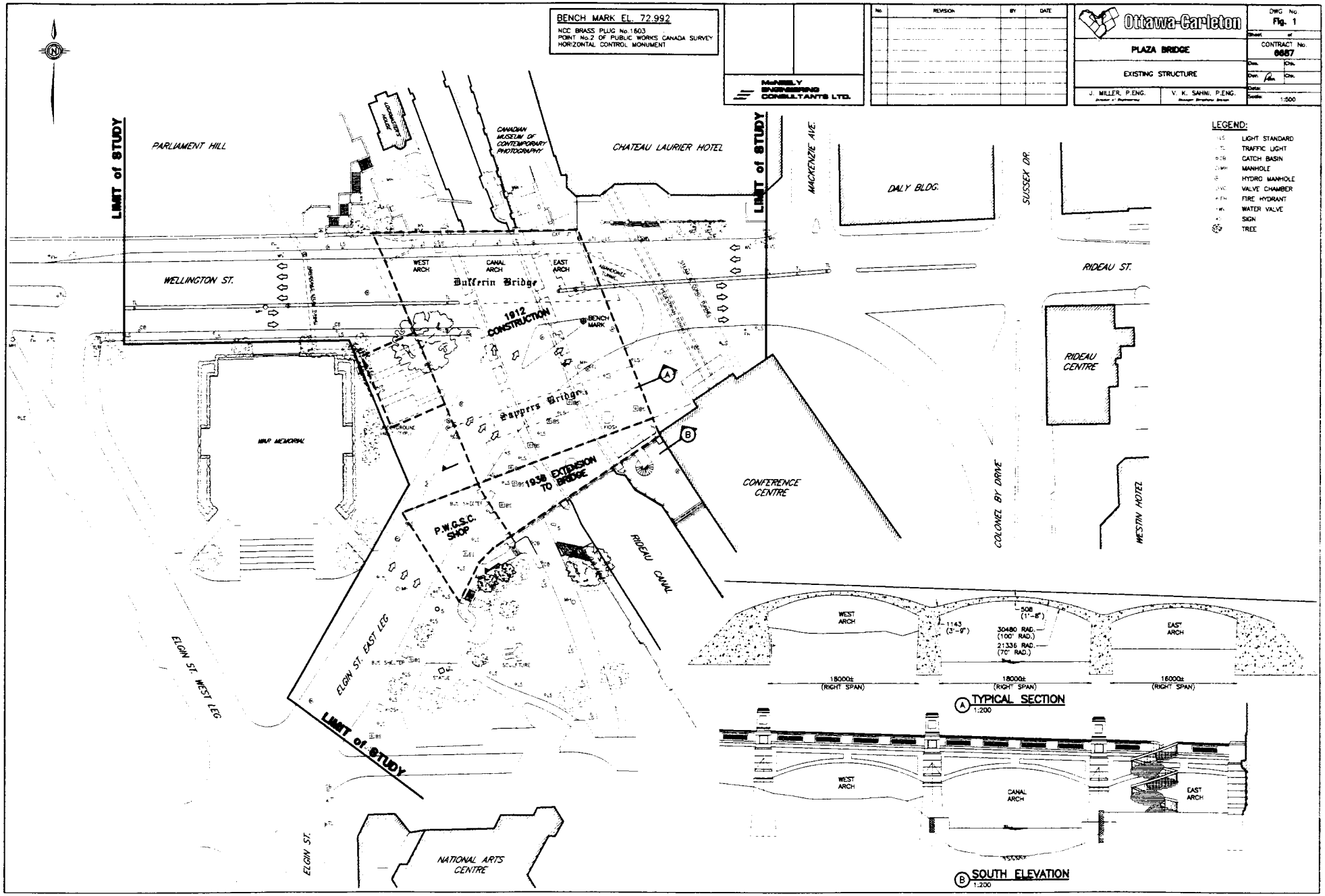
Drawing P9 Plan, Details and Section Walkway Foot Bridge

Drawing P10 West Arch Service Road

Drawing P11 Existing Utilities

ANNEX G - PROJECT ORGANIZATION STRUCTURE





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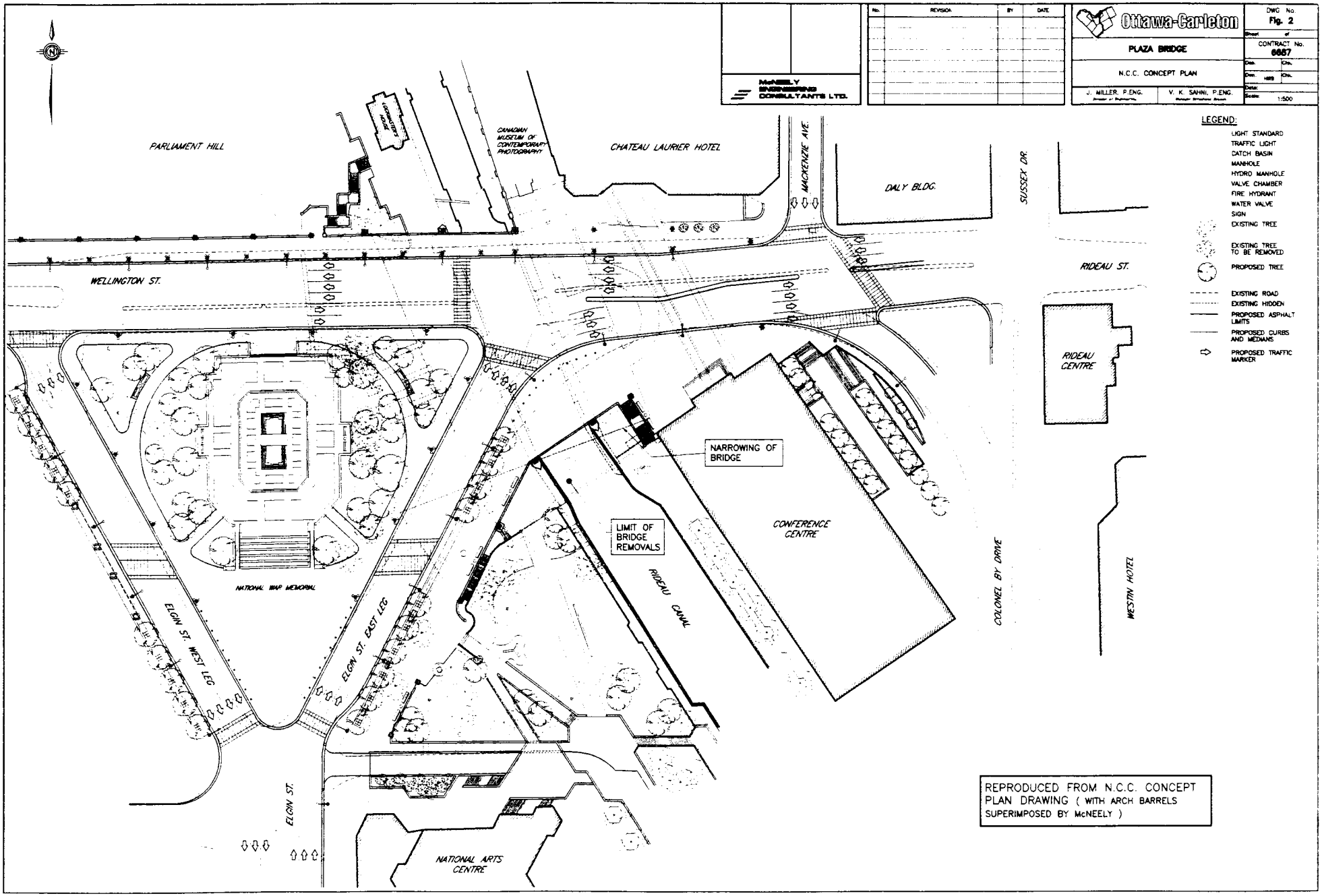

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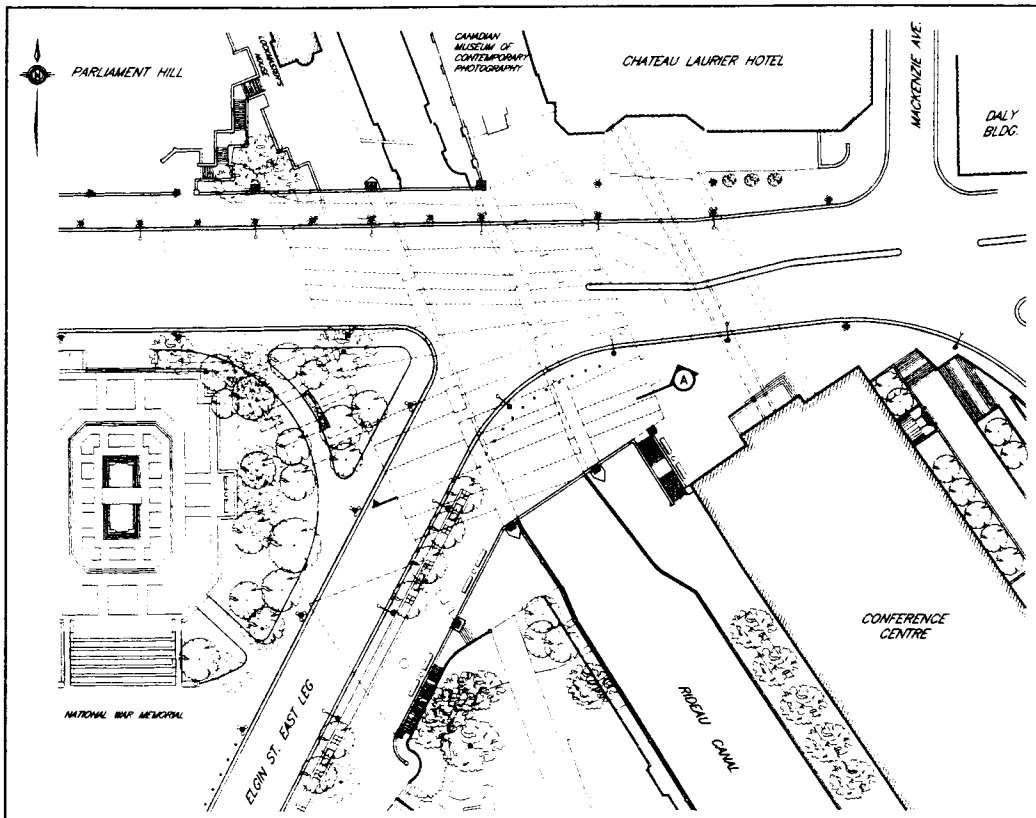

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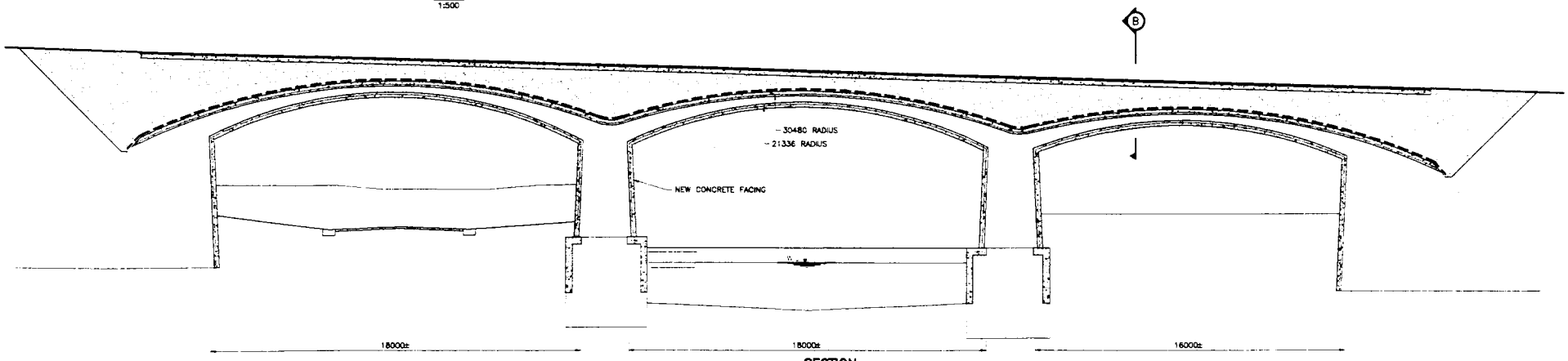

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PLAZA BRIDGE

CONTRACT No. 6857

REHABILITATION OF THE EXISTING STRUCTURE

J. MILLER, P.ENG. | V. K. SAHNI, P.ENG.

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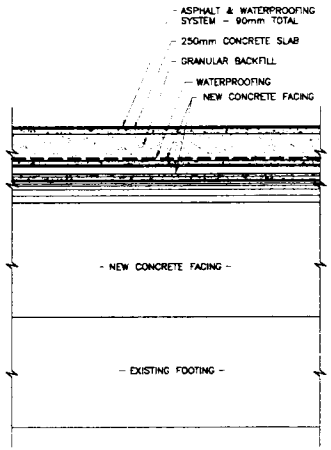
ALTERNATIVE 2

INDICATES ARCH BARREL LAYOUT

INDICATES SUBSTRUCTURE BELOW DECK LEVEL



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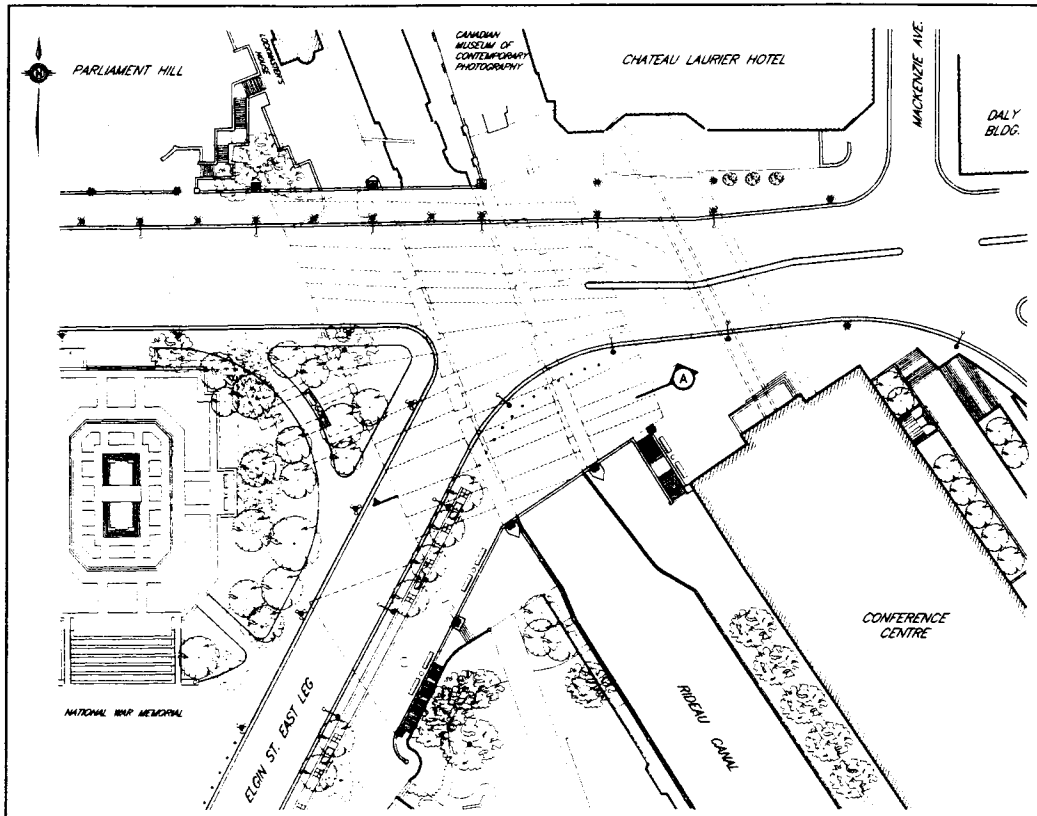

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PLAZA BRIDGE

SUPERSTRUCTURE REPLACEMENT WITH CAST-IN-PLACE ARCH STRUCTURE

J. MILLER, P.ENG. | V. K. SAHNI, P.ENG.

DWG No. Fig. 4

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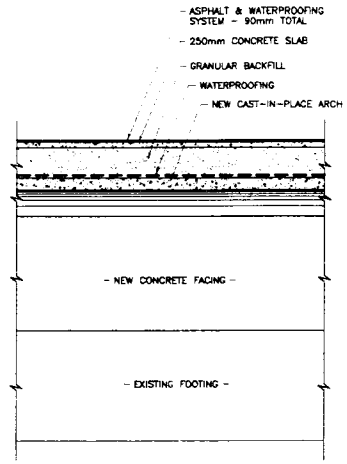
ALTERNATIVE 3

..... INDICATES ARCH BARREL LAYOUT

- - - - INDICATES SUBSTRUCTURE BELOW DECK LEVEL



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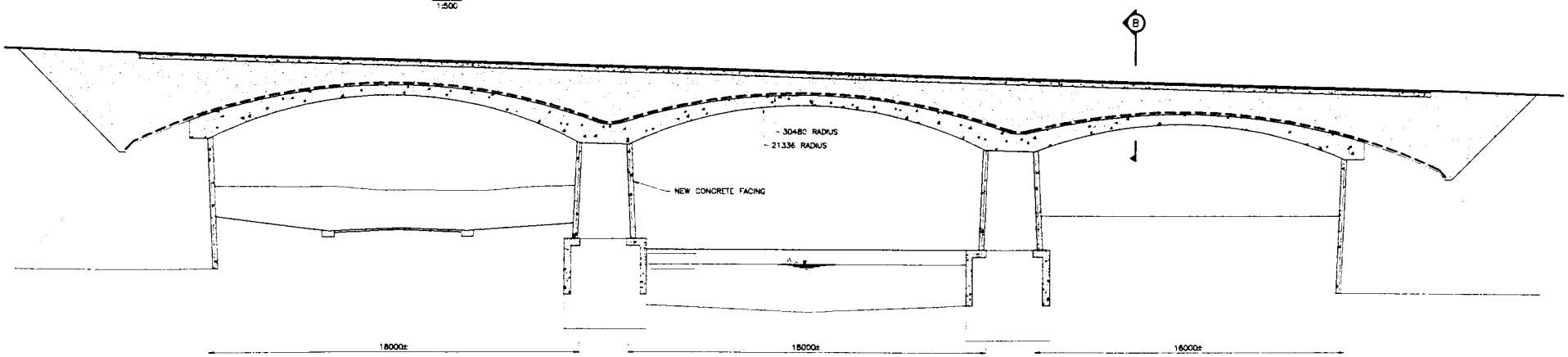

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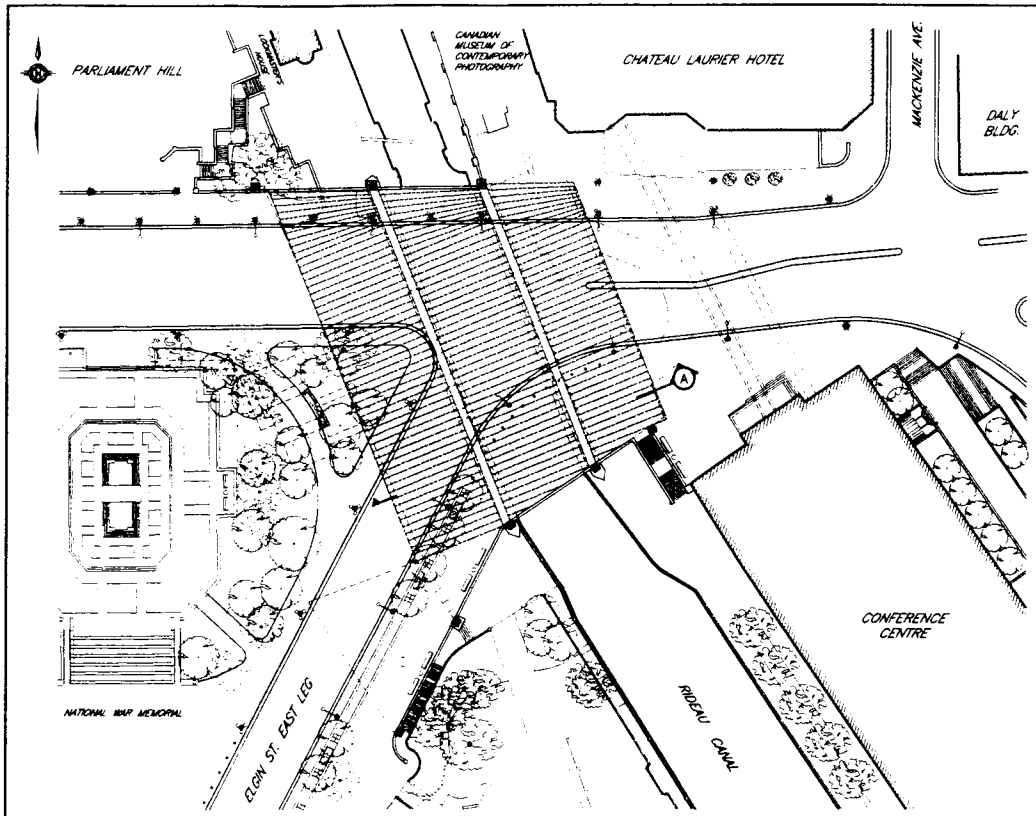

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SUPERSTRUCTURE REPLACEMENT WITH PRECAST ARCH STRUCTURE

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J. MILLER, P.ENG. — V. K. SAHNI, P.ENG.

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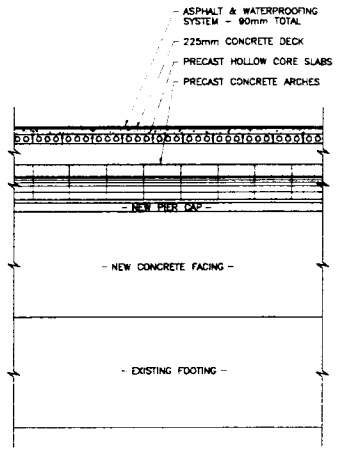
ALTERNATIVE 4

------ INDICATES CONCRETE ARCH LAYOUT

- - - - INDICATES SUBSTRUCTURE BELOW DECK LEVEL



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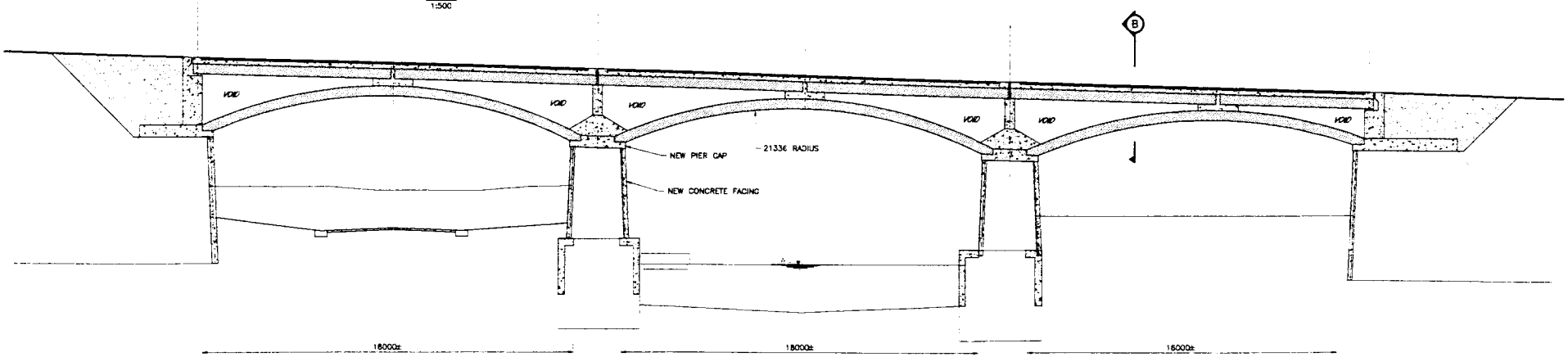

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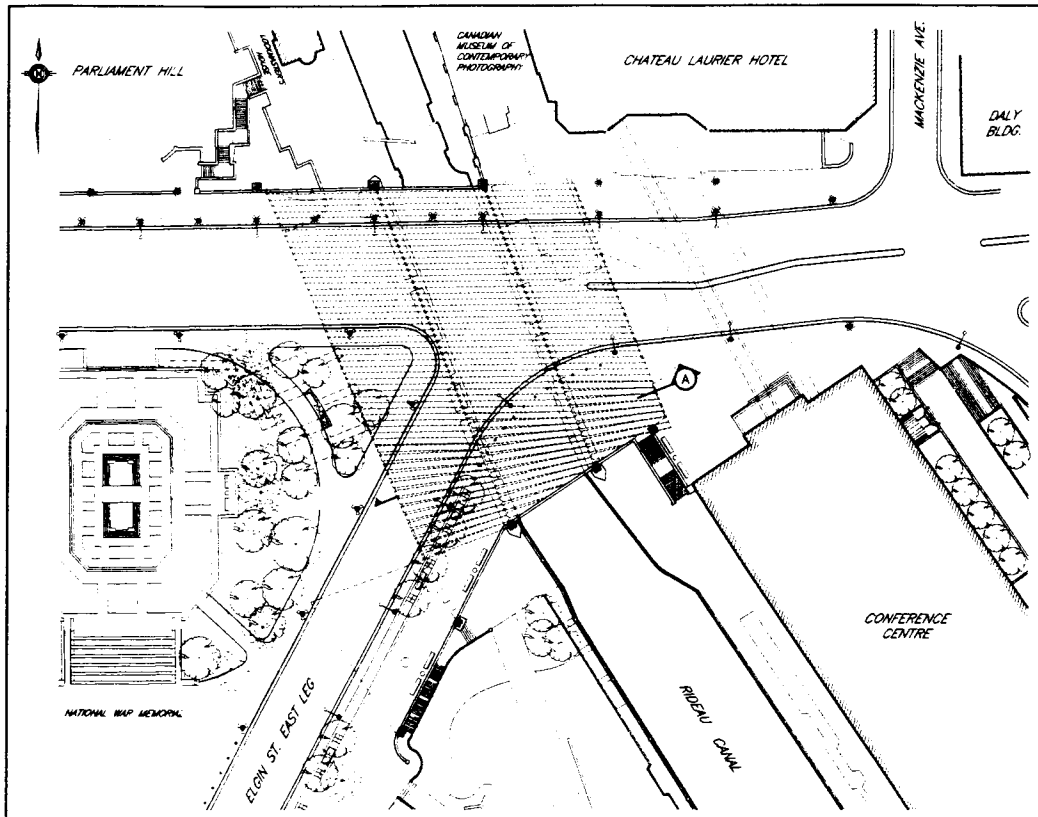

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PLAZA BRIDGE

SUPERSTRUCTURE REPLACEMENT WITH HIGHWAY TYPE STRUCTURE

J. MILLER, P.ENG. — V. K. SAHNI, P.ENG.

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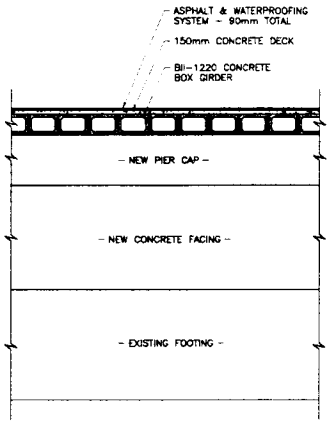
ALTERNATIVE 5

..... INDICATES BOX GIRDER LAYOUT
- - - - INDICATES SUBSTRUCTURE BELOW DECK LEVEL



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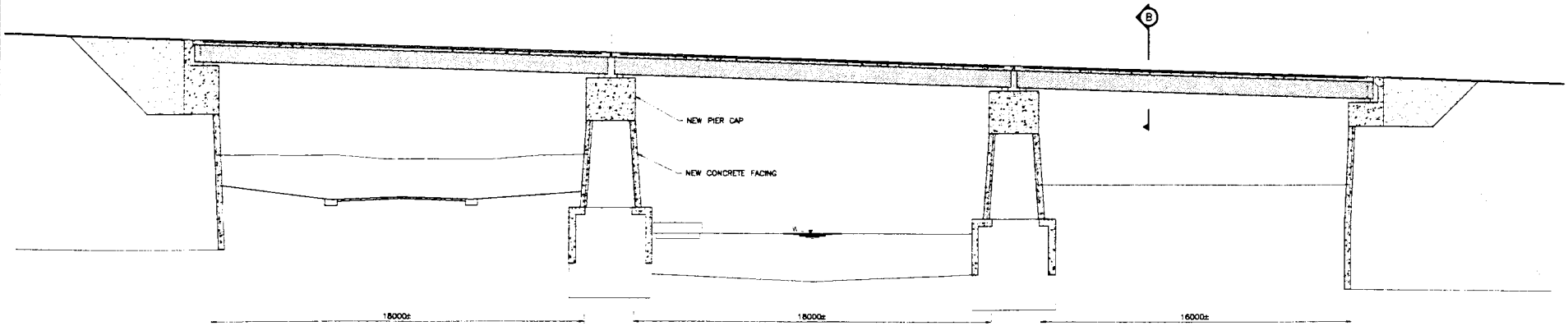

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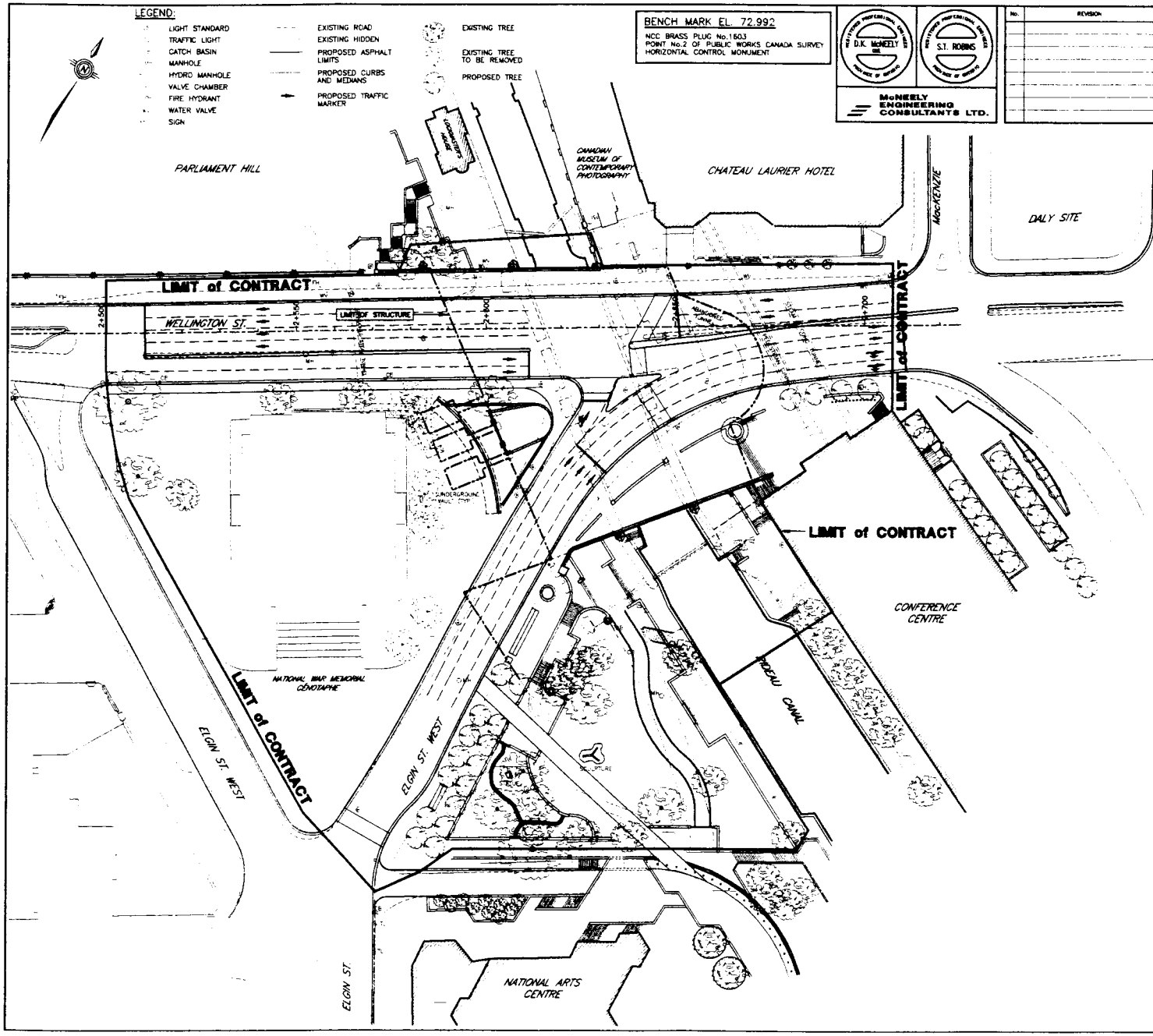

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PLAZA BRIDGE

GENERAL ARRANGEMENT PLAN

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GENERAL NOTES:

FOR CONSTRUCTION PHASING, SEE DETOUR DRAWINGS.

ALL CEMENT TO BE USED ON THE REFACING OF THE BRIDGE SHALL BE LOW ALKALI PORTLAND CEMENT TYPE 10, UNLESS OTHERWISE APPROVED.

CLASS OF CONCRETE:

ARCH BARREL SOFFITS	SEE SPECIFICATIONS
TOP OF ARCH BARRELS and SUBSTRUCTURE FACING	30 MPa
SIDEWALKS AND MEDIANS	30 MPa SUPERPLASTICIZED
REMAINDER	30 MPa

CLEAR COVER TO REINFORCING STEEL:

SIDEWALKS AND MEDIANS	70 ± 20 mm
SUBSTRUCTURE FACES	80 ± 20 mm
FACING OF ARCH BARRELS	80 ± 10 mm
REMAINDER	70 ± 20 mm

PROVIDE WINTER PROTECTION TO CONCRETE AS REQUIRED.

REINFORCING STEEL SHALL BE GRADE 400 UNLESS OTHERWISE SPECIFIED.
SUFFIX 'C' DENOTES EPOXY COATED BARS.
SUFFIX 'T' DENOTES THREADED BARS WITH COUPLERS.

DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED. ELEVATIONS AND CHAINAGES ARE IN METRES.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND DETAILS OF EXISTING FEATURES BEFORE PROCEEDING WITH THE WORK. ANY DISCREPANCIES SHALL BE PROMPTLY REPORTED TO THE CONTRACT ADMINISTRATOR.

FIELD MEASURE ALL CRITICAL DIMENSIONS TO ENSURE PROPER FIT.

PROVIDE PROTECTION TO ALL UTILITIES/SERVICES etc.

CHAMFER ALL EXPOSED CONCRETE EDGES 20mm UNLESS INDICATED OTHERWISE.

NAVIGATIONAL CLEARANCES AND NAVIGATION SHALL BE MAINTAINED AT ALL TIMES DURING THE NAVIGATION SEASON ON THE RIDEAU CANAL.

EXISTING PEDESTRIANS/CYCLIST AND VEHICULAR ACCESS SHALL BE MAINTAINED AT ALL TIMES DURING THE COURSE OF CONSTRUCTION.

DESIGN CRITERIA AND LOADING TO OHBDC 1991.

SCOPE of WORK:

SUBSTRUCTURE AND UNDERSIDE OF ARCH

INSTALL ACCESS ROAD ON SOUTH SIDE OF BRIDGE.

REMOVE WALL ENCLOSURE AT SOUTH END OF EAST ARCH. MAINTAIN SECURITY OF CMCP.

COMPLETE EXCAVATIONS, INCLUDING DEWATERING, TO CARRY OUT FACING OF SUBSTRUCTURE.

REMOVE CONCRETE AND REFACE ARCH SOFFITS AND OUTER FACE OF SPANDREL WALLS.

REMOVE ACCESS ROAD AND ACCESS TO ARCH SOFFITS.

COMPLETE EXCAVATION UNDER THE WEST ARCH.

REMOVE THE 1938 STRUCTURE INCLUDING MODIFICATIONS TO PIERS.

MODIFY THE EXISTING PWGSC STORAGE ROOM.

INSTALL NEW UNDER ARCH LIGHTING SYSTEM.

RESTORE THE SITE BELOW BRIDGE DECK LEVEL.

SUPERSTRUCTURE

CONSTRUCT TEMPORARY PEDESTRIAN WALKWAY BRIDGE FOR PHASE 1 CONSTRUCTION.

DETOUR PEDESTRIAN, CYCLIST AND VEHICULAR TRAFFIC (INCLUDING ROADWAY PROTECTION).

COMPLETE REMOVALS OF EXISTING SURFACE ELEMENTS INCLUDING LIGHTING, STONE BALUSTRADES, PLANTERS, BENCHES, etc.

COMPLETE EXCAVATIONS TO TOP OF ARCH BARRELS INCLUDING PROVISION OF PROTECTION TO ALL UTILITIES/SERVICES.

REMOVE CONCRETE AND REFACE TOPS OF ARCH BARRELS AND INSIDE FACES OF SPANDREL WALLS.

INSTALL WATERPROOFING AND DRAINAGE SYSTEM TO TOPS OF ARCH BARRELS.

INSTALL GRANULAR FILLS

INSTALL NEW REINFORCED CONCRETE SLAB-ON-GRADE COMPLETE WITH WEARING SURFACE.

INSTALL NEW SIDEWALKS AND MEDIANS.

INSTALL COMBINATION PEDESTRIAN/VEHICLE BALUSTRADES INCLUDING THE SALVAGED STONE BALUSTRADE.

INSTALL TRAFFIC LIGHTING.

NOTE: ALL OTHER URBAN LANDSCAPING FEATURES ARE COVERED UNDER PART 'B' OF THIS CONTRACT ("ie." PEDESTRIAN LIGHTING, PLANTINGS, BENCHES, KIOSKS, etc.)

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PLAZA BRIDGE

GENERAL ARRANGEMENT
ELEVATIONS and SECTION

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CANADIAN MUSEUM OF CONTEMPORARY PHOTOGRAPHY

EXISTING STONE BALUSTRADE TO BE DISMANTLED, SALVAGED AND REINSTALLED (TYP. NORTH AND SOUTH FACES)

CANAL ARCH

WEST ARCH

NORTH ELEVATION

100 REFACING — 50 REMOVAL

100 REMOVAL
100 REFACING

EXISTING NAVIGATION CLEARANCE LIMIT

50 REMOVAL
300 ± REFACING

200

200 mm

200 mm

PROPOSED CANAL ARCH SOFFIT RADII

N.T.S.

EXISTING STONE FACING TO BE SALVAGED FOR REUSE ON NEW AND REPAIRED PIER/ABUTMENT PILASTERS

CONFERENCE CENTRE

CONSTRUCT NEW ACCESS STAIRS AT WEST ABUTMENT

WEST ARCH

CANAL ARCH

EAST ARCH

CONSTRUCT NEW STAIRS AT CONFERENCE CENTRE

RELOCATE ACCESS STAIRS

SOUTH ELEVATION

250 mm REINFORCED CONCRETE SLAB-ON-GRADE

FREE DRAINING GRANULAR BACKFILL

WATERPROOF MEMBRANE (BITUTHENE 3000) c/w PROTECTION BOARD

2000 — REMOVE 100 mm FROM TOP OF ARCHES AND PLACE 100 mm NEW REINFORCED CONCRETE TOPPING

POLYETHELENE PIPE DRAIN IN GEOTEXTILE c/w CRUSHED STONE FILTER

AT LIMITS OF NAVIGATIONAL CLEARANCES AND EACH SIDE REMOVE 100 mm ± AND PLACE 100 mm (MIN.) NEW SURFACING

2000

2000 MIN.

MINIMUM PUBLIC ACCESS CLEARANCES

5000

4500

WEST ARCH

GRADE TO BE LOWERED UNDER WEST ARCH, ACCESS TO BE MAINTAINED AT ALL TIMES

30480 RADIUS

21336 RADIUS

CANAL ARCH CLEARANCES

EXIST. LIMIT OF NAVIGATIONAL CLEARANCES

6710

12300

W.L. = 84.080 (OPERATIONAL LEVEL)

1000

EAST ARCH

MAINTAIN SECURITY OF MUSEUM FACILITY

MAINTAIN EMERGENCY EXIT FROM MUSEUM c/w HOARDING

REMOVE 50 mm ± (MIN.) FROM ARCH SOFFITS AND PLACE 100 mm NEW SURFACING WITH BOARD FINISH (DEEPER AT HAUNCHES)

500 (TYP.)

REMOVE 100 mm (MIN.) FROM WALLS IN EAST AND WEST ARCHES AND PLACE 200 mm (MIN.) NEW FACING WITH BOARD FINISH

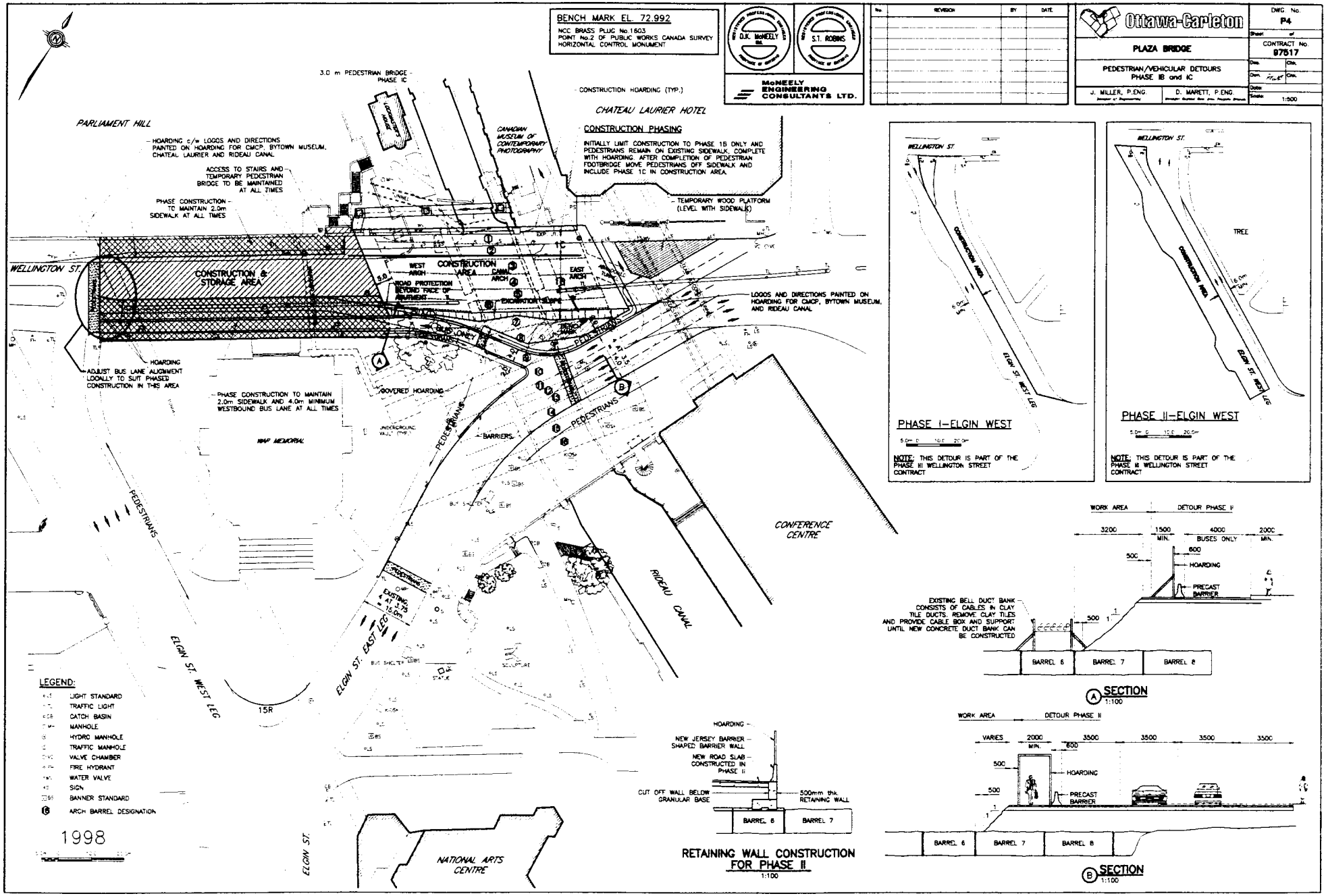
REMOVE ALL CONCRETE ENCASEMENT AND DETERIORATED CONCRETE AND CONSTRUCT NEW ENCASEMENT

REMOVE 200 mm ± FROM WALLS AND PLACE 200 mm ± NEW FACING WITH BOARD FINISH (TYPICAL IN CANAL)

ANCHOR EXISTING CONCRETE ENCASEMENT TO PIER WITH 25 M AT 1000 c/c. REPOINT ALL STONEWORK AND GROUT

18000± | 18000± | 16000±

LONGITUDINAL SECTION



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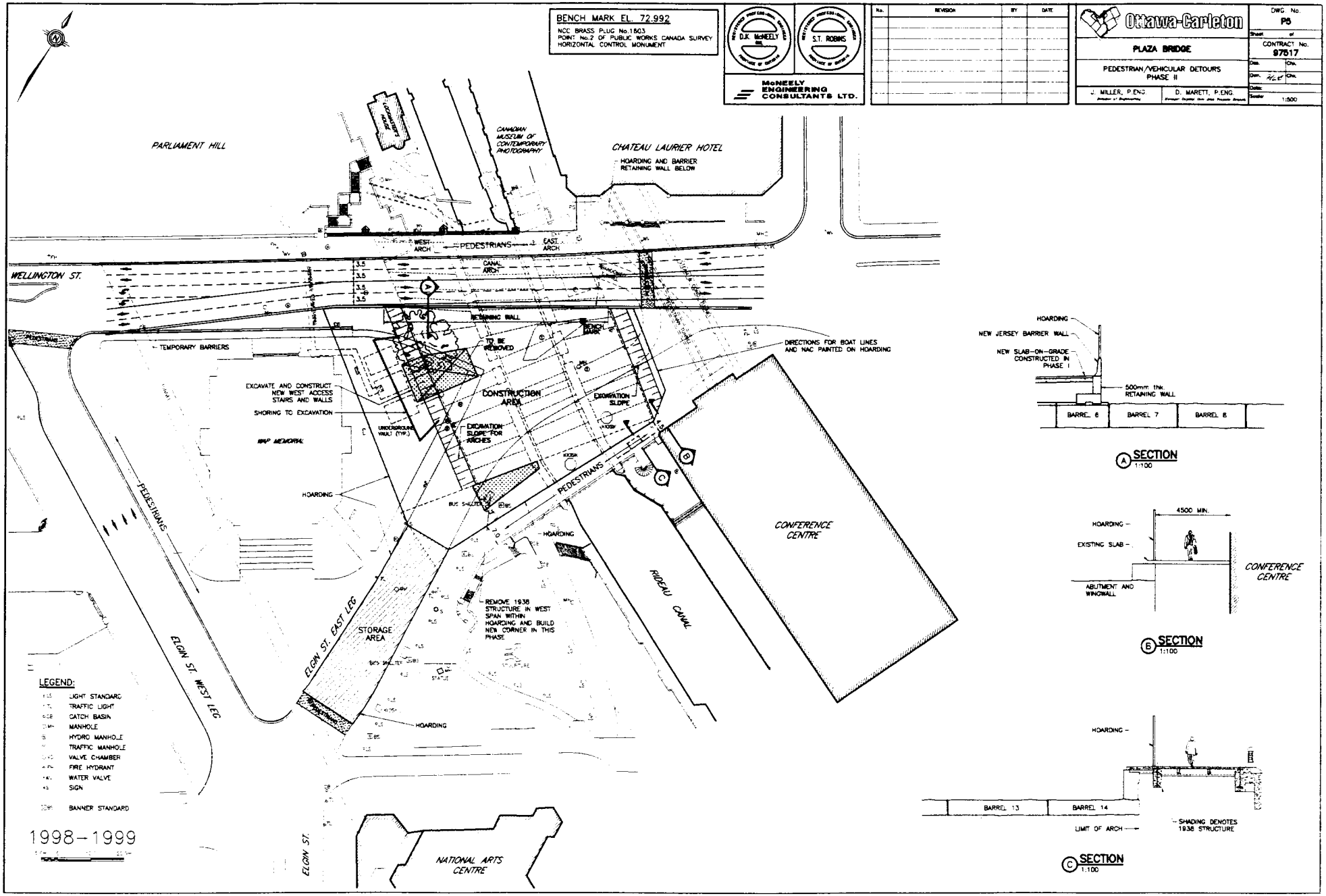

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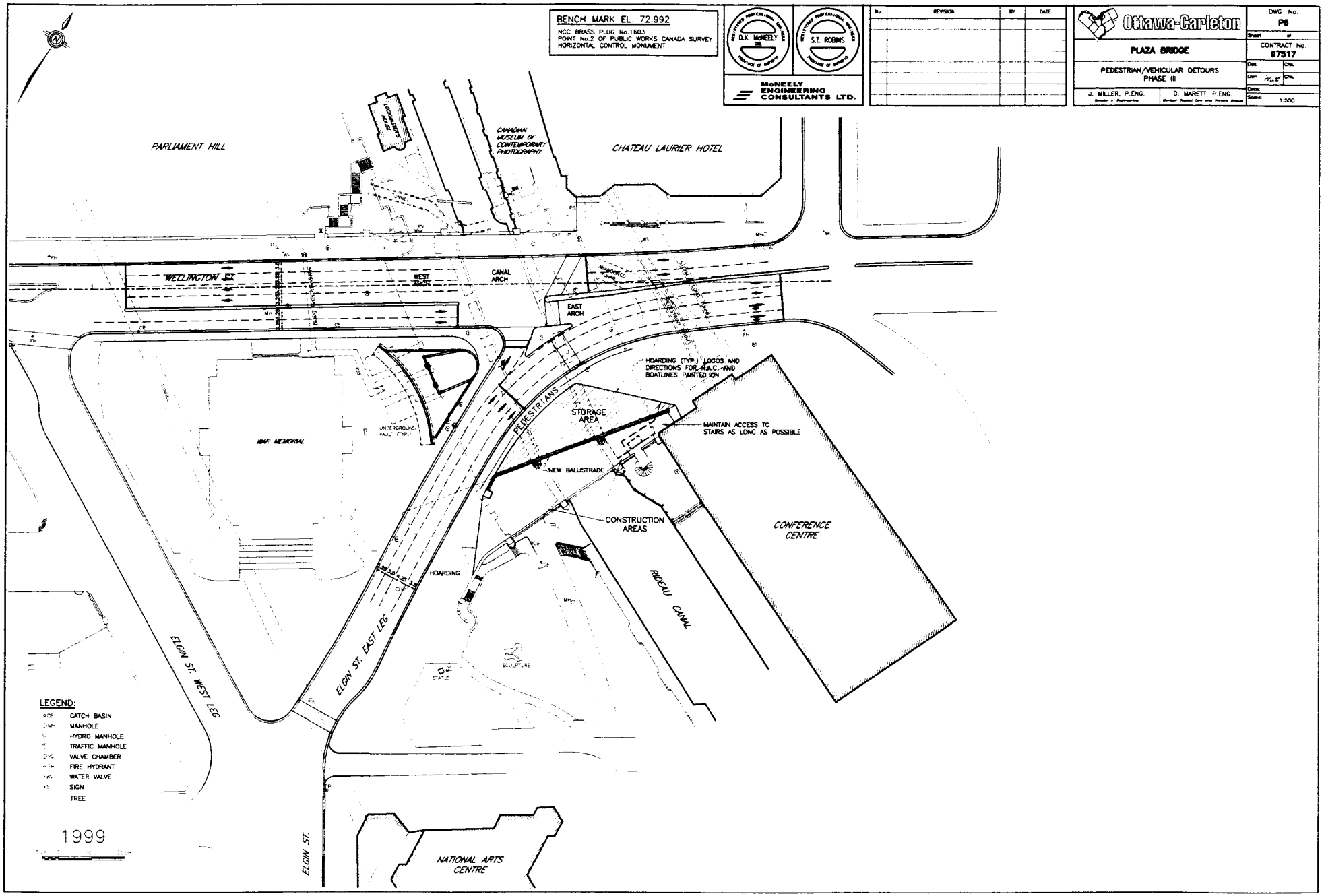

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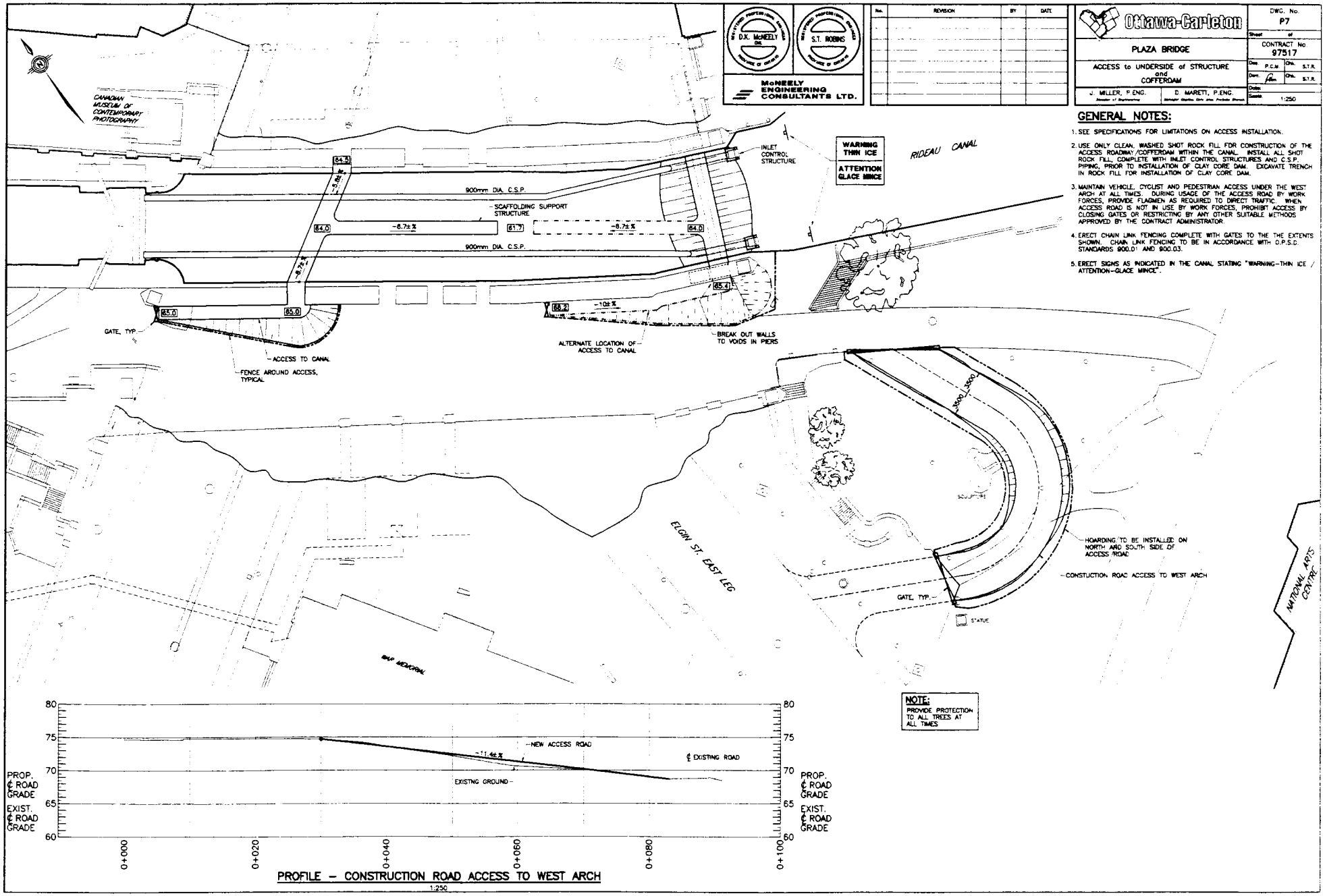

PROFILE – CONSTRUCTION ROAD ACCESS TO WEST ARCH

1:250

GENERAL NOTES:

1. SEE SPECIFICATIONS FOR LIMITATIONS ON ACCESS INSTALLATION.
2. USE ONLY CLEAN, WASHED SHOT ROCK FILL FOR CONSTRUCTION OF THE ACCESS ROADWAY/COFFERDAM WITHIN THE CANAL. INSTALL ALL SHOT ROCK FILL, COMPLETE WITH INLET CONTROL STRUCTURES AND C.S.P. PIPING, PRIOR TO INSTALLATION OF CLAY CORE DAM. EXCAVATE TRENCH IN ROCK FILL FOR INSTALLATION OF CLAY CORE DAM.
3. MAINTAIN VEHICLE, CYCLIST AND PEDESTRIAN ACCESS UNDER THE WEST ARCH AT ALL TIMES. DURING USAGE OF THE ACCESS ROAD BY WORK FORCES, PROVIDE FLAGMEN AS REQUIRED TO DIRECT TRAFFIC. WHEN ACCESS ROAD IS NOT IN USE BY WORK FORCES, PROHIBIT ACCESS BY CLOSING GATES OR RESTRICTING BY ANY OTHER SUITABLE METHODS APPROVED BY THE CONTRACT ADMINISTRATOR.
4. ERECT CHAIN LINK FENCING COMPLETE WITH GATES TO THE THE EXTENTS SHOWN. CHAIN LINK FENCING TO BE IN ACCORDANCE WITH O.P.S.D. STANDARDS 900.01 AND 900.03.
5. ERECT SIGNS AS INDICATED IN THE CANAL STATING "WARNING–THIN ICE / ATTENTION–GLACE MINCE".

D.K. McNEELY ONT.
S.T. ROBINS
McNEELY ENGINEERING CONSULTANTS LTD.

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CONTRACT No. 97517

PLAZA BRIDGE

ACCESS to UNDERSIDE of STRUCTURE and COFFERDAM

Des. P.C.M. Chk. S.T.R.

Dwn. Chk. S.T.R.

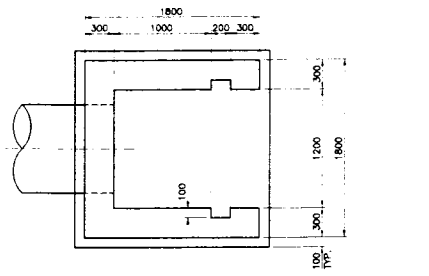
Date:

Scale: 1:250

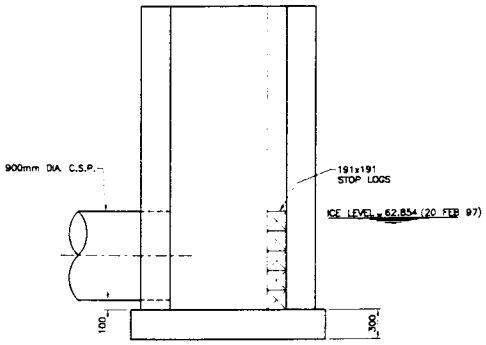
J. MILLER, P.ENG. — Director of Engineering

D. MARETTI, P.ENG. — Manager Capital Projects

C:\r13\-JOBS\PLAZA\FINAL\Preliminary\P7_Canal_access Tue May 06 08:56:11 1997



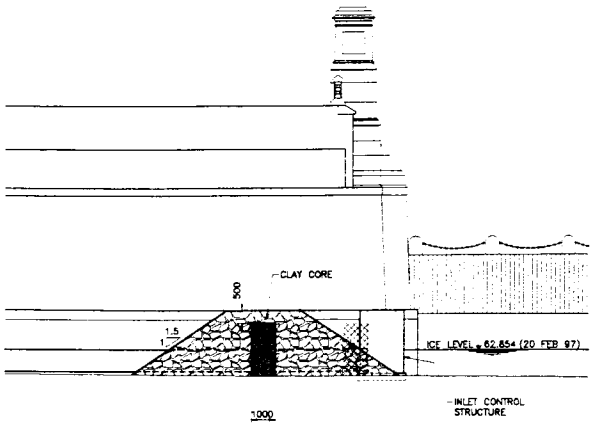
PLAN



ELEVATION

INLET CONTROL STRUCTURE

1:25



CONTROL DAM SECTION

1:100

D.K. McNEELY
P.ENG.
PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

S.T. ROBBINS
P.ENG.
PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

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PLAZA BRIDGE

ACCESS and COFFERDAM DETAILS

Des. S.T.R. Chk. D.K.M.

Dwn. Chk. S.T.R.

Date

Scale 1:250

J. MILLER, P.ENG. — Director of Engineering

D. MARETT, P.ENG. — Manager Capital Construction Projects Engineering

GENERAL NOTES:

1. PLACE ROCK FILL IN CANAL AND EXCAVATE TRENCH IN ROCK FILL TO PLACE CLAY CORE. ALTERNATE METHODS OF CONTROLLING THE FLOW OF WATER THROUGH THE ROCK FILL WILL BE CONSIDERED. DETAILS OF THE ALTERNATE METHODS MUST BE SUBMITTED TO THE CONTRACT ADMINISTRATOR FOR APPROVAL.
2. IN AREA WHERE INLET STRUCTURE IS TO BE PLACED, EXCAVATE AS REQUIRED TO PLACE 150mm CRUSHED STONE (WASHED CLEAN) LEVELLING BED.
3. CLASS OF CONCRETE IN INLET STRUCTURE TO BE 30 MPa.
4. REINFORCING STEEL SHALL BE GRADE 400. REINFORCING TO BE 10M AT 300mm EACH WAY.
5. PROVIDE LIFTING LUGS IN TOP OF INLET STRUCTURE TO FACILITATE PLACEMENT AND REMOVAL FOR PHASED CONSTRUCTION.
6. STOP LOG TIMBERS TO BE DOUGLAS FIR PROVIDED WITH END CHASE HOLES TO PERMIT LIFTING AND SETTING. PROVIDE VARIABLE THICKNESS TIMBERS, AS REQUIRED, TO MAINTAIN THE NECESSARY ICE/WATER LEVEL. (AS DIRECTED BY THE CANAL AUTHORITY)

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BENCH MARK EL. 72.992

NCC BRASS PLUG No.1603
POINT No.2 OF PUBLIC WORKS CANADA SURVEY
HORIZONTAL CONTROL MONUMENT

D.K. McNEELY — S.T. ROBINS

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PLAZA BRIDGE

PLAN, DETAILS and SECTION
WALKWAY FOOT BRIDGE

J. MILLER, P.ENG. — D. MARETT, P.ENG.

DWG. No.	P9
CONTRACT No.	97517
Des.	S.T.R.
Chk.	D.K.M.
Dwn.	
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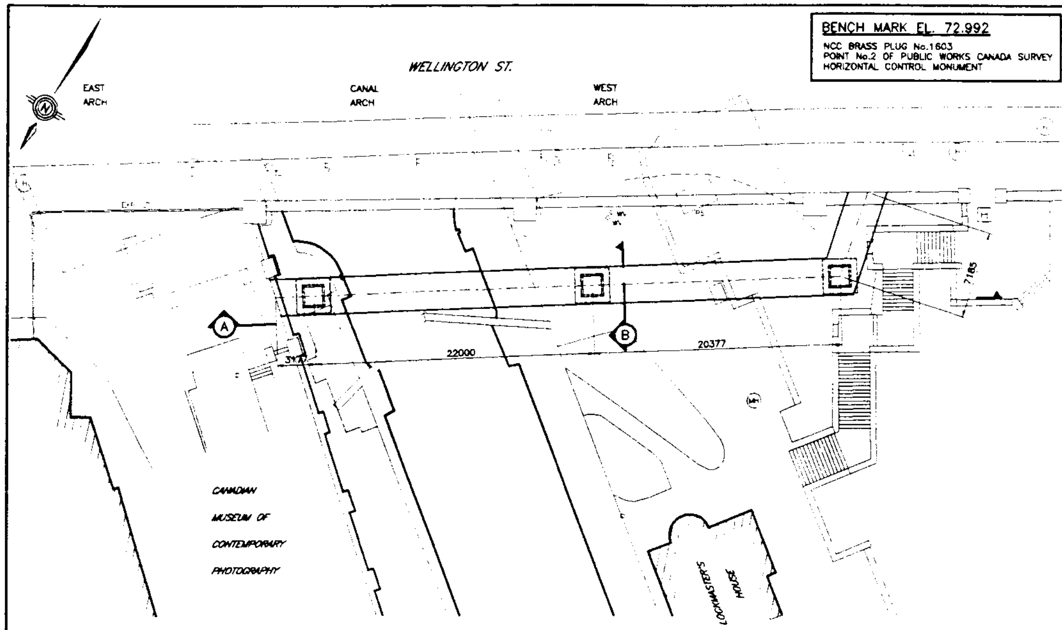

PLAN
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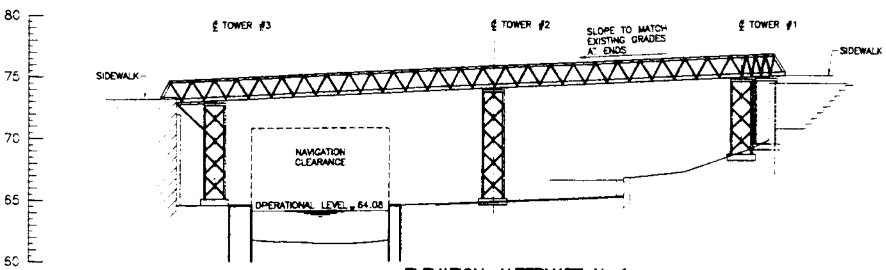

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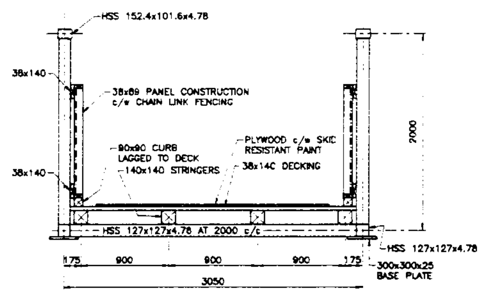
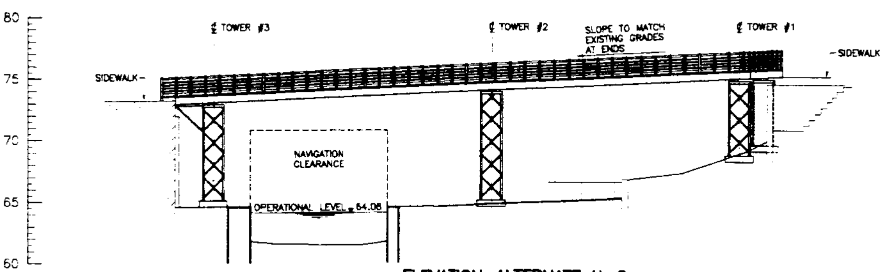


(B) SECTION–ALTERNATE No.1
1:25



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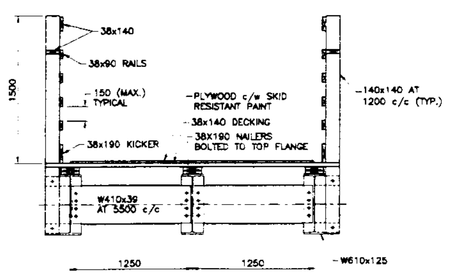

(B) SECTION–ALTERNATE No.2
1:25

GENERAL NOTES:

- VERIFY THE LOCATION OF ALL UTILITIES AFFECTED BY THIS WORK PRIOR TO COMMENCING CONSTRUCTION OF THE WALKWAY FOOT BRIDGE. REPORT ANY CONFLICTS IMMEDIATELY TO THE CONTRACT ADMINISTRATOR AND DO NOT PROCEED UNTIL APPROVAL IS GIVEN.
- ALL STRUCTURAL STEEL SHALL CONFORM TO CSA STANDARD CAN/CSA–G40.21–M92 GRADE 300W FOR PLATES AND ROLLED SHAPES AND GRADE 350W CLASS H FOR HSS SECTIONS.
- ALL WELDING SHALL BE IN ACCORDANCE WITH CSA STANDARD W59–M1989 AND SHALL BE CARRIED OUT BY A COMPANY CERTIFIED UNDER CSA STANDARD W47.1–1992.
- ALL BOLTS SHALL CONFORM TO ASTM A325 SIZE M22 UNLESS OTHERWISE NOTED. ALL ANCHORS SHALL BE EQUAL TO "HILTI HVA" M24x320 or M32x415 ADHESIVE ANCHORS.
- ALL WOOD/TIMBER TO BE CONSTRUCTION GRADE SPF #2 OR BETTER CONFORMING TO CSA–086.1–M89.
- PLYWOOD TO BE DOUGLAS FIR SHEATHING PLYWOOD WITH EXTERIOR TYPE GLUE, SUPPLIED IN 1.2mx2.4m SHEETS AND IN ACCORDANCE WITH CSA STANDARD 0121.
- FASTENERS FOR PLYWOOD TO WOOD DECKING AND WOOD DECKING TO STRINGERS SHALL BE GALVANIZED SCREWS. CONNECTION OF STRINGERS TO FLOOR BEAMS SHALL BE WITH GALVANIZED BOLTS.
- ALL WOOD AND METAL SURFACES SHALL BE PAINTED A SEMI–GLOSS BLACK COLOUR (ONE COAT PRIMER AND TWO FINISH COATS OF AN APPROVED OIL BASE PAINT) THE WALKWAY PLYWOOD SURFACE SHALL BE PROVIDED WITH AN APPROVED NON–SLIP SURFACE.
- CONCRETE FOR TOWER FOUNDATIONS SHALL BE 20 MPa.
- PRIOR TO PLACING THE GRANULAR 'A' BASE TO THE CONCRETE FOUNDATIONS, VERIFICATION OF THE BEARING CAPACITY (MINIMUM 100 KPa REQUIRED) SHALL BE MADE. PROVIDE REPORT FROM SOILS CONSULTANT.

SCOPE of WORK:

1. FIELD MEASURE TO ENSURE PROPER FIT OF ALL WORKS.
2. PREPARE AND SUBMIT SHOP DRAWINGS SHOWING ALL DETAILS FOR THE COMPLETE WALKWAY FOOT BRIDGE.
3. COMPLETE EXCAVATIONS (INCLUDING SAW CUTTING FOR ASPHALT) FOR TOWER FOUNDATIONS AND PLACE COMPACTED GRANULAR 'A' BASE TO CONCRETE FOUNDATION.
4. CAST CONCRETE FOUNDATIONS INCLUDING THE SUPPLY AND INSTALLATION OF REINFORCING STEEL AND ANCHOR BOLTS.
5. SUPPLY, FABRICATE, INSTALL, PAINT AND MAINTAIN STRUCTURAL STEEL AND TIMBER IN THE TOWERS AND SUPERSTRUCTURE OF THE WALKWAY FOOT BRIDGE.
6. CAREFULLY REMOVE, SALVAGE AND STORE SECTIONS OF THE EXISTING STONE BALUSTRADES AT THE EAST AND WEST LIMITS OF THE WALKWAY FOOT BRIDGE AS NOTED.
   CONSTRUCT CLOSURES AT THESE OPENINGS.
7. MAINTAIN WALKWAY FOOT BRIDGE UNTIL NORTH PEDESTRIAN SIDEWALK (ON BRIDGE) IS COMPLETED, OPEN TO PEDESTRIAN TRAFFIC AND APPROVAL IS GIVEN BY THE CONTRACT ADMINISTRATOR.
8. REMOVE TEMPORARY WALKWAY FOOT BRIDGE IN ITS ENTIRETY FROM THE SITE AND REINSTATE ALL EXISTING SURFACES AND BALUSTRADES.

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BENCH MARK EL. 72.992

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HORIZONTAL CONTROL MONUMENT

D.K. McNEELY
S.T. ROBINS

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PLAZA BRIDGE

WEST ARCH
SERVICE ROAD

J. MILLER, P.ENG.
D. MARETTI, P.ENG.

DWG. No. P10
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CONTRACT No. 97517
Des. P.C.M. Chkd. S.T.R.
Drwn. Chkd. S.T.R.
Date:
Scale: 1:250

NOTE:
PROPOSED DESIGN SHOWN ON THIS DRAWING IS SUBJECT TO REVISION DEPENDING UPON ARCHAEOLOGICAL FINDINGS

RIDEAU CANAL

RIDEAU CANAL

RAMP DN.

RAMP DN.

4000

PARLIAMENT HILL

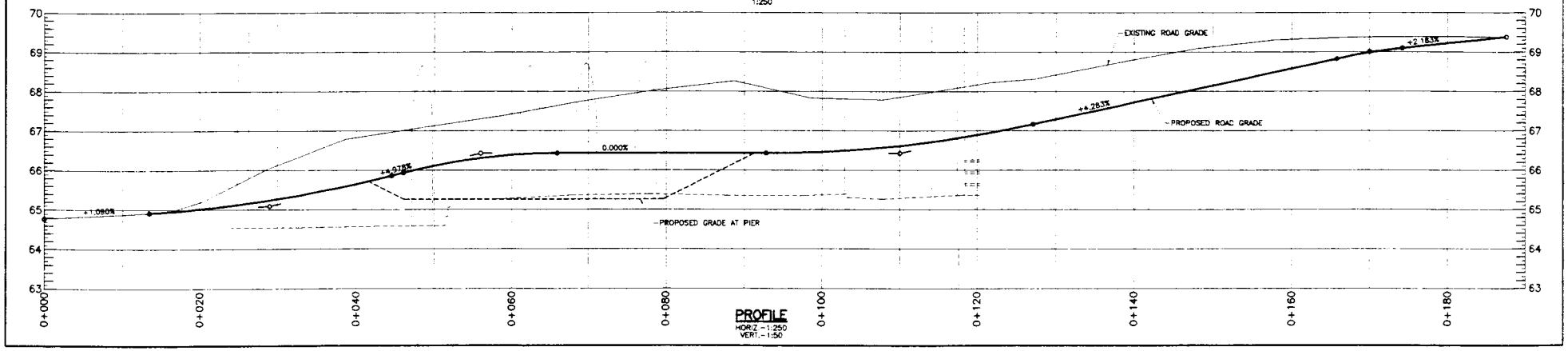
WELLINGTON ST.

MAC MEMORIAL

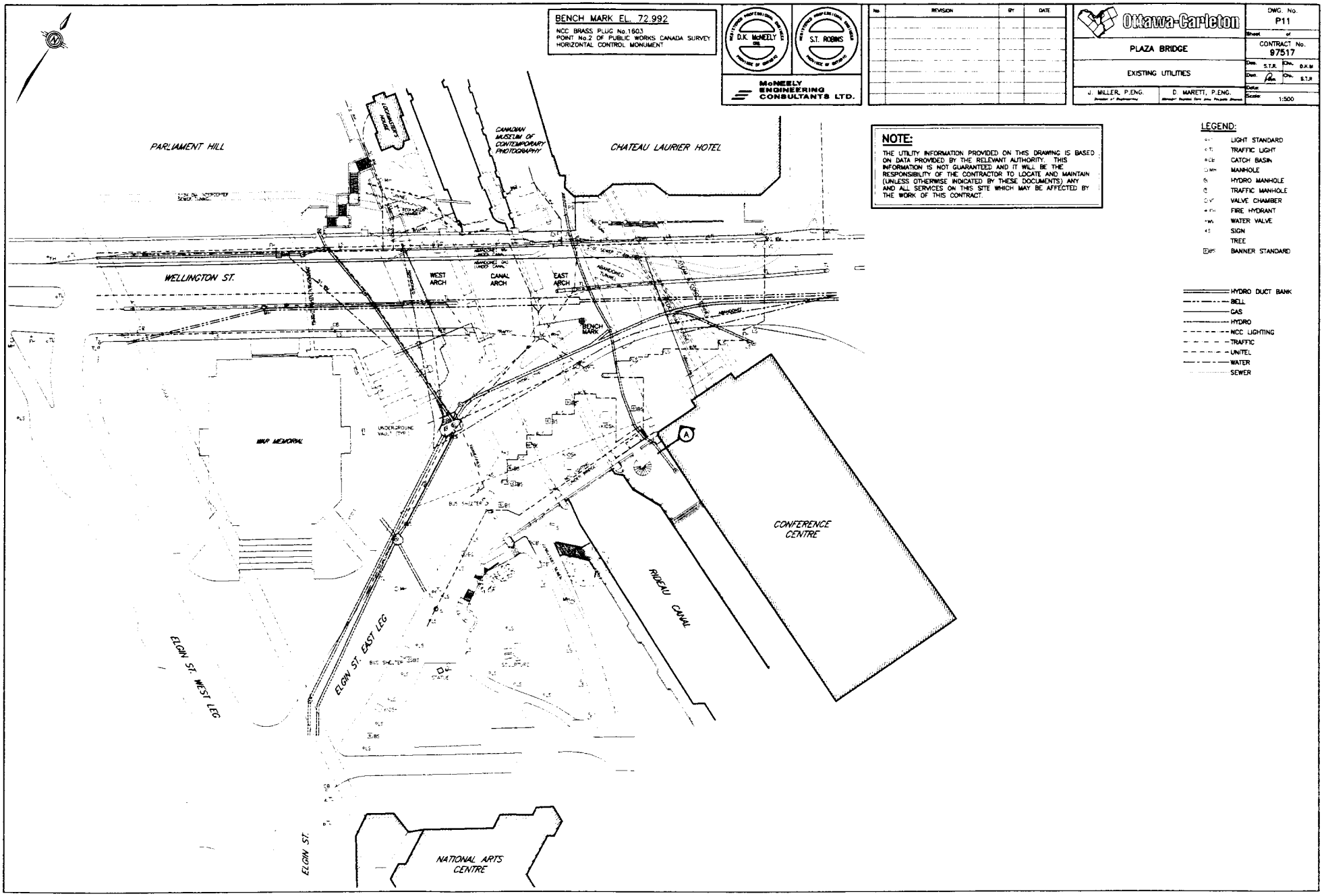
ELGIN ST. EAST LEG

UNDERGROUND VAULT (TYP.)

PLAN
1:250



PROFILE
HORIZ. - 1:250
VERT. - 1:50



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