BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

HAT CREEK PROJECT

Toby, Russell, Buckwell & Partners Architects -
Hat Creek Project - Architectural Design Report -
September 1978.

ENVIRONMENTAL IMPACT STATEMENT REFERENCE NUMBER: 2

BRITISH COLUMBIA HYDRO & POWER AUTHORITY

HAT CREEK PROJECT

ARCHITECTURAL DESIGN REPORT

TOBY RUSSELL BUCKWELL & PARTNERS ARCHITECTS

SEPT 1978

GENERAL

The approach adopted in developing an architectural concept for the Hat Creek Project has been directed towards four basic goals:

To minimize the negative environmental impact of the planned elements on the surrounding terrain and provide positive improvement where possible.

To treat the various elements of the development through screening, berming, landscaping, building location and grouping in such a way that neighbours and visitors passing through the development would form a favorable impression of the elements and operation of a thermal generating plant. Lookouts and centres have been proposed to enable the interested traveller to stop and view if he so desires. Conducted tours would be a viable option.

To utilize form, materials and colour in such a way that the structures would be interesting, unified, economical and easily maintained.

To create the best possible working environment.

Towards these ends, each element of this plant has been studied, its impact assessed and alternative recommendations made to mitigate this impact in the Aesthetic Considerations Section of the Environmental Impact Study. In developing the architectural concept for the plant, these recommendations have been extended, where feasible, into specific treatments. Computer generated information has been used extensively to determine viewable areas and sight lines, and to develop topographic studies.

The major groupings of structures, specifically the generating plant and the mine buildings, have been given a configuration and exterior treatment directed towards expressing a high technology environment.

The facilities related to these major elements, i.e. waste disposal areas, water reservoir, coal blending facilities, etc. have been studied separately and recommendations made to blend them as unobtrusively as possible into the surrounding terrain. The question of permanent treatment, after the project areas are used up, has been addressed.

Recommendations re linkage elements (i.e. conveyors, transmission lines, access and service roads) have also been directed towards subduing these elements as much as possible, by respecting and utilizing natural topography, modulating corridor edges, avoiding heavily treed areas, and by the use of colours that blend into the landscape.

The impact of the installation at night has been considered. The 24-hour operation of the mine means continuous activity, involving night lighting and the illumination of conveyor runs, as well as the necessary operating and security lighting at the power plant and other major elements. This matter is subject to later detailed study, but as a general principle, it is recommended that the treatment be directed towards carefully planned 'task' lighting of a spacing and intensity that would enhance the night effect, rather than a high level of general illumination which would cause a distracting glow in the night sky visible from great distances.

POWERPLANT

A study has been made of the distribution of the powerplant elements on the site, and a number of recommendations have been made:

The proposed location of the cooling towers permits the development of a landscaped area which separates the cooling towers from the powerplant. This forecourt is in scale with the elements of the plant and provides a focal point at the main entry to the development. The entry itself comprises the main gates, the guard house, and a tourist display centre, a relationship which permits year round surveillance and control of the visitors' facility by the plant security guard.

The visitors' facility, which is approached from a tourist parking area outside the gates, looks in on the landscaped forecourt and the main elements of the plant. Access into the plant area proper is therefore controlled.

A stand of trees extends along the south side of the forecourt, screening in part the base of the cooling towers. This tree band extends along the top of a berm located to the east of the forecourt, providing a backdrop for the featured reflecting pool and effectively defining the landscaped forecourt as a focal point at the main entry to the plant.

The location of the plant access road as proposed provides a dramatic approach to the main entry. A stand of trees screens the switchyard area from the approach road, thus emphasizing the main gate, tourist facility and forecourt as the point of entry to the plant.

Inside the plant area the service roads tie the facilities together in a direct, compact manner.

The administration offices are adjacent to, but acoustically separated from the main building and the

workshops. Both floor levels of the administration building will have direct access through the acoustic separation to a stairwell and elevator lobby serving the various floor levels of the power building proper. The service area and workshops are located directly adjoining the powerplant, permitting level access to the shops.

The buildings are to be steel framed, clad with a metal sandwich panel. These panels have a 50 to 75 mm urethane or perlite core, with a prefinished or prime painted steel inside skin and an outside skin of prefinished steel. These panels are preformed, easily shipped, light to handle and erect, and permit a unification of treatment and colour throughout the project. Windows are built into the panels where required, and where appropriate are double glazed and sized with a concern for energy conservation. The inside finish of the panel is the finished interior wall surface. The use of rounded forms (i.e. corners in both the horizontal and vertical planes) is designed to relate the buildings to the surrounding terrain, which is basically one of gentle rolling hills. Curves are preformed and the panels can be adapted to a variety of uses and enclosures. The prefinished exterior surface permits the use of strong colours in a high gloss finish, minimizing maintenance.

The stack and cooling towers would be natural concrete. The boiler house cladding will recall this basic grey in its steel panel exterior. The turbine house, auxiliary bay and the precipitators, will be treated in a combination of dark blues and greens which recall and blend with the background mountains and natural foliage.

The administration building, service and workshop areas, guard house and tourist centre will be predominantly a dark red, to give emphasis to the more

normally scaled structures in the complex. The colours would be repeated in the various mine buildings, emphasizing the unity of the overall development and providing interesting distant views. All ancillary structures on the site will be steel framed with prefinished metal cladding compatible with the major buildings.

Generally, it is felt that the cladding proposed (preformed panels with a high gloss finish in strong colours) supports the high technology environment created by the structures themselves.

MINE SERVICE AREA

The layout of the mine buildings has been studied and a concept developed which expresses a concern for organization. Offices, laboratories and 'clean' areas generally are separated and located to provide good pedestrian circulation internally as well as a convenient relationship with yards and repair areas. This office/laboratory complex acts as the focal point at the approach to the mine installation. A skylighted pedestrian concourse extends from the administration building through to the maintenance yard with direct access from the concourse to laboratory facilities and the mine dry. Private vehicles would approach the administrative area from the access road without passing through the workshop/warehouse area, while heavy vehicles from the mine and blending area have direct access to the heavy duty areas. The mine dry, equipped with separate sets of lockers for street attire and working clothes, provides the transition facility between 'clean' and 'dirty' areas.

The layout of storage yards and laydown areas is designed to take advantage of the natural grades by utilizing cuts and mounds to define and screen them.

The building grouping has concern for distant viewing, particularly from a visitors' lookout suggested for the Harry Lake area.

A steel frame structural system utilizing preformed steel faced sandwich panels will accommodate all the building types in the mine installation and relates directly to the treatment of the powerplant structures in form, materials, and the use of colour. Those structures vulnerable to the movement of heavy equipment such as repair bays and work areas will be provided with cast-in-place concrete walls from grade to door head height, with steel framed and steel panel cladding for the superstructure.

Once again it is recommended that all ancillary structures be steel framed, with metal cladding of a type and colour to tie in with the major structures. Conveyors, equipment, etc. should relate to the overall installation through the use of colour.

OFFSITES

WATER SUPPLY SYSTEM

Water supply system from the Thompson River – water intake structure, high pressure booster station and intermediate booster station.

In the case of these structures, their relationship to their immediate surroundings was given precedence over their relationship to the other more remote structures in the power plant and mining facilities.

For the water intake structure, the architectural concept is directed towards recalling in form, colour, and texture, the cliffs in the immediate background. This is accomplished by the use of textured precast panels, moulded and coloured to be sympathetic with the natural cliff face.

The high pressure booster station is also designed to blend in colour and texture with its immediate surroundings, once again through the use of precast, pre-coloured concrete panels. The building is located to provide a switchyard area at an intermediate elevation between building and natural cliff face, providing visual screening of the switchyard equipment from the surrounding area.

The clarifier and clear well are located on the upper bench, as required by hydraulics, and are partially screened by landscaped berms moulded to tie in with the surrounding terrain. Care has been taken to balance cut and fill.

The intermediate booster station is similar in treatment to the main booster station, using form, materials and grading to blend into the landscape.

Overall, the architectural concept is directed towards integrating the man-made elements with their natural surroundings.

MINE

Because of its impact on Highway 12 as it approaches and enters Marble Canyon, it is recommended that the coal blending area be visually separated by the development of mounds or berms located on either side of the plant access road where it joins Highway 12. The extent of these berms will be determined by sight lines and the amount and nature of the spoil available. Further screening berms should be considered along the east face of the open pit, adjoining the Hat Creek Road and the plant access road.

It is recommended that the pit edge be strongly identified by a perimeter road, should the mining technique adopted permit.

OVERLAND COAL CONVEYOR

The main coal conveyor, extending from the coal blending area to the power-plant, is a major linkage element. It is recommended, however, that for reasons of economy and utility the conveyor be on grade with a metal enclosure that permits viewing of and access to the conveyor from the outside throughout its length, but without interior walkway. Where the conveyor crosses the access road it will be located under the road, with interior man access in these locations.

Because of the configuration of the conveyor route and the nature of the enclosure it is recommended that the treatment of the conveyor be directed towards subduing it as a linkage element and blending it in with its surroundings through the use of colour, and in critical areas screening by berms and/or planting.

The proposed location of the cooling towers, as indicated in the overall plant layout, would require a slight re-alignment of the coal conveyor.

ASH DISPOSAL AREA

Care should be taken to retain the natural vegetation separating the ash disposal area from the access road. Viewing of this element should be further restricted by the constructon of berms and tree groupings. The disposal area itself should be progressively cleared, and if possible progressively reclaimed. The ash disposal dam should be contoured and landscaped to tie in with the existing terrain.

WASTE DISPOSAL AREAS

The same recommendations apply as for the ash disposal area, with particular consideration given to the contouring and landscaping of the Houth Meadow embankment.

STATION RESERVOIR

As this feature will be overlooked by a proposed tourist lookout, consideration should be given to edge treatment and embankments. The flooded area should be cleared of stumps and debris, and the earth dam contoured to tie in with surrounding terrain. The pumphouse and discharge structures should be metal clad to relate to the other project secondary structures.

HAT CREEK DIVERSION

Recommendations have been made in the detailed Environmental studies to provide one or more permanent lakes at the points where sidehill creeks occur to enhance the landscape.

TRANSMISSION LINES

Proposals concerning modulating the clearing at the corridor edge, the avoidance of natural treed areas, and tower design, have been made. It is also recommended that the 500 KV corridor be re-routed to pass east of the reservoir and north of the powerplant, as shown on the architectural site plan. This would prevent a conflict of elements at the main entry to the plant.

ACCESS ROAD, SERVICE ROAD

Recommendations regarding routing, fit to landform, edge treatment, screening from disposal areas, have been made in the Detailed Environmental Studies.

WATER PIPELINE CORRIDOR

It is recommended that, where possible, this corridor avoid heavily treed areas. The edge treatment should be contoured and modulated to blend in with existing landscape. Further consideration should be given to the possibility of combining the water pipeline corridor with other service routes such as the transmission line right-of-way and the access road.

AIRSTRIP

If this facility is approved for construction, structures and edge treatment should be studied at the selected site.

CONSTRUCTION CAMPS

Recommendations will be made to see that temporary camps interfere as little as possible with natural contours and vegetation. In the case of the mine campsite, it is recommended that it be located for eventual conversion to a laydown area.

TOURIST FACILITIES

Although figures are not presently available to determine traffic volumes using Highway 12 and the volume anticipated for the new access road, both routes extending through Hat Creek Valley from Highway #1 to Marble Canyon, it has been assumed that the Hat Creek thermal development will generate considerable public interest, and a large number of visitors will have to be accommodated. These will be both travellers taking advantage of the convenient opportunity to view the plant, and visitors interested enough to make a side trip of approximately 50 kilometres from the main highway.

Generally speaking, visitors will fall into three categories. Those whose casual interest will be satisfied by the opportunity to view the elements of the development from one or more lookouts, and who would make use of conveniently located picnic grounds, rest areas, etc. The second category comprises visitors whose interest extends to a closer view of the plant elements, and who would take advantage of conducted tours through the plant area should they be offered. The third category is made up of organized groups, technical or otherwise, whose visit is usually pre-arranged and who are interested in a detailed tour of all available aspects of the thermal plant installation.

The bulk of the visitors will fall into the first category, and to accommodate them it is proposed that two lookouts be developed, one immediately north-east of Harry Lake, and the other occupying a knoll located between the powerplant proper and the reservoir adjacent to the Meteorlogical Station.

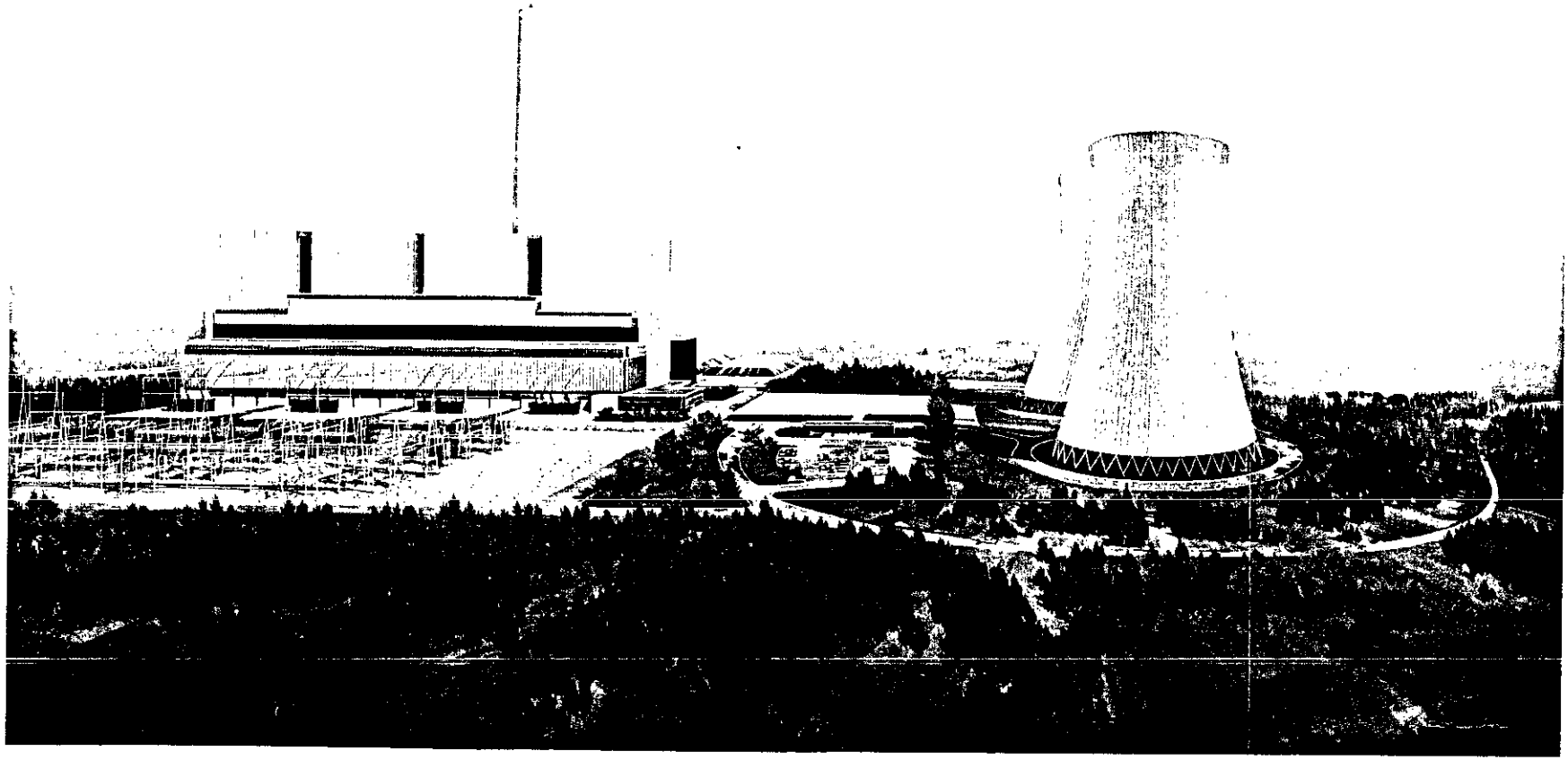
The Harry Lake site occupies a plateau of approximately 6000 sq. m. and offers a commanding view of the mine pit and mine building area, the Houth Meadow embankment and the entrance to Marble Canyon to the west, and the powerplant to the north-east. The terrain will permit walkways to viewpoints, Harry Lake and picnic areas. Basic rest rooms, shelter and parking will be provided.

The second lookout, located between the plant and the reservoir, would provide a parking area and a viewpoint overlooking the coal handling side of the powerplant to the north-west and the make-up reservoir to the south-east, as well as a commanding view of Hat Creek Valley to the north. In this location a basic shelter with rest rooms would be provided.

In addition to these two lookouts, the casual visitor would be able to approach the entrance to the powerplant, located adjacent to the cooling towers, where a parking area and a visitors' display centre will be provided adjoining the guard house. Here the visitor is free to enter the Centre, which will provide an information display, rest facilities, and a close-up view of the forecourt, cooling towers and the powerplant.

For those visitors interested in a closer look at the elements of the plant this Visitors' Centre will act as a starting point for conducted tours into the plant. The tours will be scheduled at designated hours during the day and will probably be limited to the peak tourist season. This policy will be developed when more information is available regarding seasonal demand, peak numbers of tourists, etc.

The third category of visitor, organized groups of interested citizens or technical people, will arrive at the guard house and will be permitted to drive to the administration building, where they will be met by the designated authority for the start of their specific tour.

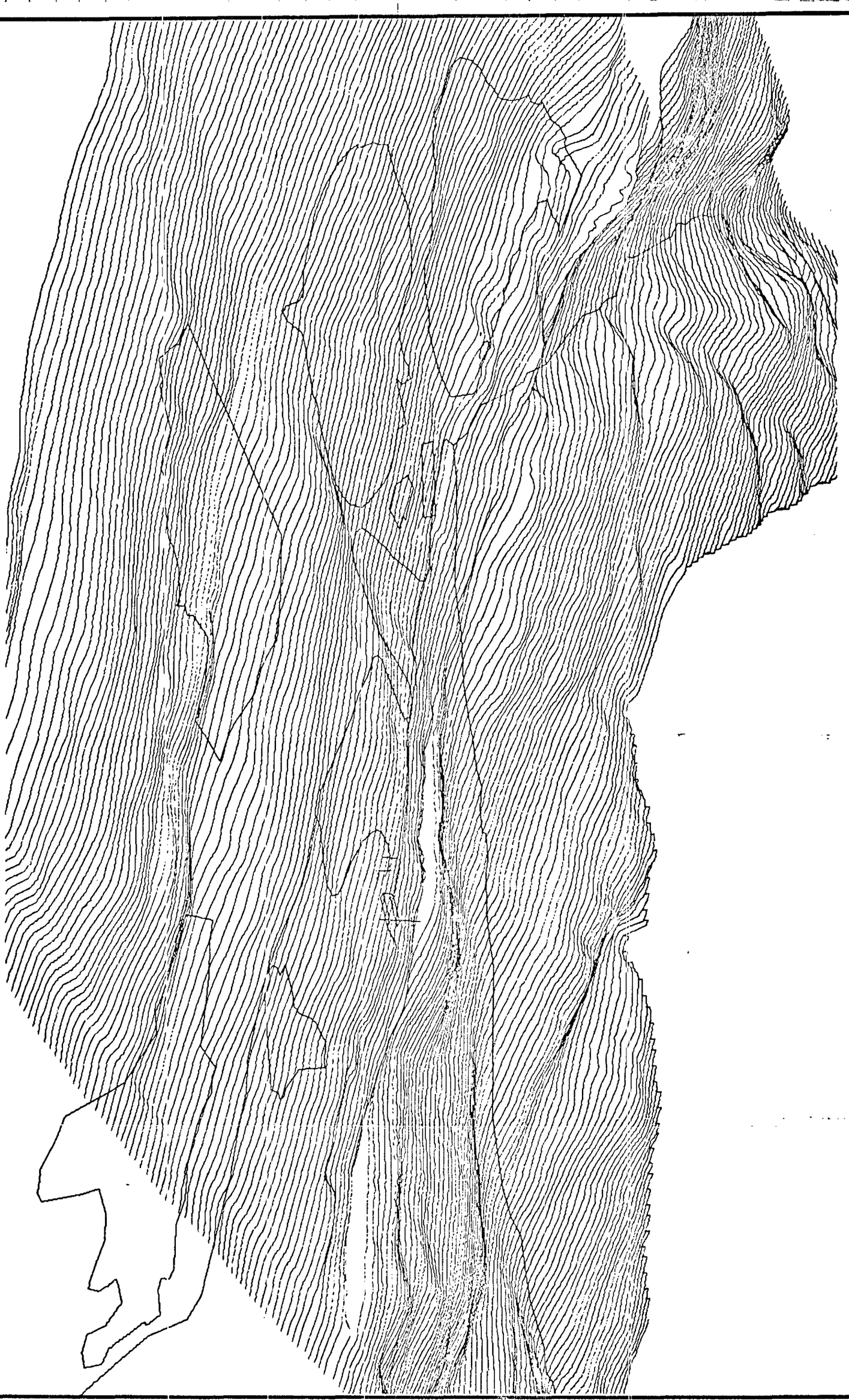


POWERPLANT FROM WEST

BRITISH COLUMBIA HYDRO & POWER AUTHORITY

HAT CREEK PROJECT

TOBY RUSSELL BUCKWELL & PARTNERS ARCHITECTS



COMPUTER GENERATED PERSPECTIVE VIEW FROM SOUTH EAST

CENTRE OF PLOT: ALTITUDE = 9235 M DISTANCE = 27 K

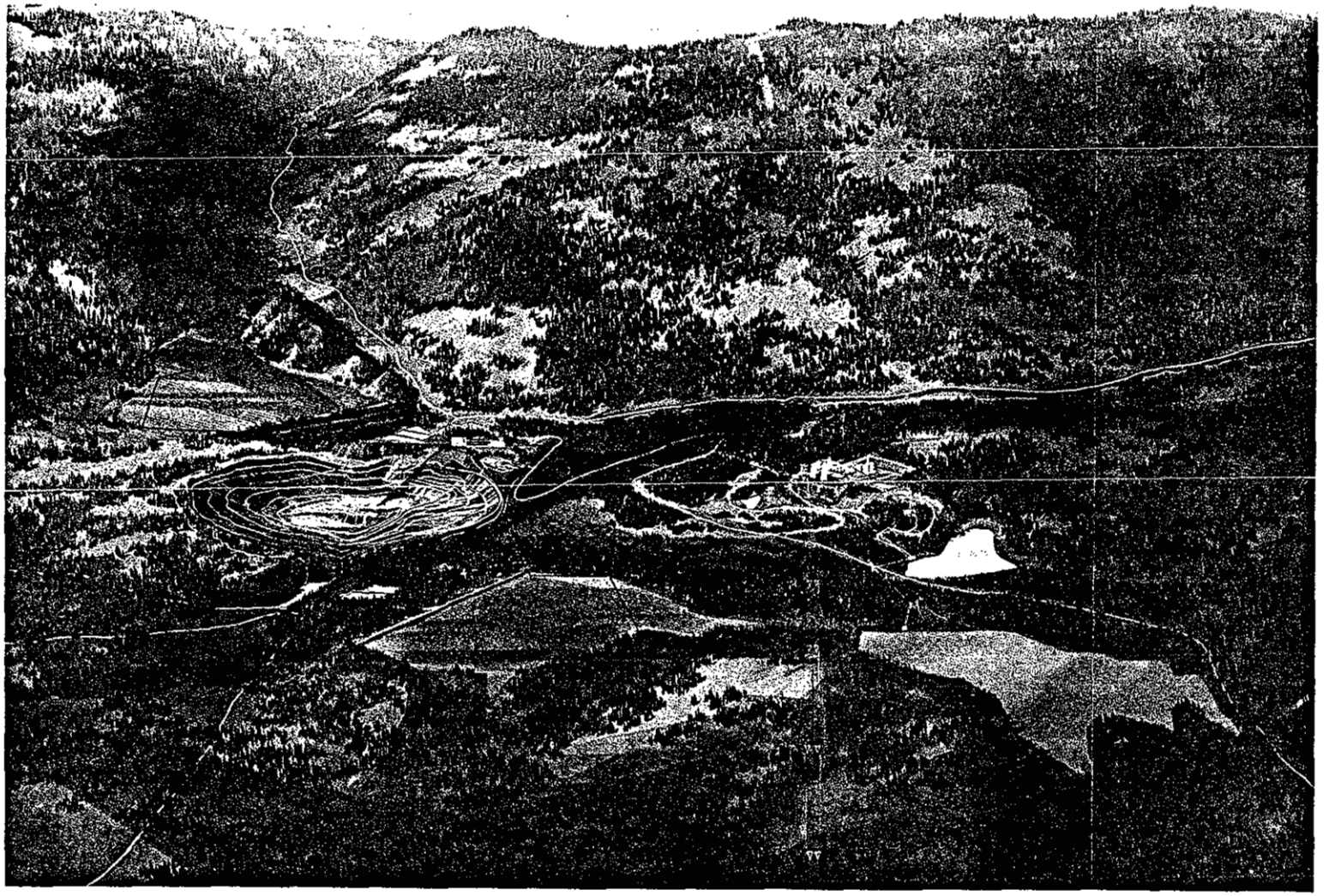
BRITISH COLUMBIA HYDRO & POWER AUTHORITY

HAT CREEK PROJECT

1650 ALBERNI STREET VANCOUVER BC CANADA TELEPHONE 682-6887

TOBY RUSSELL BUCKWELL & partners architects

DATE	JOB NO	DRAWN	CHECKED
SEPT '78			



VIEW FROM SOUTH EAST

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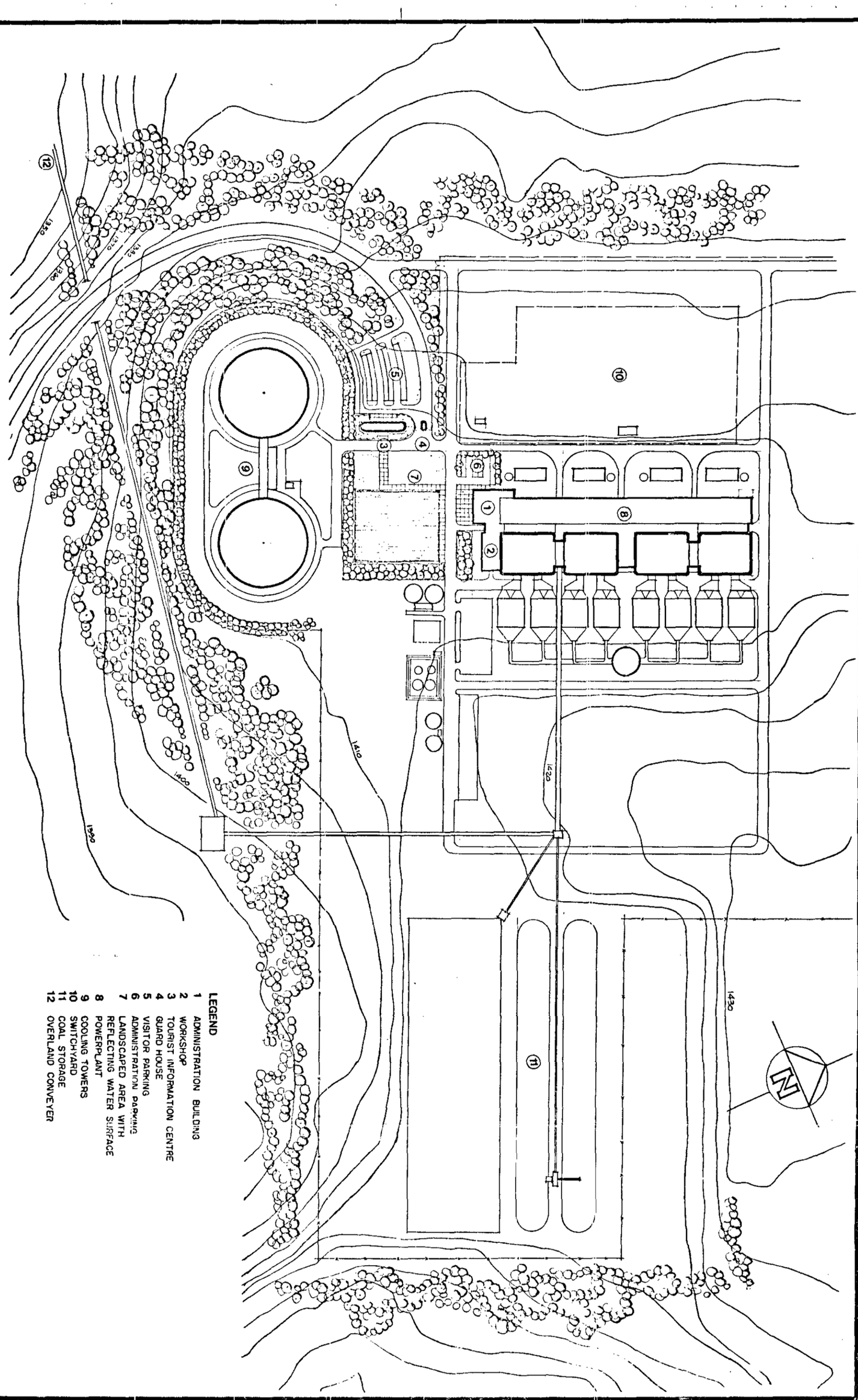
TOBY RUSSELL BUCKWELL & PARTNERS ARCHITECTS

POWERPLANT SITE PLAN



LEGEND

1 ADMINISTRATION BUILDING
2 WORKSHOP
3 TOURIST INFORMATION CENTRE
4 GUARD HOUSE
5 VISITOR PARKING
6 ADMINISTRATION PARKING
7 LANDSCAPED AREA WITH REFLECTING WATER SURFACE
8 POWERPLANT
9 COOLING TOWERS
10 SWITCHYARD
11 COAL STORAGE
12 OVERLAND CONVEYER

SCALE IN METRES
0 50 100 200 300

BRITISH COLUMBIA HYDRO & POWER AUTHORITY
HAT CREEK PROJECT

1800 ALBERNI STREET VANCOUVER BC CANADA TELEPHONE 687-6881
TOBY RUSSELL BUCKWELL & partners architects

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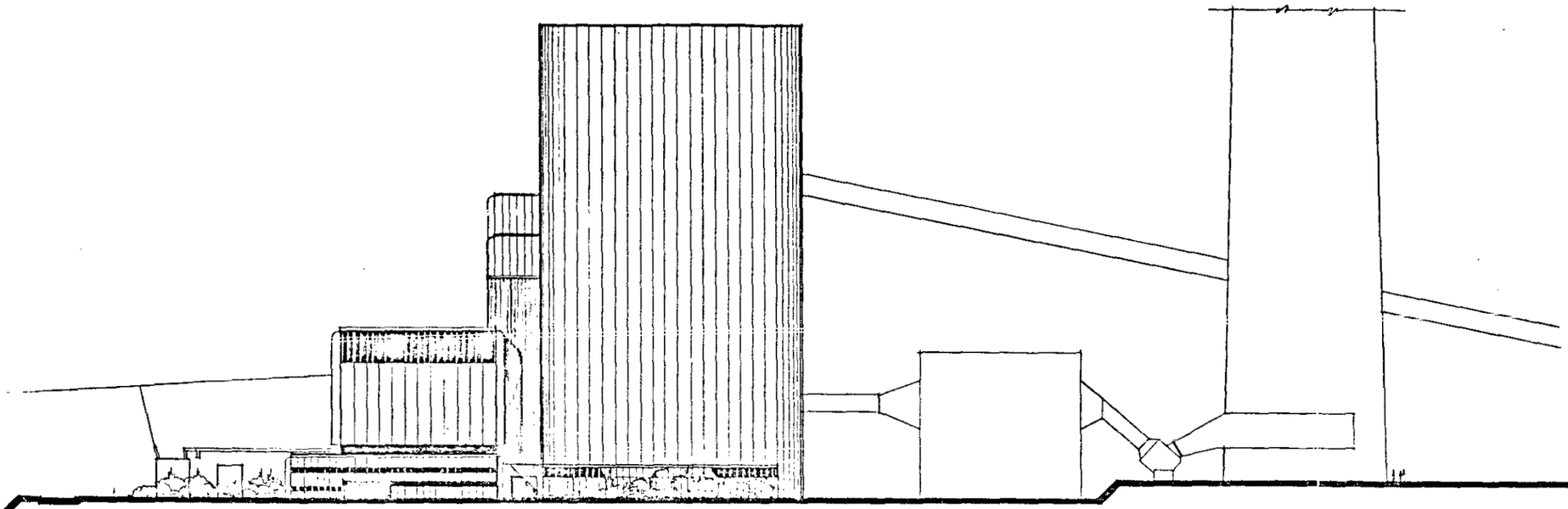
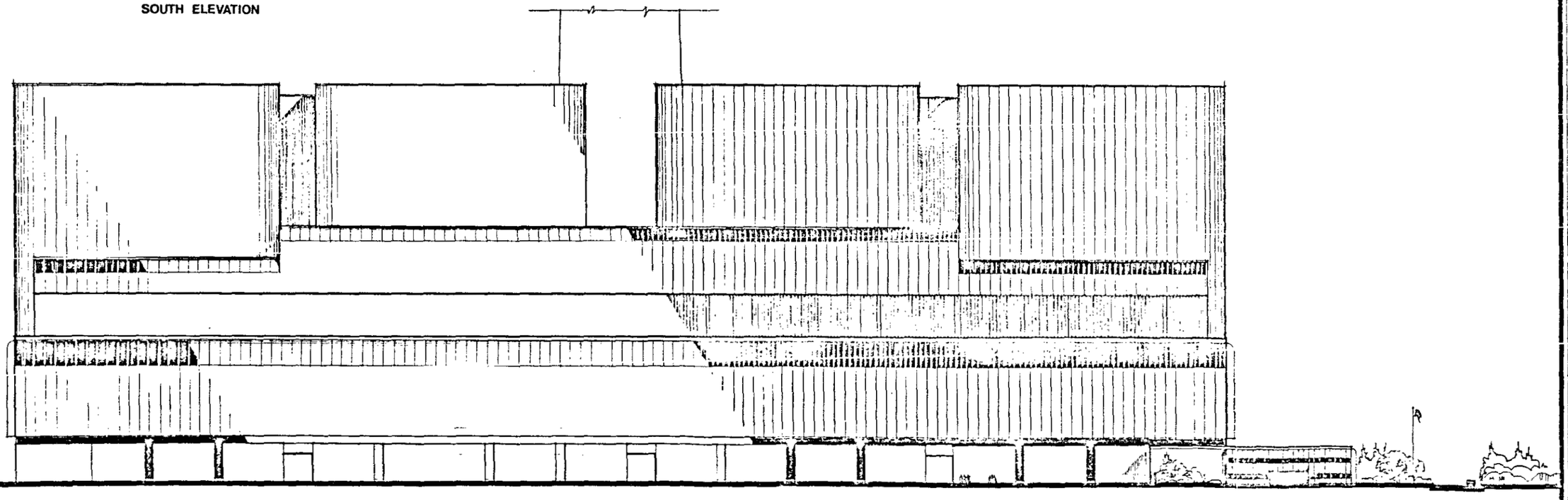


SOUTH ELEVATION



WEST ELEVATION

POWERPLANT ELEVATIONS

0 10 20 30 40 50

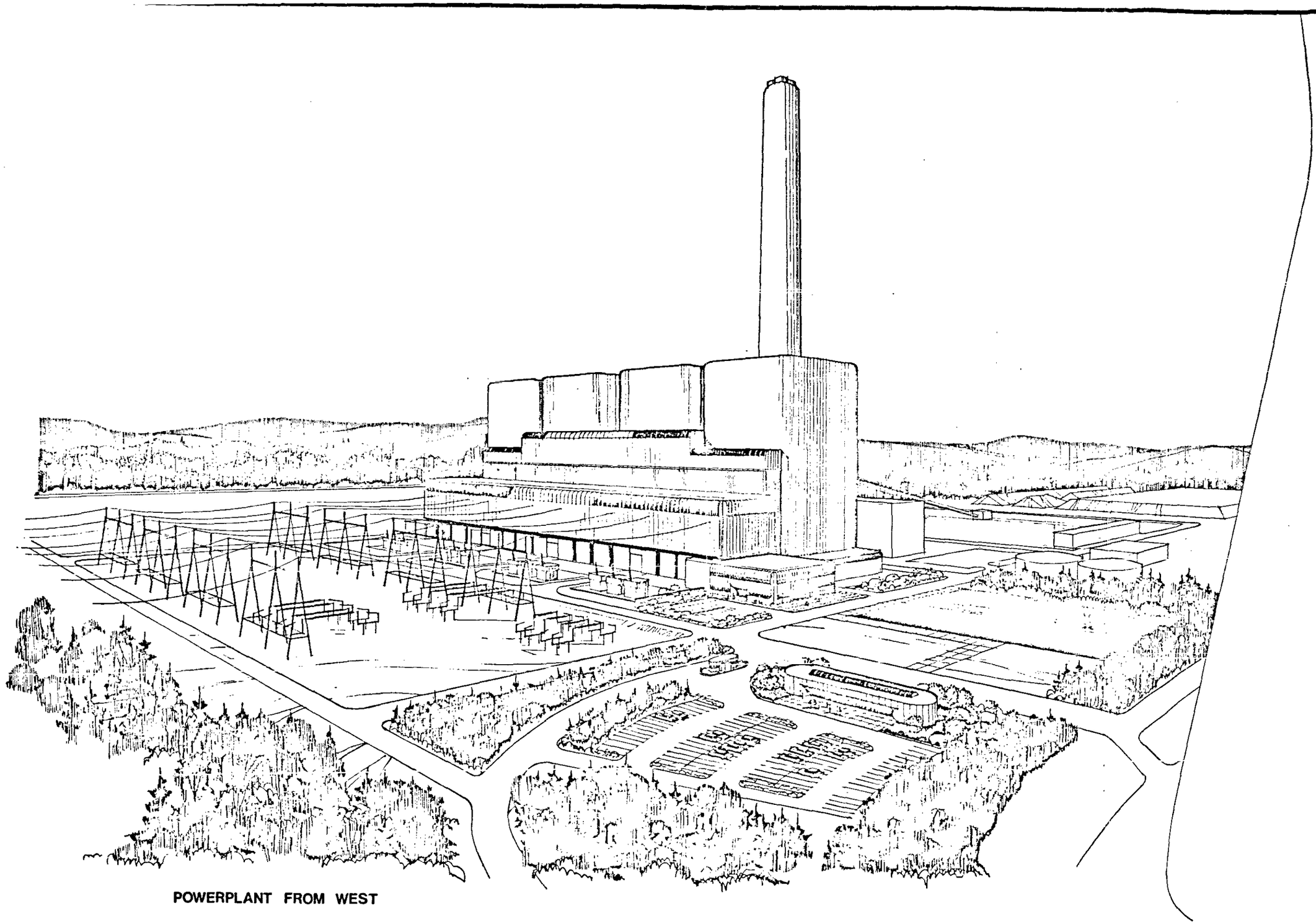
SCALE IN METRES

TOBY RUSSELL BUCKWELL & partners architects

DATE SEPT '78 | JOB NO | DR'G NO | CHECKED

BRITISH COLUMBIA HYDRO & POWER AUTHORITY

HAT CREEK PROJECT



POWERPLANT FROM WEST

TOBY RUSSELL BUCKWELL & partners | architects
1900 ALBERNI STREET VANCOUVER BC CANADA TELEPHONE 683-1481

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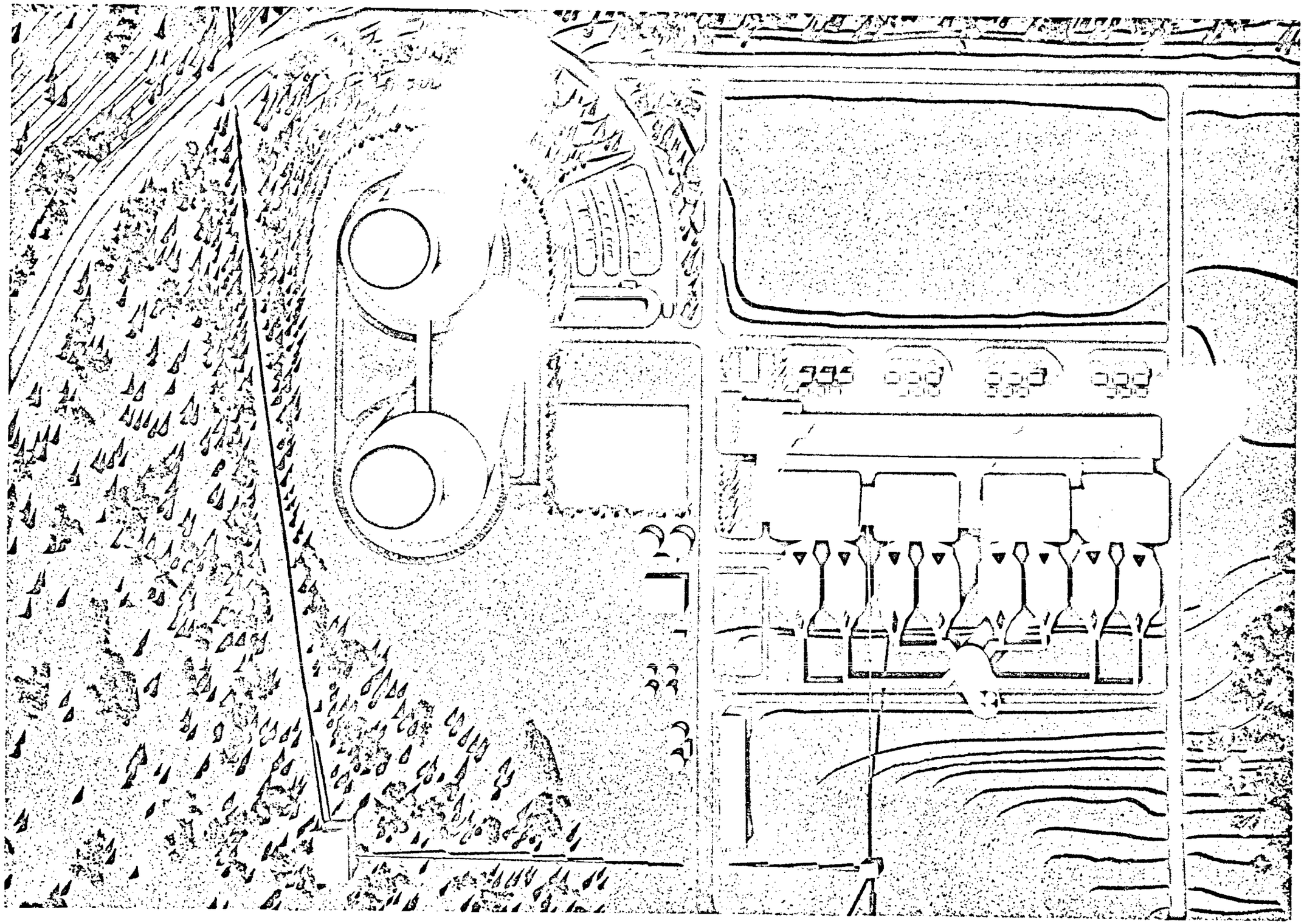
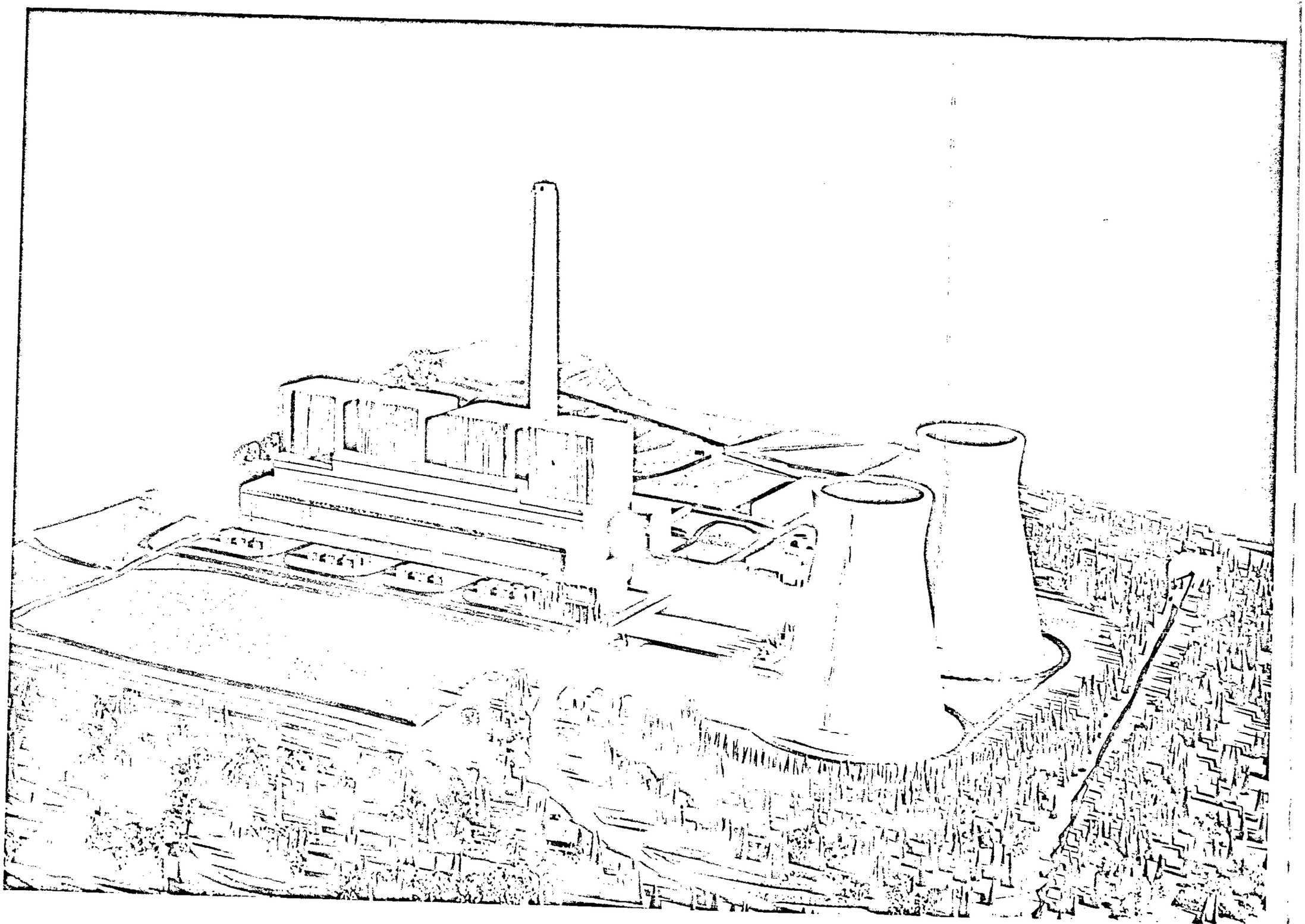
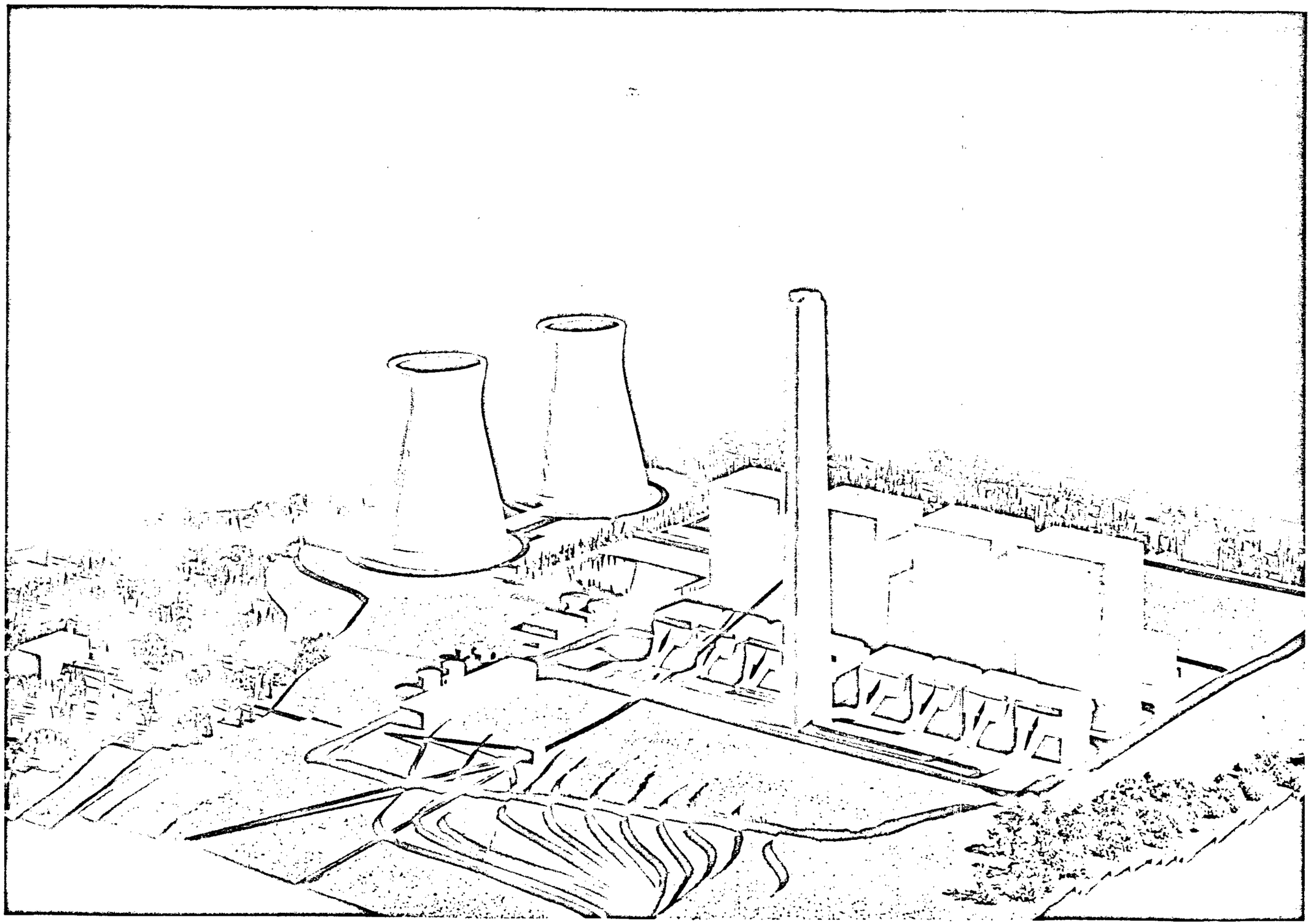
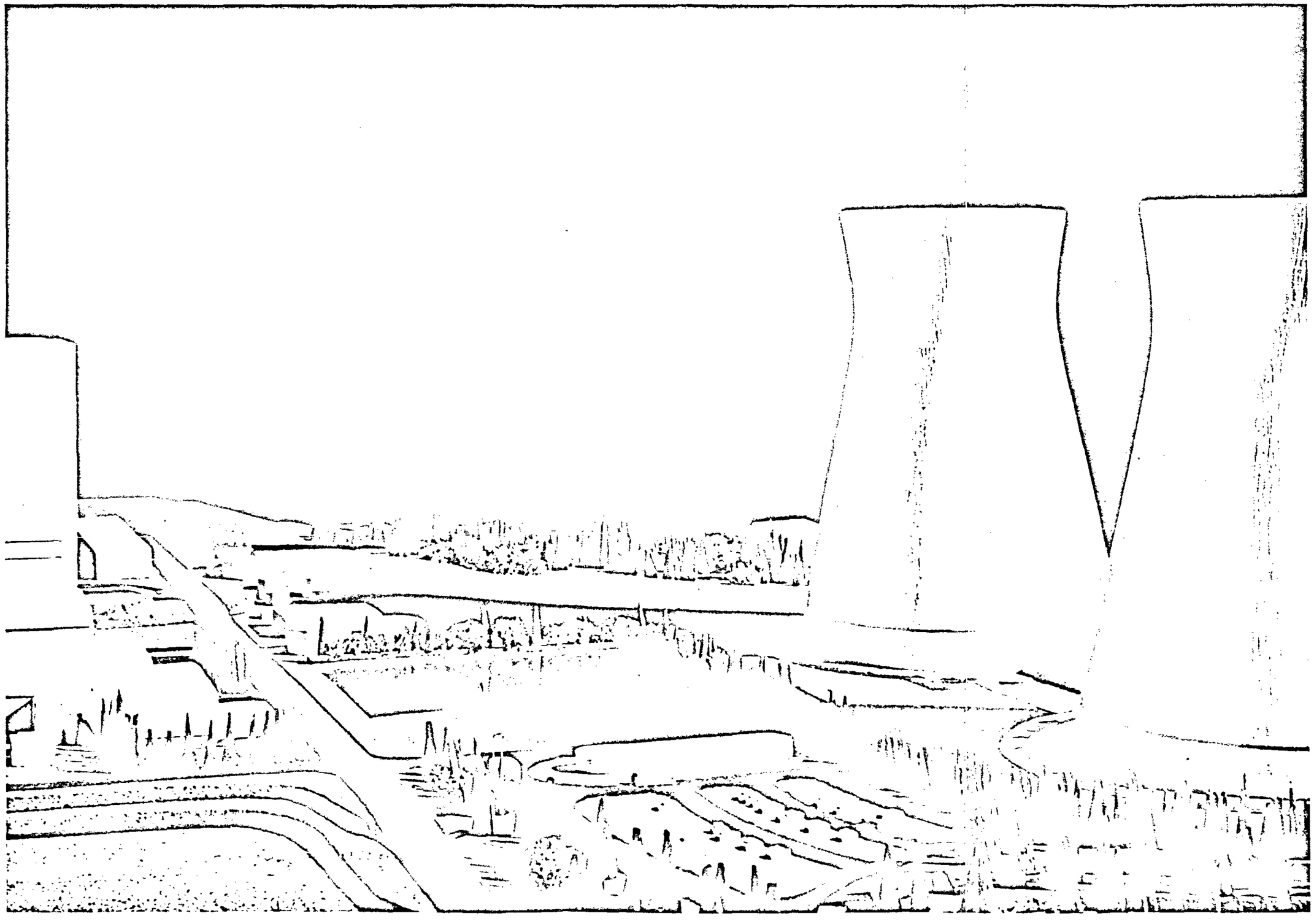
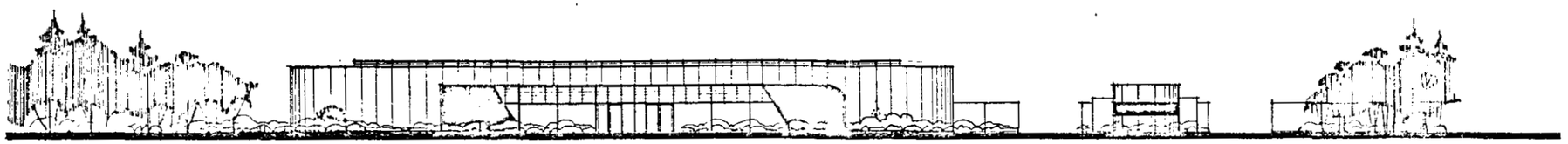
HAT CREEK PROJECT



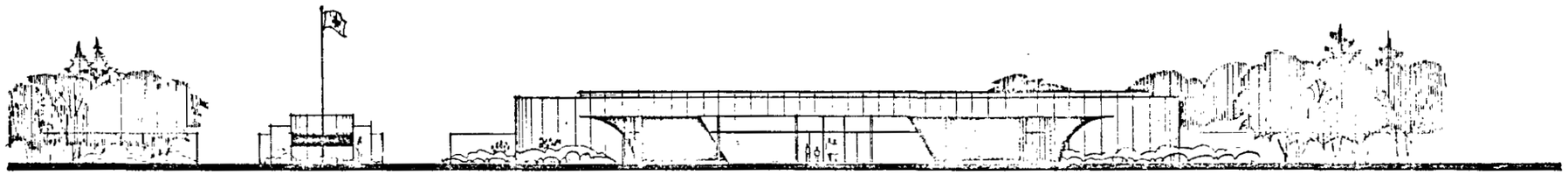




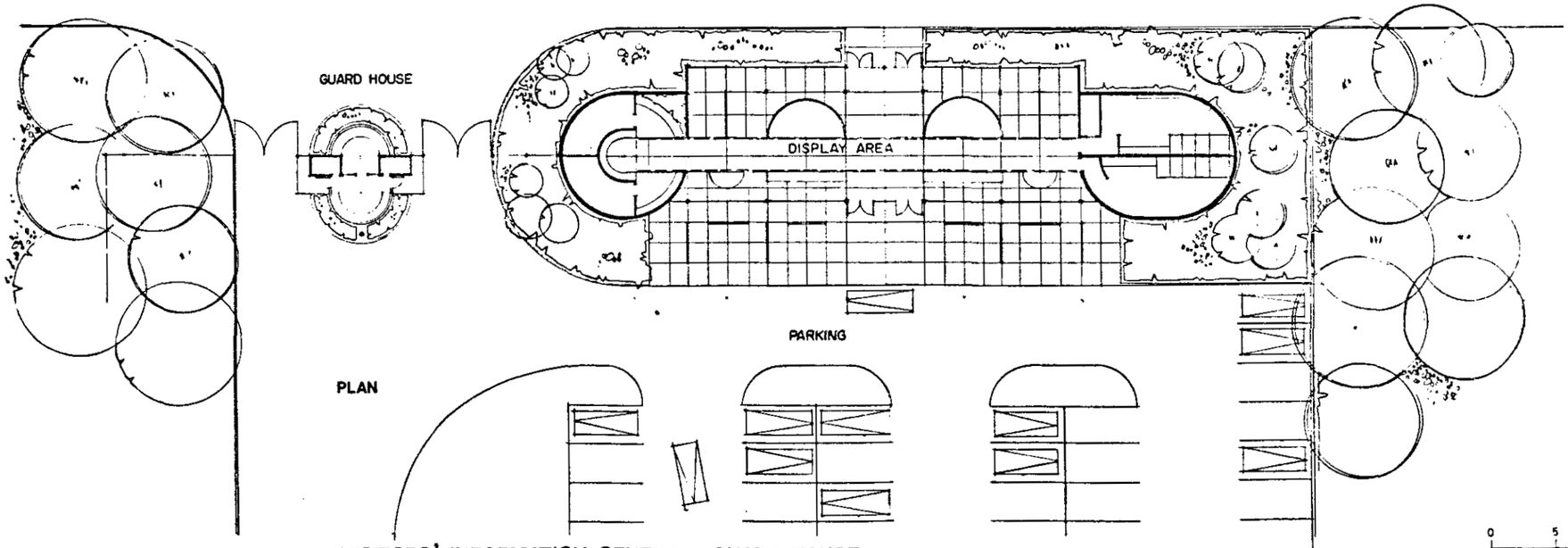




EAST ELEVATION



WEST ELEVATION



PLAN

VISITORS' INFORMATION CENTRE & GUARD HOUSE

0 5 10 15 20

SCALE IN METRES

TOBY RUSSELL BUCKWELL & partners architects
1550 ALBERNI STREET VANCOUVER BC CANADA TELEPHONE 683-8861

DATE SEPT '78
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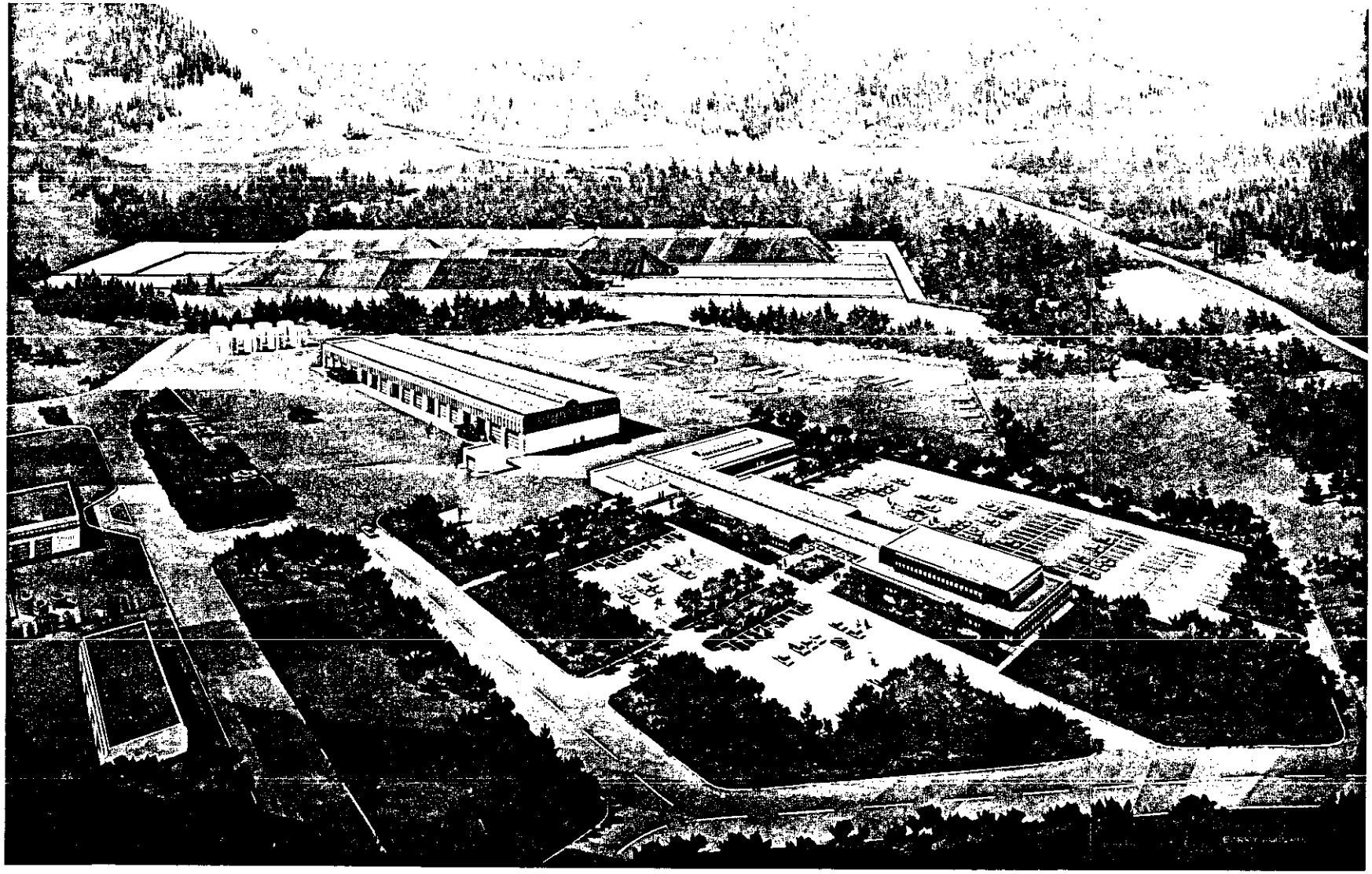
BRITISH COLUMBIA HYDRO & POWER AUTHORITY

HAT CREEK PROJECT

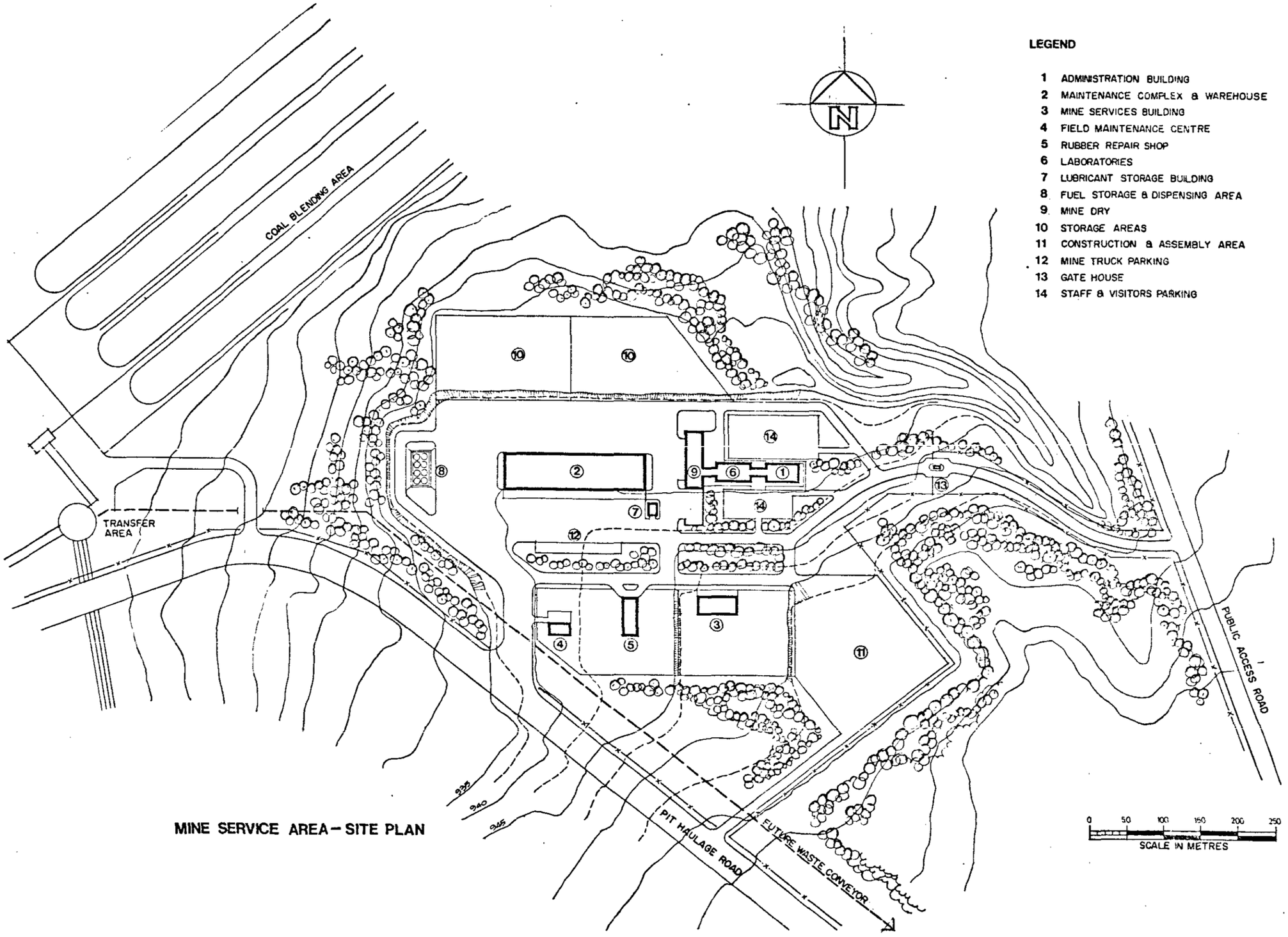


MINE SERVICE AREA FROM SOUTH EAST

BRITISH COLUMBIA HYDRO & POWER AUTHORITY

HAT CREEK PROJECT

TOBY RUSSELL BUCKWELL & PARTNERS ARCHITECTS



MINE SERVICE AREA – SITE PLAN

TOBY RUSSELL BUCKWELL & partners architects

DATE SEPT '78

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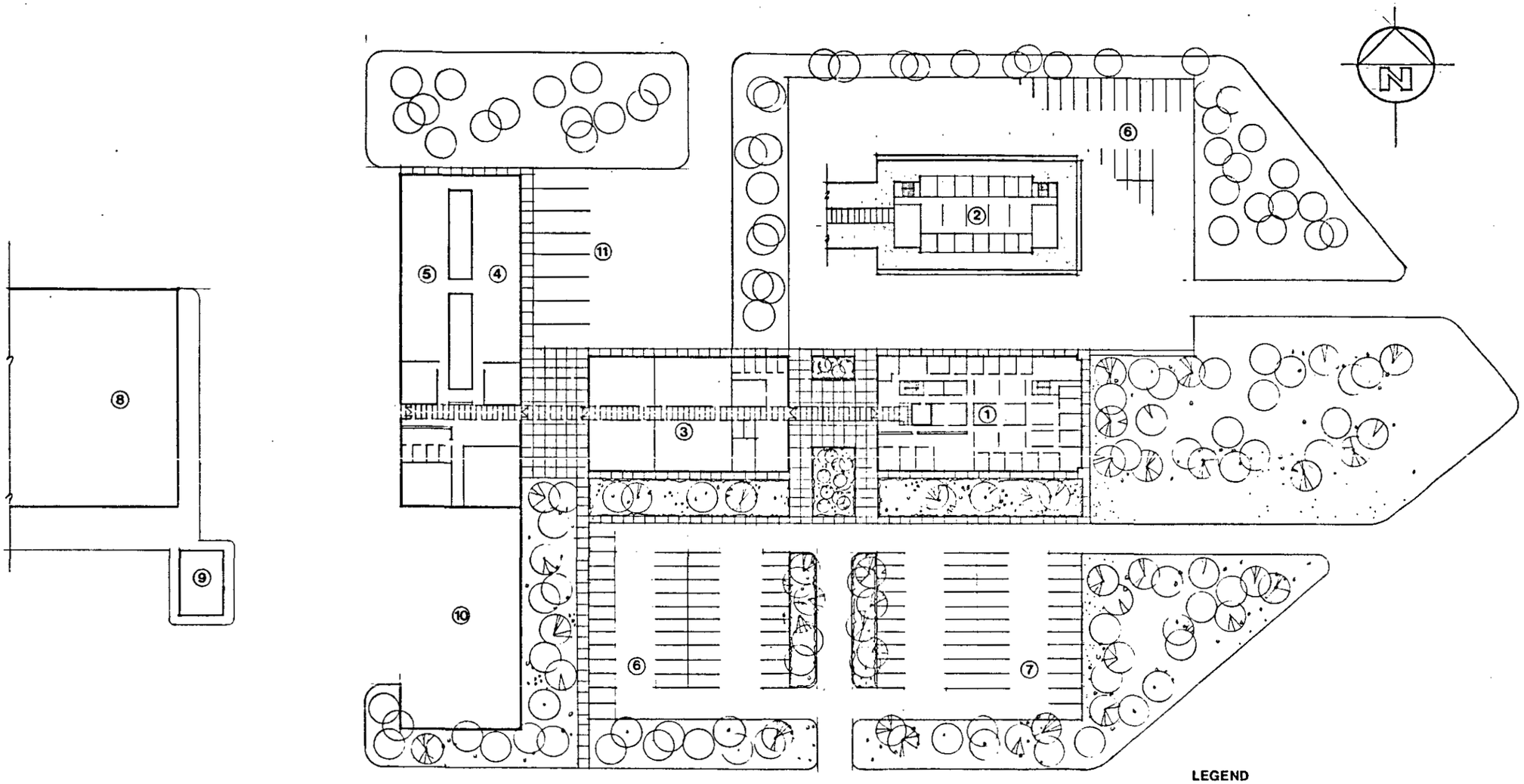

MINE SERVICE AREA – PARTIAL PLAN

0 10 20 30 40 50

SCALE IN METRES

LEGEND

1 ADMINISTRATION BUILDING – GROUND FLOOR
2 ADMINISTRATION BUILDING – UPPER FLOOR
3 LABORATORY BUILDING
4 MINE DRY – CLEAN AREA
5 MINE DRY – DIRTY AREA
6 STAFF PARKING
7 VISITORS PARKING
8 MAINTENANCE COMPLEX & WAREHOUSE
9 LUBRICANT STORAGE BUILDING
10 STORAGE YARD
11 BUS DROP OFF & PARKING

TOBY RUSSELL BUCKWELL & partners architects
1400 ALBERNI STREET VANCOUVER BC CANADA TEL (PHONE) 683-2881

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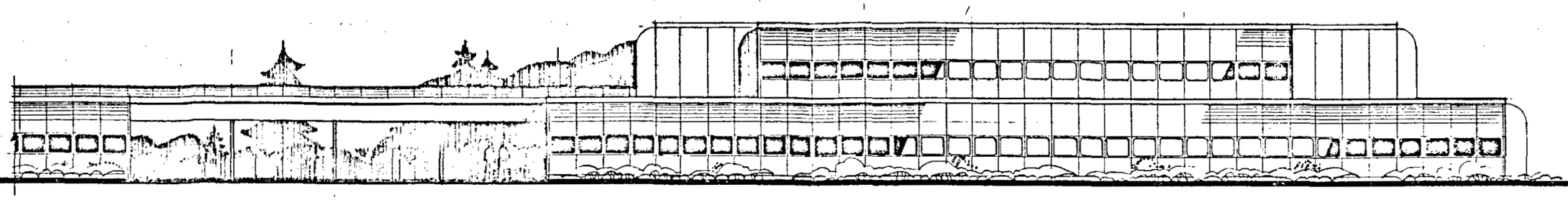
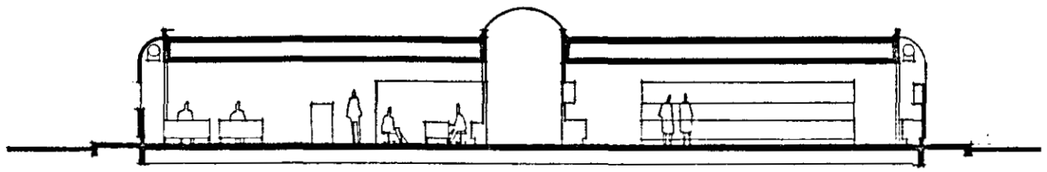
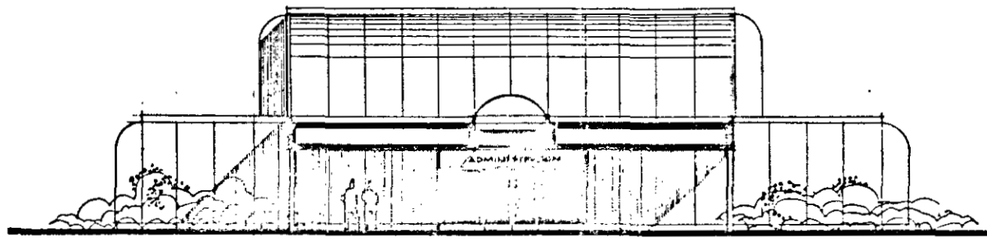


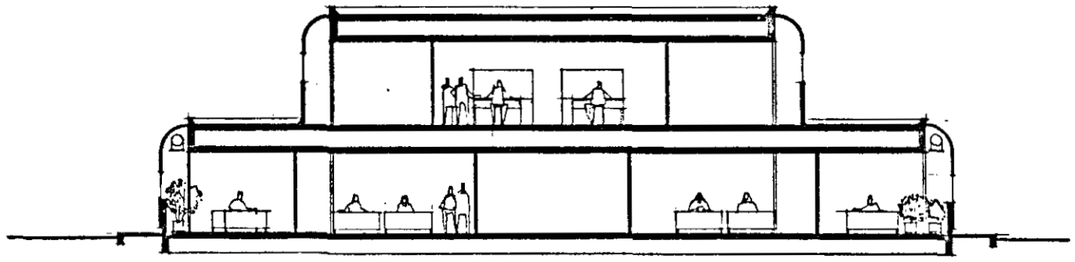
MINE ADMINISTRATION BUILDING — SOUTH ELEVATION



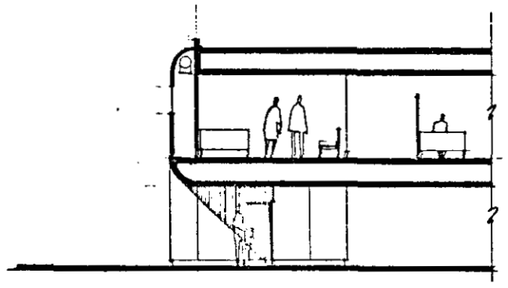
MINE LABORATORIES — SECTION



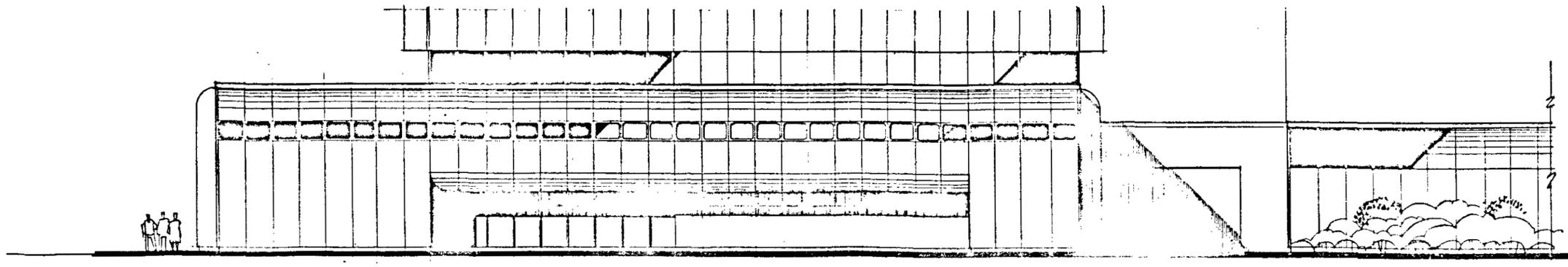
MINE ADMINISTRATION BUILDING — WEST ELEVATION



MINE ADMINISTRATION BUILDING — SECTION



ENTRANCE TO POWER PLANT
ADMINISTRATION BUILDING — SECTION



POWERPLANT ADMINISTRATION BUILDING — SOUTH ELEVATION

0 5 10 15

SCALE IN METRES

TOBY RUSSELL BUCKWELL & partners architects

1980 ALBERNI STREET VANCOUVER BC CANADA TELEPHONE 682-3881

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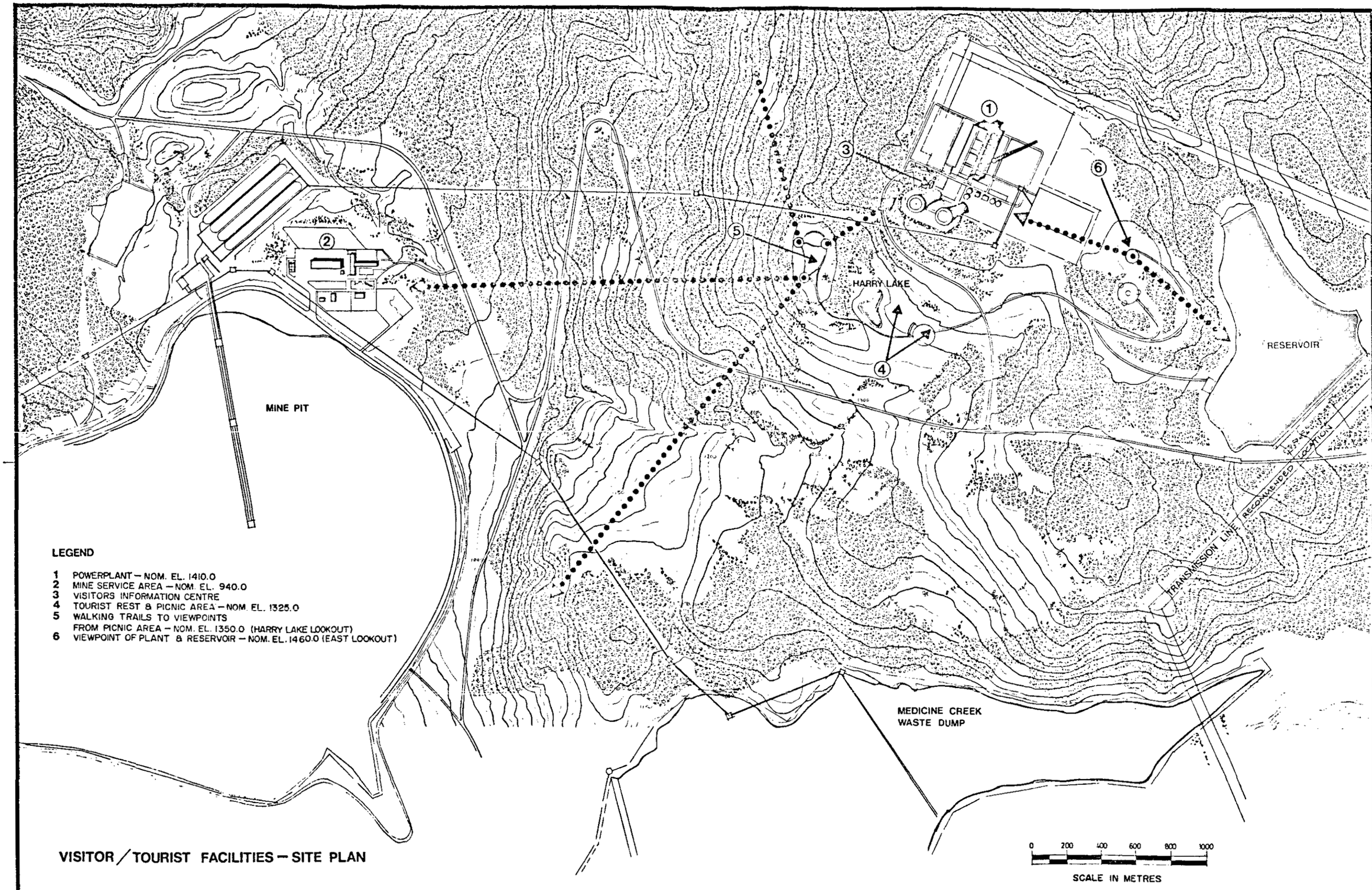


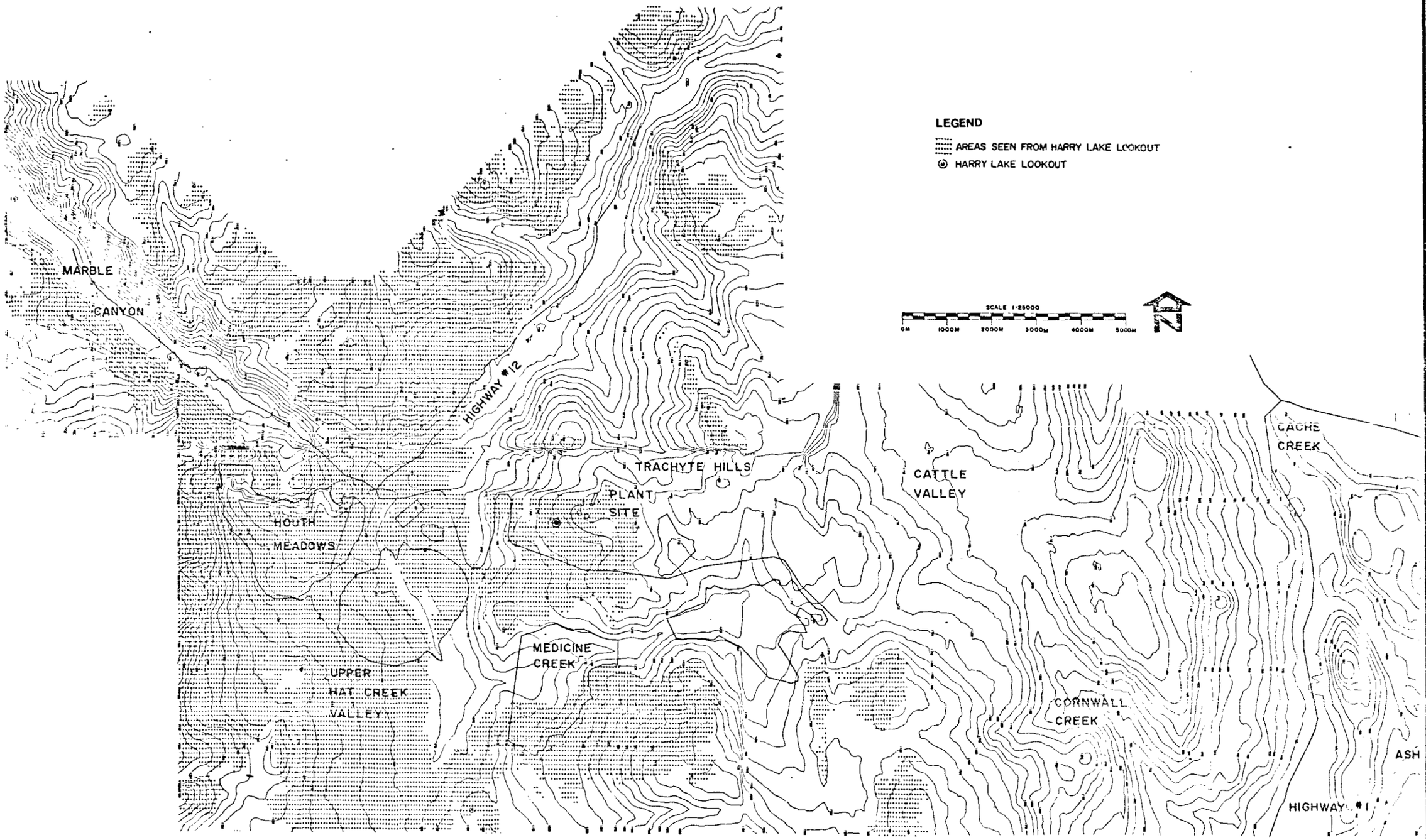
LEGEND

1 POWERPLANT – NOM. EL. 1410.0
2 MINE SERVICE AREA – NOM. EL. 940.0
3 VISITORS INFORMATION CENTRE
4 TOURIST REST & PICNIC AREA – NOM. EL. 1325.0
5 WALKING TRAILS TO VIEWPOINTS
FROM PICNIC AREA – NOM. EL. 1350.0 (HARRY LAKE LOOKOUT)
6 VIEWPOINT OF PLANT & RESERVOIR – NOM. EL. 1460.0 (EAST LOOKOUT)

VISITOR / TOURIST FACILITIES – SITE PLAN

TOBY RUSSELL BUCKWELL & partners architects
DATE SEPT '78

BRITISH COLUMBIA HYDRO & POWER AUTHORITY
HAT CREEK PROJECT



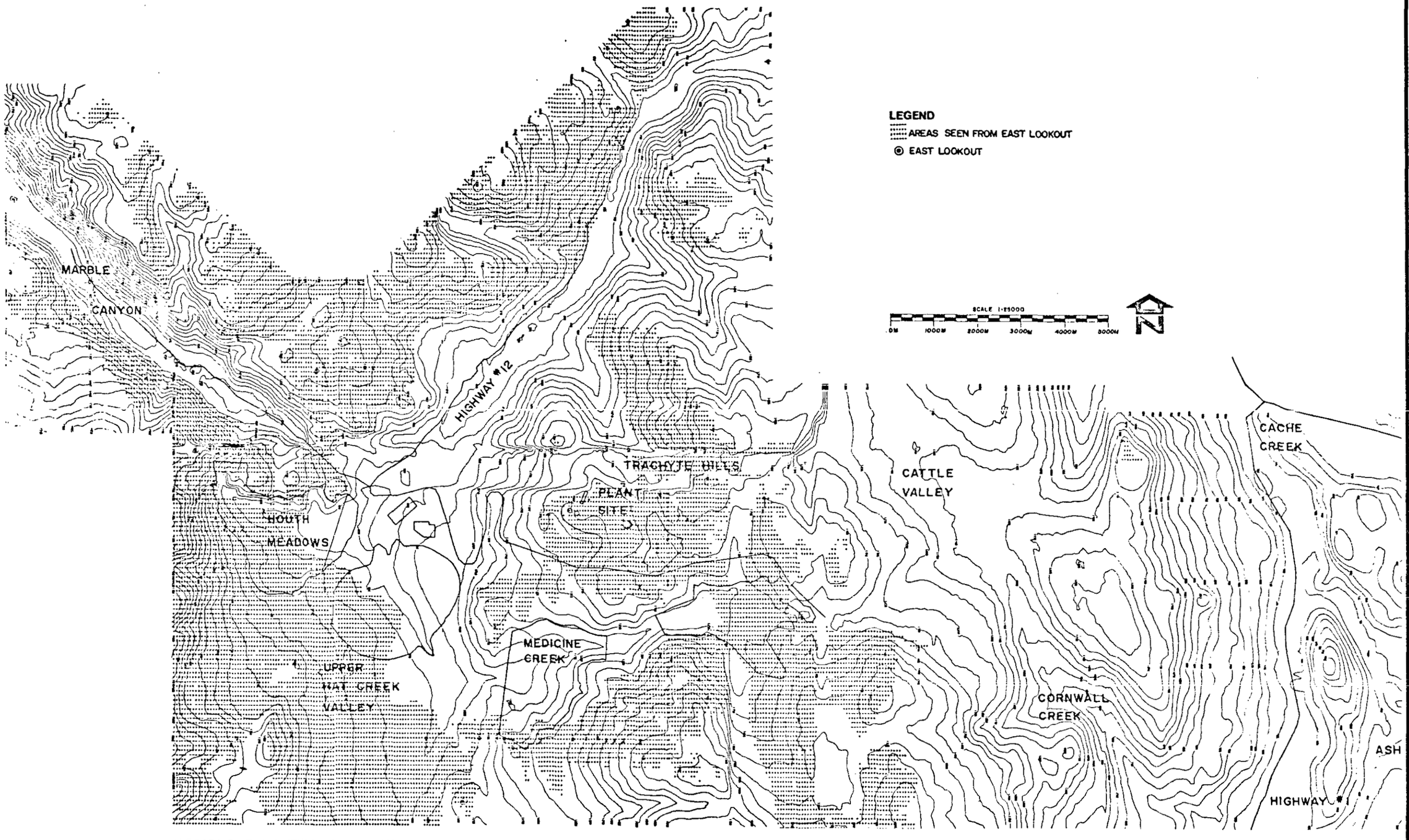
COMPUTER GENERATED VIEWABLE AREA
FROM HARRY LAKE LOOKOUT

TOBY RUSSELL BUCKWELL & partners architects
1680 ALBERNI STREET VANCOUVER BC CANADA TELEPHONE 687-3881

DATE SEPT '78 | JOB NO | DRAWN | CHECKED

BRITISH COLUMBIA HYDRO & POWER AUTHORITY

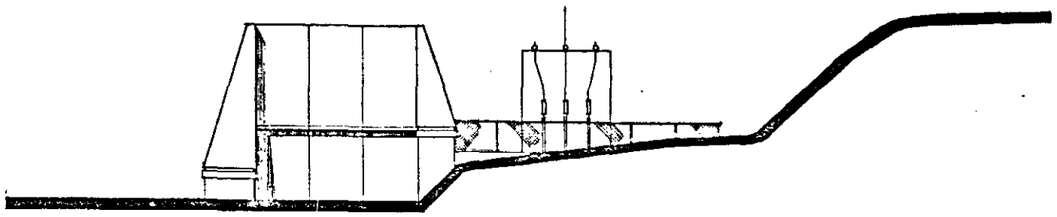
HAT CREEK PROJECT



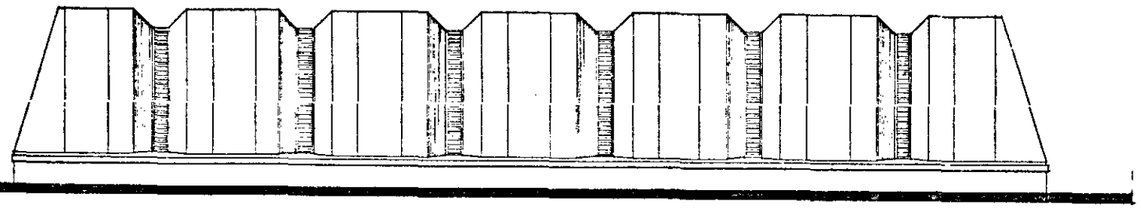
COMPUTER GENERATED VIEWABLE AREA
FROM EAST LOOKOUT

TOBY RUSSELL BUCKWELL & partners architects
1930 ALBERNI STREET VANCOUVER BC CANADA TELEPHONE 687-0861
DATE SEPT '78 JOB NO DRAWN CHECKED

BRITISH COLUMBIA HYDRO & POWER AUTHORITY
HAT CREEK PROJECT

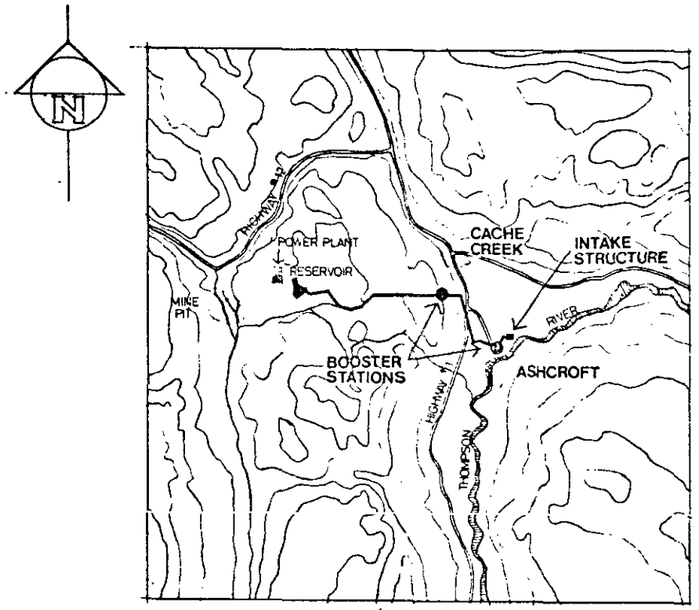


SIDE ELEVATION

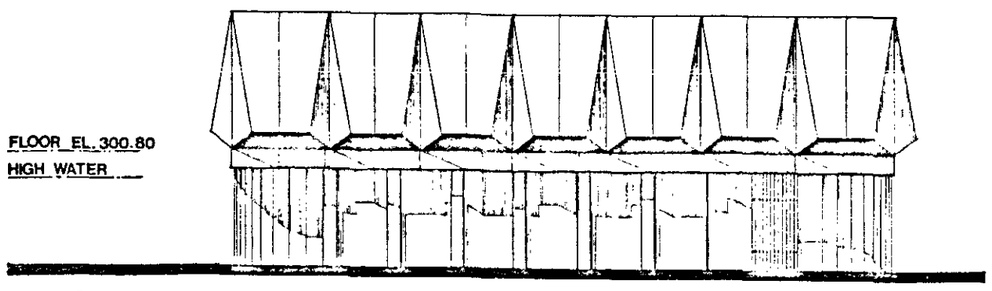


FRONT ELEVATION

BOOSTER STATION



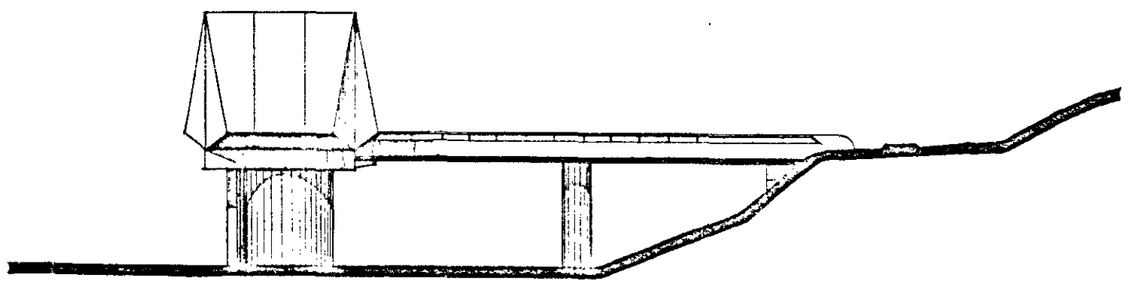
LOCATION PLAN



SOUTH ELEVATION

INTAKE STRUCTURE

COOLING WATER SUPPLY STRUCTURES



EAST ELEVATION

0 5 10 15 20

SCALE IN METRES

TOBY RUSSELL BUCKWELL & partners architects

1680 ALBERNI STREET VANCOUVER BC CANADA TELEPHONE 683-6881

DRAWN | CHECKED | JOB NO | DATE SEPT '78

BRITISH COLUMBIA HYDRO & POWER AUTHORITY

HAT CREEK PROJECT