

# **BACKGROUND INFORMATION #11**

## **Raquette River Settlement Key Parties**

**RAQUETTE RIVER SETTLEMENT KEY PARTIES (LIHI #11)**

Mr. Peter Skinner  
**American Whitewater Association**  
2 Snyder Road  
West Sand Lake, New York 12196  
(518) 674-5519 (home)  
(518) 474-2432 (work)

Mr. Bruce Carpenter  
**New York Rivers United**  
PO Box 1460  
199 West Dominick Street  
Rome, New York 13440  
(315) 339-2097

Ms. Betty Lou Bailey  
**Adirondack Mountain Club**  
4029 Georgetown Square  
Schenectady, New York 12303-5300  
(518) 355-0604

Mr. Jon Montan  
**St. Lawrence County Planning Office**  
48 Court Street, Courthouse Room 225  
Canton, NY 13617-13617-1194  
(315) 379-2281

Mr. David Stilwell  
**U.S. Fish and Wildlife Service**  
3817 Luker Road  
Cortland, New York 13045  
(607) 753-9334

Mr. George Outcalt  
**Adirondack Park Agency**  
PO Box 99  
Ray Brook, New York 12977  
(518) 891-4050

Mr. Len Ollivett (Retired)  
Ms. Alice Richardson  
**NYS Department of Environmental  
Conservation**  
317 Washington Street  
Watertown, New York 13601  
(315) 785-2267

Mr. Kevin Mendik  
**National Park Service**  
10<sup>th</sup> Floor  
Boston, MA 02109  
(617) 223-5299

I declare that the material presented in this application to the Low Impact Hydropower Institute for certification of the Raquette River Projects consisting of the Carry Falls Project (FERC No. 2060), Upper Raquette River Project (FERC No. 2084), Middle Raquette River Project (FERC No. 2320), and Lower Raquette River Project (FERC No. 2330) is true and complete to the best of my knowledge and belief.

The primary goal of the Low Impact Hydropower Institute's Certification Program is public benefit. The Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions. The undersigned Applicant agrees to hold the Low Impact Hydropower Institute, the Governing Board and its agents harmless for any decision rendered on this or other applications or on any other action pursuant to the Low Impact Hydropower Institute's Certification Program.

Dated: 6/21/04

Signed: David J. Youken

Title: Managing Director Hydro Generation

# **BACKGROUND INFORMATION #12**

## **Project Description and Project Drawings**

## PROJECT DESCRIPTION

The Raquette River, with a drainage basin of 1,269 square miles, originates in the Adirondack Mountains, flows generally north-northwest for more than 120 miles, and empties into the St. Lawrence River near Massena, New York. Most of the basin is sparsely populated, with much of the land forested and brushland. The region's economy depends primarily on recreational tourism and timber-based industries.

The Carry Falls Project is a seasonal storage reservoir with no associated generating capacity. It includes a 826-foot-long dam, varying in height from 63 to 76 feet; an intake structure with provision for future power installation; five earth dikes totaling approximately 2,500 feet in length; and a 3,000-acre reservoir with a usable storage capacity of 104,463 acre-feet.<sup>15</sup>

Under its original license, the project operates within an elevation of 1,385.0 to 1,332.0 feet mean sea level (msl). These elevations are governed, in part, by the use of a guide curve that provides the project with a series of target elevations to be met over the course of a given year. These elevations are also governed by the potential backwater effects caused by the Stark development of the Upper Raquette River Project (FERC No. 2084) located immediately downstream of the Carry Falls reservoir. In practice, when the elevation of the Carry Falls reservoir falls below 1,355.0 feet msl, the Stark impoundment must be drawn down. The two reservoirs are thus essentially linked.

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<sup>15</sup>A more detailed project description is contained in ordering paragraph B(2).

### SETTLEMENT

As discussed in the lead order, because the Settlement is also a condition of the water quality certifications issued for the projects, we must, giving equal consideration to developmental and environmental values, determine whether the project proposal, as conditioned by these mandatory conditions, is best adapted to a comprehensive plan for improving or developing a waterway for beneficial public purposes.

Pursuant to the Settlement, Erie proposes a new guide curve that will govern the operation of the Carry Falls reservoir. This new guide curve will continue to provide a series of target elevations over the course of a given year, but will raise the lower elevation limit from 1,332 to 1,355.0 feet msl. This change will allow for the separate operation of the Carry Falls reservoir and Stark impoundment at all times.<sup>22</sup>

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<sup>22</sup>See EA at 8-10.

In addition, to protect and enhance project-related environmental resources, Erie proposes to:

- (1) to discontinue site-specific instream flows and remove welded blocks that currently exist on the bottom of one of the low-level sluice gates;
- (2) provide canoe portages from the Jordan River to the right shore of the Carry Falls reservoir and around the Carry Falls dam; and
- (3) modify the project boundary as necessary to include all Erie lands occupied by the portages.

In the lead order, we approve the Settlement and conclude, giving equal consideration to developmental and environmental values, that the Carry Falls Project, as conditioned by these mandatory conditions, is best adapted to a comprehensive plan for improving or developing a waterway for beneficial public purposes.

as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, enclosed by the project boundary shown by Exhibit G, filed January 28, 1999:

<u>Exhibit G Drawing</u>	<u>FERC No. 2060-</u>	<u>Showing</u>
G-1	1001	Project Boundary and Location Map
G-2	1002	Project Boundary and Location Map
G-3	1003	Project Boundary and Location Map
G-4	1004	Project Boundary and Location Map
G-5	1005	Project Boundary and Location Map

(2) Project works consisting of: (a) a 826-foot-long dam; (b) a 568-foot-long by 76-foot-high concrete gravity spillway with a crest elevation of 1,386 feet mean sea level (msl); (c) a 258-foot-long by 63-foot-high concrete gated non-overflow spillway with two 14.5-foot by 27-foot taintor regulating gates, two 10-foot-square low-level sluice gates, and an intake structure with two 15-foot-square openings for future power installation; (d) five earth dikes totaling approximately 2,500 feet in length, with lengths varying from 320 feet to 1,015 feet, maximum heights varying from 12 feet to 31 feet, and each with a crest width of 12 feet at elevation 1,392 feet msl with upstream and downstream slopes of 3:1 and 2.5:1 respectively; and (e) a 7-mile-long reservoir with a surface area of 3,000 acres and a usable storage capacity of 104,463 acre-feet at a normal pool elevation 1,385 feet msl.

The project works generally described above are more specifically shown and described by those portions of Exhibits A and F shown below:

The Commission orders:

(A) This license is issued to issued to Erie Boulevard Hydropower, L.P.(licensee) for a period of 31 years, 11 months, effective the first day of the month in which this order is issued, to operate, and maintain the Carry Falls Project. The license is effective February 1, 2002, and will expire on December 31, 2033. This license is subject to the terms and conditions of the Federal Power Act (FPA), which is incorporated by reference

Exhibit A: The following Exhibit A sections, filed on January 28, 1999:

Pages A-4 to A-8, describing the existing mechanical, electrical, and transmission equipment.

Exhibit E: The following Exhibit F drawings, filed on January 28, 1999:

<u>Exhibit F Drawing</u>	<u>FERC No. 2060-</u>	<u>Showing</u>
F-1	1006	General Plan and Sections, Dam and Intake
F-2	1007	Plan and Sections Intake
F-3	1008	Plan and Sections, Taintor Gate and Spillway
F-4	1009	Plan and Section, Dikes "A" and "B"
F-5	1010	Plan and Section, Dike "C"
F-6	1011	Plan and Section Dikes "D" and "E"



## PROJECT DESCRIPTION

The Raquette River, with a drainage basin of 1,269 square miles, originates in the Adirondack Mountains, flows generally north-northwest for more than 120 miles, and empties into the St. Lawrence River near Massena, New York. Most of the basin is sparsely populated, with much of the land forested and brushland. The region's economy depends primarily on recreational tourism and timber-based industries.

The Upper Raquette River Project consists of five developments (from upstream to downstream): Stark, Blake, Rainbow, Five Falls, and South Colton. The five developments have a total installed capacity of 102,389 kW and are located in a 16-mile reach of the Raquette River commencing 52 miles above its confluence with the St. Lawrence River.

The Stark development includes a 35-foot-high dam with an overflow section; seven earthen dikes totaling approximately 3,700 feet in length; a reservoir; an intake with trashracks, a slide gate, and a 651-foot-long pipeline; and a powerhouse containing a 23,872-kW generating unit.

The Blake development has a 75-foot-high dam; three earthen dikes totaling approximately 1,840 feet in length; a reservoir; an intake with a 731-foot-long pipeline; and a powerhouse containing a 13,913-kW generating unit.

The Rainbow development has a 81.5-foot-high dam; two earthen dikes, approximately 2,570 feet in length; a reservoir; an intake with a 645-foot-long pipeline; and a powerhouse containing a 22,828-kW generating unit.

The Five Falls development includes a 50-foot-high dam with an overflow spillway and a stoplog section, flanked at each end by dikes totaling approximately 1,190 feet in length; a reservoir; a gated intake with a 1,399-foot-long pipeline; and a powerhouse containing a 22,828-kW generating unit.

The South Colton development includes a 45-foot-high dam with an overflow spillway and a stoplog section; a reservoir; a gated intake with a 1,300-foot-long pipeline; and a powerhouse containing a 18,948-kW generating unit.<sup>14</sup>

As currently licensed, and proposed to be relicensed, these developments are operated run-of-river with pondage mode using releases from the Carry Falls Project.<sup>15</sup>

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<sup>14</sup>A more detailed project description is contained in ordering paragraph B(2).

<sup>15</sup>This means that the licensee uses/releases flows received from upstream developments and in addition may use/release water stored in the particular reservoir (pondage), subject to drawdown limitations.

## SETTLEMENT

As discussed in the lead order, because the Settlement is also a condition of the water quality certifications issued for the projects, we must, giving equal consideration to developmental and environmental values, determine whether the project proposal, as conditioned by these mandatory conditions, is best adapted to a comprehensive plan for improving or developing a waterway for beneficial public purposes.

Pursuant to the Settlement, Erie proposes to release minimum flows as follows:

- (1) from Stark, 45-cubic-feet-per-second (cfs) year-round through the stoplog section of the dam, raised to 90 cfs when releases are made for 24 hours or more through the Taintor gates;
- (2) from Blake, 55 cfs from the stoplog section of the dam, with an increase to 120 cfs during walleye spawning season;
- (3) from Rainbow, 20 cfs year-round from the stoplog section of the dam;
- (4) from Five Falls, 50 cfs from the stoplog section of the dam, with an increase to 145 cfs during walleye spawning season; and
- (5) from South Colton, 20 cfs year-round over the visible portion of the falls.

In addition, to protect and enhance project-related environmental resources, Erie proposes to:

- (1) make fisheries habitat improvements at the Stark and Blake developments;
- (2) limit normal reservoir fluctuations to no more than 1.0 feet at Stark, Blake, and Rainbow, and to no more than 2.0 feet at Five Falls and South Colton;

- (3) develop a streamflow monitoring plan;
- (4) provide measures to facilitate downstream fish movement at all the developments;
- (5) install 1-inch clear spacing physical barriers at existing trashrack structures at each development; and
- (6) develop a recreation plan to provide a canoe portage at each development, access to Dead Creek at Blake, and a primitive access trail to the Clear Pond Wild Forest at Rainbow; and
- (7) modify the project boundary to include all Erie lands that will be occupied by these recreational facilities.

In the lead order, we approve the Settlement and conclude, giving equal consideration to developmental and environmental values, that the Upper Raquette River Project, as conditioned by these mandatory conditions, is best adapted to a comprehensive plan for improving or developing a waterway for beneficial public purposes.

The Commission orders:

(A) This license is issued to issued to Erie Boulevard Hydropower, L.P.(licensee) for a period of 31 years, 11 months, effective the first day of the month in which this order is issued, to operate and maintain the Upper Raquette River Hydroelectric Project. The license is effective February 1, 2002, and will expire on December 31, 2033. This license is subject to the terms and conditions of the Federal Power Act (FPA), which is

incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, enclosed by the project boundary shown by Exhibit G, filed January 28, 1999:

<u>Exhibit G Drawing</u>	<u>FERC No. 2084-</u>	<u>Showing</u>
G-1	1001	Project Boundary and Location Map
G-2	1002	Project Boundary and Location Map
G-3	1003	Project Boundary and Location Map
G-4	1004	Project Boundary and Location Map
G-5	1005	Project Boundary and Location Map
G-6	1006	Project Boundary and Location Map
G-7	1007	Project Boundary and Location Map
G-8	1008	Project Boundary and Location Map
G-9	1009	Project Boundary and Location Map

(2) Project works consisting of five developments:

The Stark development comprising: (a) a 35-foot-high concrete gravity dam with a 294-foot-long by 35-foot high concrete overflow section with a crest elevation of 1,355.0 feet above mean sea level (msl) and a 94-foot-long control gate section consisting of two 27-foot-long by 15-foot-high radial taintor gates with a crest elevation of 1,340.8 feet msl, a low-level sluice gate section consisting of one motor controlled 12-foot square slide gate, and a 6-foot-wide stoplog section; (b) seven earthen saddle dikes with a crest elevation of 1,362.0 feet, totaling approximately 3,700 feet in length, each 16 feet wide with upstream and downstream slopes of 3:1 and 2.5:1, respectively; (c) a 1.5-

mile-long reservoir at normal pool elevation 1,355.0 feet; (d) a concrete intake structure housing the trashracks and trashrack raking structure, and a 18.33-foot-high by 18.66-foot-wide motor-driven slide gate; (e) a 651-foot-long, 18-foot-diameter welded steel pipeline; (f) a 75-foot-long by 73-foot-wide concrete powerhouse containing a 23,872 kilowatt (kW) generating unit; and (g) appurtenant facilities.

The Blake development comprising: (a) a 75-foot-high concrete gravity dam with a 592-foot-long by 80-foot-high concrete overflow section with a crest elevation of 1,250.5 feet msl and a 140-foot-long non-overflow section with a crest elevation of 1,266.0 feet; (b) three earthen dikes with a crest elevation of 1,259.5 feet, totaling approximately 1,840 feet in length, each 16 feet wide with upstream and downstream slopes of 3:1 and 2.5:1, respectively; (c) a 5.5-mile-long reservoir at normal pool elevation 1,250.5 feet; (d) a concrete intake structure housing the trashracks and trashrack raking structure, and a 18.33-foot-high by 18.66-foot-wide motor-driven slide gate; (e) a 731-foot-long, 18-foot-diameter welded steel pipeline; (f) a 75-foot-long by 73-foot-wide concrete powerhouse containing a 13,913 kW generating unit; and (g) appurtenant facilities.

The Rainbow development comprising: (a) a 2,677-foot-long by 75-foot-high concrete gravity-type dam with a 751-foot-long by 81.5-foot-high concrete overflow section with a crest elevation of 1,181.5 feet msl and two non-overflow sections totaling 120 feet and 176 feet in length, respectively; (b) two earthen saddle dikes with a crest elevation of 1,190.0 feet, totaling approximately 2,570 feet in length, each 16 feet wide with upstream and downstream slopes of 3:1 and 2.5:1, respectively; (c) a 3.5-mile-long reservoir at normal pool elevation 1,181.5 feet; (d) a concrete intake structure housing the trashracks and trashrack raking structure, and a 18.33-foot-high by 18.66-foot-wide motor-driven slide gate; (e) a 645-foot-long, 18-foot-diameter welded steel pipeline; (f) a 75-foot-long by 73-foot-wide concrete powerhouse containing a 22,828 kW generating unit; and (g) appurtenant facilities.

The Five Falls development comprising: (a) a 1,750-foot-long by 50-foot-high concrete gravity dam flanked at each end by earthen dikes totaling approximately 1,190 feet in length, each 16 feet wide with upstream and downstream slopes of 3:1 and 2.5:1, respectively; (b) a 500-foot-long concrete gravity ogee overflow spillway with a crest elevation of 1,077.0 feet; (c) a 6-foot-wide stoplog section with a sill elevation of 1,072.0 feet; (d) a 1.0-mile-long reservoir at normal pool elevation 1,077.0 feet; (e) a 60-foot-long gated concrete intake structure housing the trashracks and trashrack raking structure, and a 18.33-foot-high by 18.66-foot-wide motor-driven slide gate; (f) a 1,399-foot-long, 18-foot-diameter welded steel pipeline; (g) a 75-foot-long by 73-foot-wide

concrete powerhouse containing a 22,828 kW generating unit; and (h) appurtenant facilities.

The South Colton development comprising: (a) a 970-foot-long, 45-foot-high concrete gravity-type dam and earthen abutments; (b) a 592-foot-long, 42-foot-high concrete gravity ogee spillway with a crest elevation of 973.5 feet msl; (c) a 6-foot-wide stoplog section with a sill elevation of 968.0 feet; (d) a 1.5-mile-long reservoir at normal pool elevation 973.5 feet; (e) a 60-foot-long gated concrete intake structure housing the trashracks and trashrack raking structure, and a 18.33-foot-high by 18.66-foot-wide motor-driven slide gate; (f) a 1,300-foot-long, 18-foot-diameter pipeline; (g) a 75-foot-long by 73-foot-wide concrete powerhouse containing a 18,948 kW generating unit; and (h) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of Exhibits A and F shown below:

Exhibit A: The following Exhibit A sections, filed on January 28, 1999:

Pages A-6 to A-36, describing the existing mechanical, electrical, and transmission equipment.

Exhibit F: The following Exhibit F drawings, filed on January 28, 1999:

<u>Exhibit F Drawing</u>	<u>FERC No. 2084-</u>	<u>Showing</u>
F-1	1010	Stark - Plan and Sections of Dam and Intake
F-2	1011	Blake - Plan and Sections of Dam and Intake
F-3	1012	Rainbow - Plan and Sections of Dam and Intake
F-4	1013	Five Falls - Plan and Sections of Dam and Intake
F-5	1014	South Colton - Plan and Sections of Dam and Intake
F-6	1015	Typical Plan and Sections - Powerhouse, Pipeline, and Surge Tank

## PROJECT DESCRIPTION

The Raquette River, with a drainage basin of 1,269 square miles, originates in the Adirondack Mountains, flows generally north-northwest for more than 120 miles, and empties into the St. Lawrence River near Massena, New York.<sup>14</sup> Most of the basin is sparsely populated, with much of the land forested and brushland. The region's economy depends primarily on recreational tourism and timber-based industries.

The project consists of four developments (from upstream to downstream): Higley, Colton, Hannawa, and Sugar Island. The four developments have a total installed capacity of 47,073 kW and are all located in an 11-mile reach of the Raquette River commencing 38 miles above its confluence with the St. Lawrence River.

The Higley development includes a 34-foot-high dam with 3-foot-high flashboards, two flood gates, a trashrack, two waste gates; a 742-acre reservoir; a 160-foot-long, 50-foot-wide intake; and a powerhouse containing three generating units with a total capacity of 4,972 kW. On October 14, 2001, one of the generating units ceased operation due to turbine failure. Erie proposes to construct a new 13-foot-diameter, 225-foot-long steel intake pipeline and a new powerhouse containing one generating unit with a capacity of 7,300 kW. The existing powerhouse will be retired.

The Colton development includes a 27-foot-high dam with 2-foot-high flashboards, a log flume, a trash gate, and a gated spillway; a 195-acre-reservoir; an 11,090-foot-long steel pipeline; three penstocks; and a powerhouse containing three generating units with a total capacity of 30,101 kW.

The Hannawa development has a 38-foot-high dam with 3.5-foot-high flashboards, a log chute, a Taintor gate, and a sluice gate; a 204-acre reservoir; a 2,700-foot-long canal; two penstocks; and a powerhouse containing two generating units with a total capacity of 7,200 kW.

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<sup>14</sup>The Raquette River is a navigable waterway of the United States. 8 FPC 569 (1949).

The Sugar Island development has a 37-foot-high dam with two Taintor gates; a 29-acre reservoir; an intake structure with trash racks and a headgate; a 4,700-foot-long steel pipeline; two penstocks; and a powerhouse containing two generating units with a total capacity of 4,800 kW.<sup>15</sup>

As currently licensed, and as proposed to be relicensed, these developments, except for Higley, are operated run-of-river with pondage mode using releases from the Carry Falls and the Upper Raquette River Projects.<sup>16</sup> The Higley development operates as a re-regulating development to provide steadier flows for the downstream hydropower developments.

## SETTLEMENT

As discussed in the lead order, because the Settlement is also a condition of the water quality certifications issued for the projects, we must, giving equal consideration to developmental and environmental values, determine whether the project proposal, as conditioned by these mandatory conditions, is best adapted to a comprehensive plan for improving or developing a waterway for beneficial public purposes.

Pursuant to the Settlement, Erie proposes to release minimum flows from each of the developments as follows:

- (1) from Higley, a 20-cubic-feet-per-second (cfs) year-round flow through the stoplog section of the dam to facilitate downstream movement of fish;
- (2) from Colton, 110 cfs from November 1 through the start of walleye spawning season, 200-240 cfs during the walleye spawning season, 200 cfs from the end of the walleye spawning season through June, 125 cfs from July 1 to August 15, 90 cfs from August 16 to September 15, and 125 cfs from September 16 through October 31;
- (3) from the stoplog section of the Hannawa dam, 50 cfs from October 31 through the start of walleye spawning season, 90 cfs for the walleye spawning season through June 30, and 65 cfs from July 1 through October 31; and
- (4) from Sugar Island, 300 cfs year-round from the minimum flow pipe, with an increase to 400 cfs from the start of the walleye spawning season through June 30.

In addition, to protect and enhance project-related environmental resources, Erie proposes to:



- (1) limit normal reservoir fluctuations, according to a seasonal regime at Higley, to provide regulating flows and recreational opportunities;
- (2) limit normal reservoir fluctuations at Colton and Hannawa to no more than 0.4 feet, and at Sugar Island to no more than 1.0 foot;
- (3) provide additional measures to facilitate downstream fish movement at the Higley, Colton, and Hannawa developments;
- (4) provide a 1-inch clear spacing physical barriers at the location of the existing trashrack structures at Higley, Colton, and Hannawa;
- (5) provide scheduled whitewater releases, a flow notification system, and access trails at Colton, Hannawa, and Sugar Island;
- (6) develop a recreation plan to provide a canoe portage at each development, a whitewater access at Colton, Hannawa, and Sugar Island, a car-top boat launch with overnight parking at Colton, a scenic overlook, picnic facilities, and roadside parking at Hannawa, and a day use area at Sugar Island; and
- (7) modify the project boundary to include all Erie lands that will be occupied by these recreational facilities.

In the lead order, we approve the Settlement and conclude, giving equal consideration to developmental and environmental values, that the Middle Raquette River Project, as conditioned by these mandatory conditions, is best adapted to a comprehensive plan for improving or developing a waterway for beneficial public purposes.

The Commission orders:

(A) This license is issued to Erie Boulevard Hydropower, L.P. (licensee) for a period of 31 years, 11 months, effective the first day of the month in which this order is issued, to operate, and maintain the Middle Raquette River Hydroelectric Project. The license is effective February 1, 2002, and will expire on December 31, 2033. This license is subject to the terms and conditions of the Federal Power Act (FPA), which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, enclosed by the project boundary shown by Exhibit G, filed December 24, 1991, and April 28, 2000:<sup>35</sup>

<u>Exhibit G Drawing</u>	<u>FERC No. 2320-</u>	<u>Showing</u>
G-1	1001	Higley - Development Detailed Map, Sheet 5A
G-2	1002	Higley - Development Detailed Map, Sheet 6A
G-3	1003	Colton - Project Boundary and Location Map
G-4	1004	Colton - Project Boundary and Location Map
G-5	1005	Hannawa - Project Boundary and Location Map

<sup>35</sup>Exhibits G-1 and G-2 were approved in an order approving revised exhibits, 92 FERC ¶ 62,178 (2000).

G-6

1006

Sugar Island - Project Boundary and Location Map

(2) Project works consisting of four developments:

The Higley development comprising: (a) a 34-foot-high concrete gravity dam with 3-foot-high wooden flashboards, a 209-foot-long concrete ogee-crested spillway, two flood gates, eight steel forebay gates each measuring 12 feet high by 5 feet, 9 inches wide, a trashrack, and two 10-foot-high by 8-foot-wide waste gates; (b) a 742-acre reservoir at normal pool elevation 883.6 feet above mean sea level (msl); (c) a 160-foot-long by 50-foot-wide flume formed by concrete retaining walls on each side; (d) a powerhouse measuring 64 feet to a side by 38 feet high containing three generating units with a total capacity of 4,972 kilowatts (kW); (e) an intake structure with a 14 x 14 foot headgate, a 13-foot-diameter, 225-foot-long steel pipeline, and a powerhouse measuring 90 feet long and 53 feet wide containing a 7,300 kW generating unit; and (f) appurtenant electrical and mechanical facilities.

The Colton development comprising: (a) a 27-foot-high concrete gravity dam with 2-foot-high flashboards, an 8-foot-wide log flume, a trash gate, and a 204.67-foot-long ogee-crested spillway equipped with a single taintor gate measuring 10 feet high and 25 feet wide; (b) a 195-acre reservoir at normal pool elevation 837.0 feet msl; (c) a concrete intake structure with a brick superstructure, which measures 50 feet wide by 30 feet long by 12 feet high overall, equipped with a motor driven, 16-foot-high by 25.5-foot-wide, taintor gate; (d) a steel pipeline, 11,090 feet long with a diameter of 13.5 feet and 2,100 feet long with a diameter of 12 feet; (e) a 80-foot-high Johnson differential surge tank; (f) three penstocks of lengths 160 feet, 140 feet, and 125 feet, and diameters of 7.5 feet, 7.5 feet, and 9 feet respectively; (g) a brick and structural steel powerhouse measuring 165 feet long and 46 feet wide containing three generating units with a total capacity of 30,101-kW; and (h) appurtenant electrical and mechanical facilities.

The Hannawa development comprising: (a) a 38-foot-high stone and concrete dam with 3.5-foot-high wooden flashboards, a log chute, a motor operated taintor gate measuring 14 feet high by 28 feet wide, an ogee-crested spillway, and a sluice gate; (b) a 204-acre reservoir at normal pool elevation 552.0 feet msl; (c) a headworks structure with five sliding timber gates, all of which are 18 feet high, three are 9.7 feet wide, one is 9 feet wide, and one is 8.8 feet wide; (d) a 2,700-foot-long canal measuring 30 feet wide at the bottom, 120 feet wide at the top, and an average of 22 feet deep, equipped with trashracks that completely cover the canal entrance; (e) two 10-foot-diameter penstocks of 190 feet in length; (f) a sandstone and structural steel powerhouse measuring 66 feet wide

by 248 feet long by 40 feet high containing two generating units with a total capacity of 7,200-kW; and (g) appurtenant electrical and mechanical facilities.

The Sugar Island development comprising: (a) a 37-foot-high concrete gravity dam with two taintor gates and a 192-foot-long spillway; (b) a 29-acre reservoir at normal pool elevation 470.0 feet msl; (c) a concrete and brick intake structure with trashracks and a steel headgate measuring 14 feet wide by 16 feet high; (d) a 4,700-foot-long steel pipeline; (e) a 71-foot-high surge tank; (f) two 8-foot-diameter penstocks; (g) a brick and structural steel powerhouse measuring 35 feet wide by 67 feet long by 30 feet high containing two generating units with a total capacity of 4,800-kW; and (f) appurtenant electrical and mechanical facilities.

The project works generally described above are more specifically shown and described by those portions of Exhibits A and F shown below:

Exhibit A: The following Exhibit A sections, filed on December 24, 1991:

Pages A-3 to A-23, describing the existing and proposed mechanical, electrical, and transmission equipment.

Exhibit F: The following Exhibit F drawings, filed on December 24, 1991:

<u>Exhibit F Drawing</u>	<u>FERC No. 2320-</u>	<u>Showing</u>
F-1	1007	Higley - Dam, Intake, and Powerhouse
F-2	1008	Colton - General Plan and Profile
F-3	1009	Colton - Dam and Intake
F-4	1010	Colton - Surge Tank and Powerhouse
F-5	1011	Hannawa - Dam, Intake, and Canal
F-6	1012	Hannawa - Forebay, Intake, Penstocks, Powerhouse
F-7	1013	Hannawa - Forebay, Intake, Penstocks, and Powerhouse
F-8	1014	Sugar Island - General Plan and Profile
F-9	1015	Sugar Island - Dam, Surge Tank, and Powerhouse

## II. THE LOWER RAQUETTE RIVER PROJECT NO. 2330

### BACKGROUND AND RELICENSING PROPOSAL

The Lower Raquette River Project, consisting of four developments, Norwood, East Norfolk, Norfolk, and Raymondville, was originally licensed in 1964 with a term expiring at the end of December 31, 1993.<sup>53</sup> Erie filed an application for new license on December 24, 1991. Notice of the application was issued on February 23, 1993.<sup>54</sup> Timely motions to intervene in this proceeding were filed by NYSDEC, the Mountain Club, Interior, and Rivers United, et al.<sup>55</sup> A motion for late intervention was filed by the St. Regis Mohawk Tribe on August 25, 1998, and granted by notice of February 18, 1999.<sup>56</sup>

The four developments, having a total installed generating capacity of 12 MW, are all located in an 8-mile reach of the Raquette River commencing 19 miles above its confluence with the St. Lawrence River. The developments are, from upstream to downstream:<sup>57</sup>

(1) the Norwood development, consisting of a 23-foot-high dam with 1-foot-high wooden flashboards, a 350-acre reservoir, a gated concrete intake structure with

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<sup>53</sup>32 FPC 125 (1964).

<sup>54</sup>58 FR 16184, March 25, 1993.

<sup>55</sup>New York Rivers United, Audubon Society, Natural Heritage Institute, Association for the Protection of the Adirondacks, Adirondack Council, American Whitewater, and American Rivers, Inc.

<sup>56</sup>NYSDEC, apparently not realizing that it had timely sought intervention, filed a motion for late intervention on December 18, 1995.

<sup>57</sup>A more detailed project description is contained in ordering paragraph B(2).

trashracks and a log chute, a powerhouse containing a 2,000-kW generating unit, and a 3-mile-long transmission line:

(2) the East Norfolk development, consisting of a dam with seven, 9-foot-high by 8-foot-wide sluice gates, a 135-acre reservoir, a concrete intake structure, a 1,408-foot-long flume, a powerhouse containing a 3,500-kW generating unit, and a 0.86-mile-long transmission line:

(3) the Norfolk development, consisting of a 20-foot-high dam with 10-inch-high flashboards, headworks gates, two 9-foot by 9-foot sluice gates, a 10-acre reservoir, a 1,275-foot-long canal, a 700-foot-long wood stave pipeline, a 103-foot-long steel penstock, and a powerhouse containing a 4,500-kW generating unit; and

(4) the Raymondville development, consisting of a 17-foot-high dam with 2-foot-high flashboards, a 50-acre reservoir, a 447-foot-long concrete flume with trashracks, an ice chute, gates, a powerhouse containing a 2,000-kW generating unit, and a 2.32-mile-long transmission line.

As currently licensed these developments typically operate in a store and release pulsing or store and release peaking mode,<sup>58</sup> using releases from the Carry Falls, Upper Raquette River Project, and the re-regulating Higley development of the Middle Raquette River Project. The project may operate continuously in a run-of-river mode during periods of high flows. Erie plans to continue selling the electricity generated by the project to its customers.

To protect and enhance project-related environmental resources, Erie proposes the following measures, consistent with the Settlement: (1) to facilitate movement of fish, year-round instream flows of 20, 75, 37.5, and 20 cfs, at Norwood, East Norfolk, Norfolk, and Raymondville, respectively; (2) normal reservoir fluctuations limited to no more than 0.5 foot at the Norwood, East Norfolk, and Raymondville developments and no more than 1.0 foot at Norfolk; (3) a tiered base flow below the Raymondville development; (4) measures to facilitate downstream fish movement at all developments; (5) installation of 1-inch clear spacing physical barriers at the existing trashrack structures at each development; and (6) development and implementation of a recreation plan that includes (a) canoe portage at each development (take-out only at East Norfolk

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<sup>58</sup> Store and release pulsing operations follow an on/off cycle in response to the level of inflow and normal impoundment fluctuations, while store and release peaking operations respond to peak electric power demand, usually during weekday hours.

and put-in only at Norfolk), (b) parking at the canoe portage at the East Norfolk development, (c) car-top boat launch, picnic facilities, and parking adjacent to the left abutment of the dam at the Raymondville development, and (d) modification of the project boundary to include all Erie lands occupied by these recreational facilities.

<u>Exhibit G Drawing</u>	<u>FERC No. 2330-</u>	<u>Showing</u>
G-1	1001	Norwood - Project Boundary and Location Map
G-2	1002	East Norfolk - Project Boundary and Location Map
G-3	1003	Norfolk - Project Boundary and Location Map
G-4	1004	Raymondville - Project Boundary and Location Map

## (2) Project works consisting of four developments:

The Norwood development comprising: (a) a 188-foot-long by 23-foot-high concrete gravity dam with 1-foot-high wooden flashboards; (b) a 350-acre reservoir at normal pool elevation 327.1 feet above mean sea level (msl); (c) a concrete intake structure with steel trashracks oriented 90 degrees to the direction of flow, a skimmer section, and three motor-operated steel sliding gates; (d) two timber flood gates, one 9 feet, 9 inches wide by 12 feet high, and the other 12 feet high by 12 feet wide; (e) a concrete log chute with stoplog opening 11 feet, 2 inches wide by 4 feet, 6 inches high; (f) a concrete and brick powerhouse 59 feet, 9 inches long by 43 feet wide by 34 feet high containing a 2,000-kW generating unit; (g) a 3-mile-long, 23 kilovolt (kV) transmission line connecting the Norwood and Norfolk developments; and (h) appurtenant facilities:

The East Norfolk development comprising: (a) a concrete gravity dam with seven hand-operated sluice gates measuring 8 feet wide by 9 feet high protected by steel trashracks oriented 24 degrees to the direction of flow; (b) a 4-foot by 4-foot pond drain; (c) a 135-acre reservoir at normal pool elevation 287.9 feet msl; (d) a concrete intake structure equipped with steel trashracks oriented 90 degrees to the direction of flow, a skimmer section, and an ice chute with a steel sliding gate; (e) a 32-foot-wide by 1,408-foot-long oval steel flume; (f) a powerhouse containing a 3,500 kW generating unit; (g) a 0.86-mile-long, 23 kV transmission line connecting the East Norfolk and Norfolk developments; and (h) appurtenant facilities:

The Norfolk development comprising: (a) a 20-foot-high concrete dam with 10-inch-high flashboards, three 12-foot-wide by 10-foot-high steel headworks gates, and two 9-foot-wide by 9-foot-high sluice gates; (b) a 10-acre reservoir at normal pool elevation 254.9 feet msl; (c) a 1,275-foot-long power canal; (d) a 700-foot-long, 14-foot-diameter wood stave pipeline protected by two steel trashracks oriented 90 degrees to the

The Commission orders:

(A) The settlement is approved, except as otherwise noted, and this license is issued to Erie Boulevard Hydropower, L.P. (licensee) for a period of 31 years, 11 months, effective the first day of the month in which this order is issued, to operate, and maintain the Lower Raquette River Hydroelectric Project. The license is effective February 1, 2002, and will expire on December 31, 2033. This license is subject to the terms and conditions of the Federal Power Act (FPA), which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

## (B) The project consists of:

(1) All lands to the extent of the licensee's interests in those lands, enclosed by the project boundary shown by exhibit G filed December 24, 1991:

direction of flow, a skimmer section, and a 6-foot-wide by 6-foot-high ice sluice gate used for flushing ice and debris downstream; (e) a 14-foot-diameter, 103-foot-long steel penstock fitted with a motor-operated 14-foot-diameter butterfly valve; (f) a concrete and brick powerhouse measuring 52 feet, 6 inches wide by 50 feet, 7 inches long by 35 feet high containing a 4,500 kW generating unit; (g) a short 2.4 kV underground transmission line and a 2.32-mile-long, 115 kV transmission line connecting the Norfolk and Raymondville developments; and (h) appurtenant facilities; and

The Raymondville development comprising: (a) a 292-foot, 6-inch-long by 17-foot-high concrete gravity dam having two-foot-high rubber and steel flashboards; (b) two 4-foot by 4-foot pond drains; (c) a 50-acre reservoir at normal pool elevation 211.6 feet msl; (d) a 48-foot-wide by 447-foot-long concrete power flume having trashracks oriented 90 degrees to the direction of flow, an ice chute, and three steel flume intake gates, each 12 feet wide by 10 feet high; (e) a concrete, brick, and steel powerhouse measuring 59 feet, 9 inches wide by 42 feet long by 34 feet high containing a 2,000 kW generating unit; and (f) appurtenant facilities.

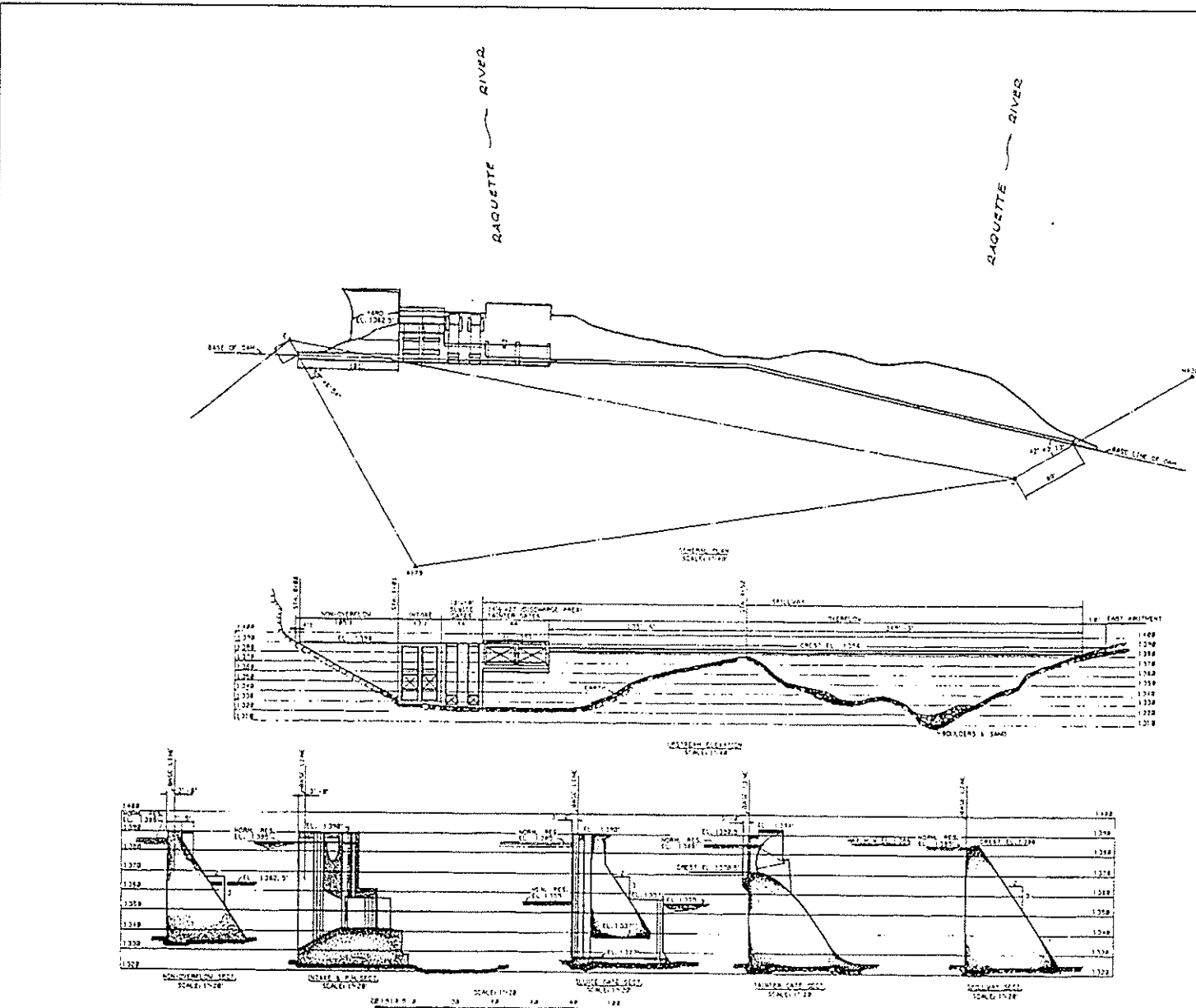
The project works generally described above are more specifically shown and described by those portions of Exhibits A and F shown below:

Exhibit A: The following Exhibit A sections, filed on December 24, 1991:

Pages A-2 to A-13, describing the existing mechanical, electrical, and transmission equipment.

Exhibit F: The following Exhibit F drawings, filed on December 24, 1991:

<u>Exhibit F Drawing</u>	<u>FERC No. 2330-</u>	<u>Showing</u>
F-1	1005	Norwood - Dam, Intake, and Powerhouse
F-2	1006	East Norfolk - Dam, Intake, and Powerhouse
F-3	1007	Norfolk - Dam, Intake, and Powerhouse
F-4	1008	Norfolk - Intake and Intake Gates
F-5	1009	Raymondville - Dam, Intake, and Powerhouse



EMB SOCIETY AND ENGINEERS  
 LYNDENHURST, N.Y.  
**CARRY FALLS PROJECT**  
 GENERAL PLAN AND SECTIONS  
 DAM AND INTAKE

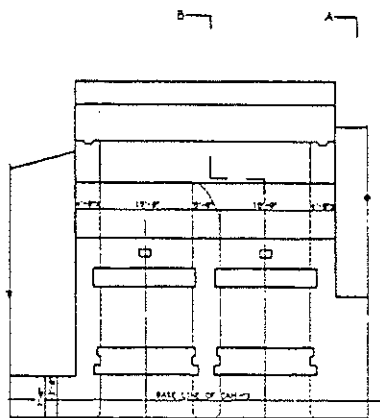
EXHIBIT F      SCALE 1"=40'      SHEET NO. 1

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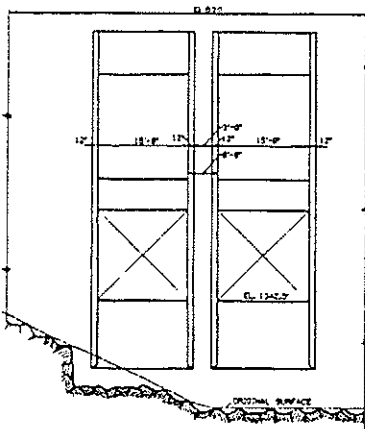
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ORIGINAL ISSUE DATE	FILE NO.	PROJECT NO.	DRAWN BY	CHECKED BY

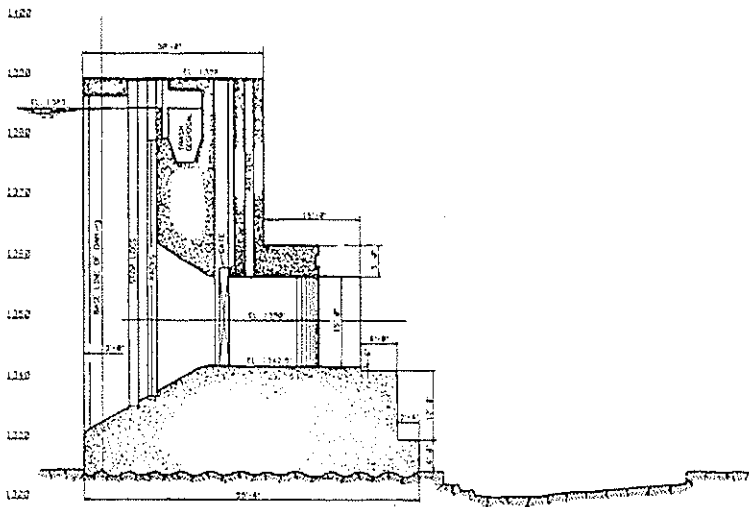




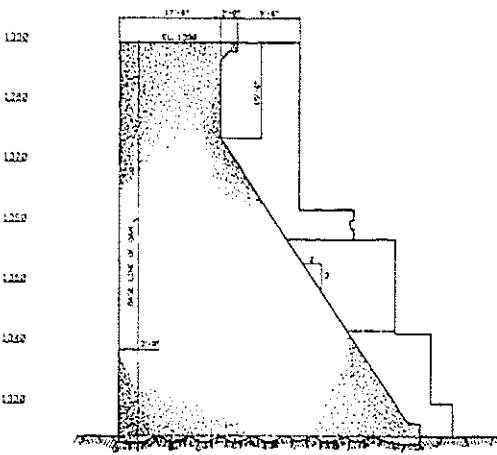
PLAN



ELEVATION



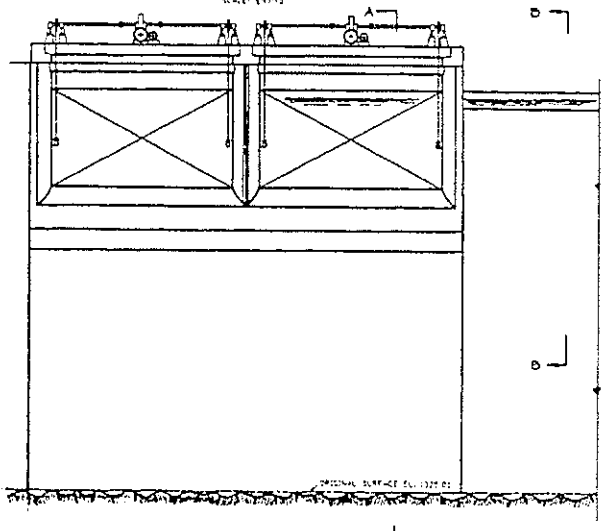
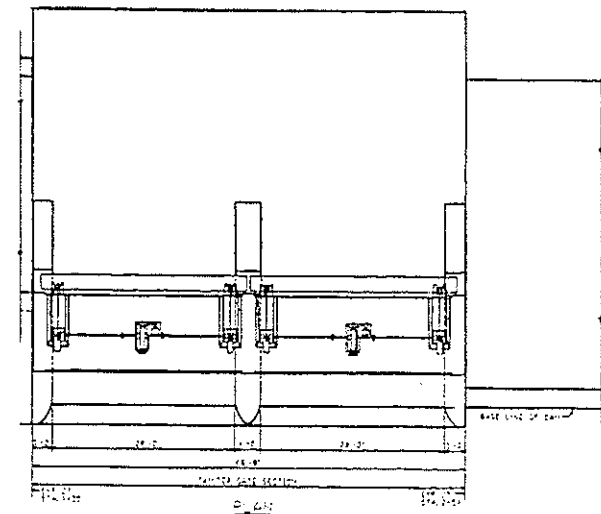
SECTION B-B



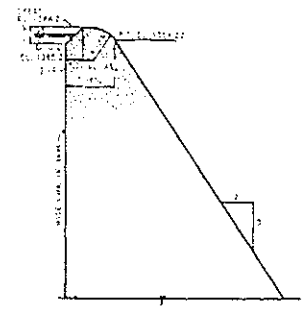
SECTION A-A

TOWN OF LUTHERPOOL  
 LUTHERPOOL, N.Y.  
**CARRY FALLS PROJECT**  
 PLAN & SECTIONS OF INTAKE  
 EXHIBIT F SCALE 1/4" = 1' SHEET NO. 2

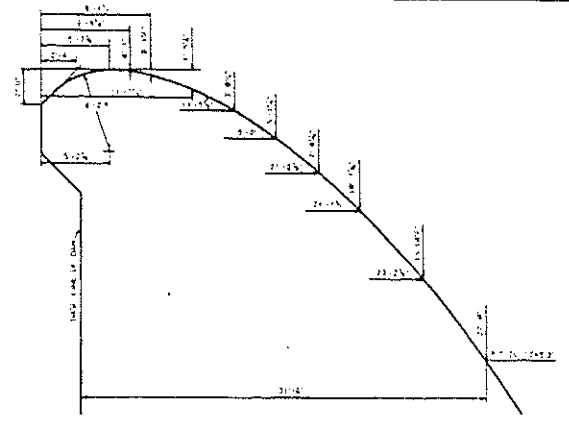
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DESIGNER	DATE	SCALE
		1/4" = 1'
PERM. NO.	2060-1007	



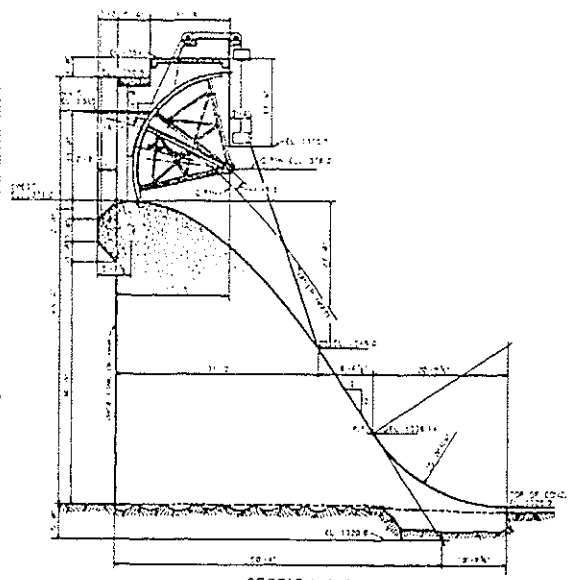
ELEVATION OF TAINTER GATE SECTION  
SCALE: 1/4" = 1'-0"



SECTION B-B  
SCALE: 1/4" = 1'-0"



CO-ORDINATES OF TAINTER GATE CREST LINE  
SCALE: 1/4" = 1'-0"



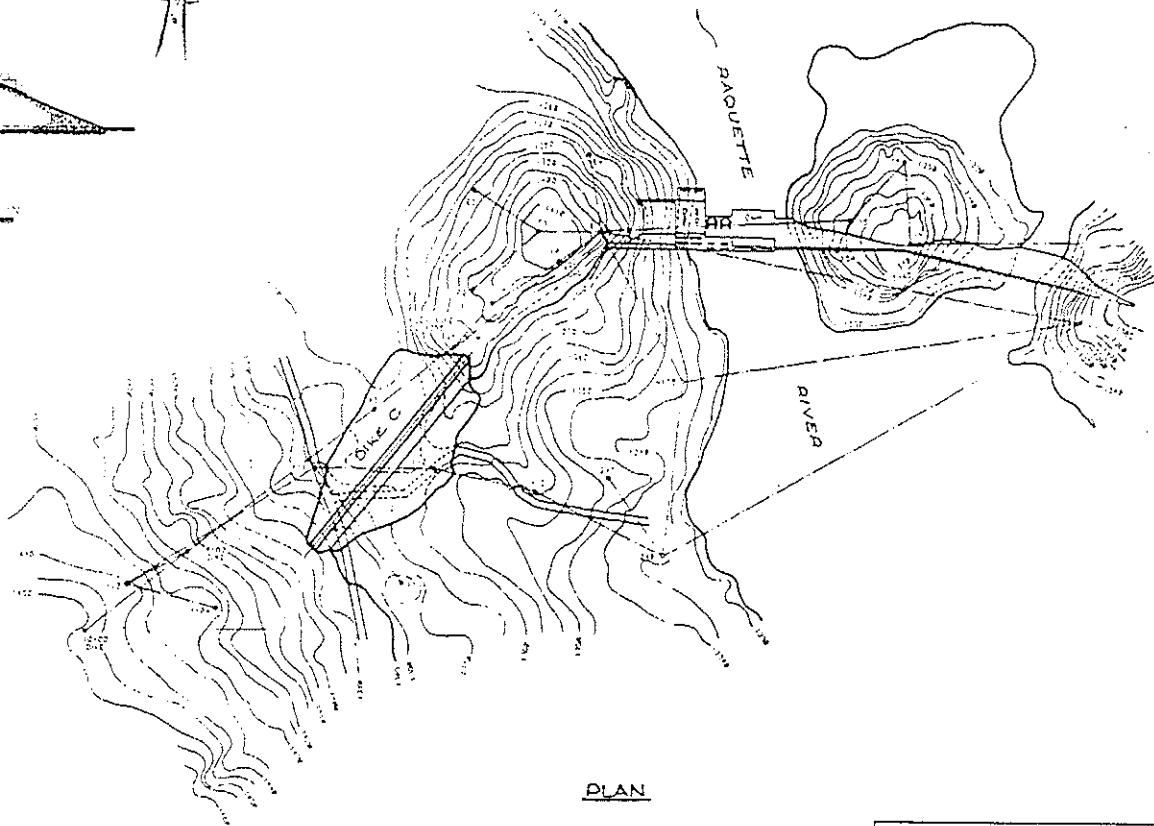
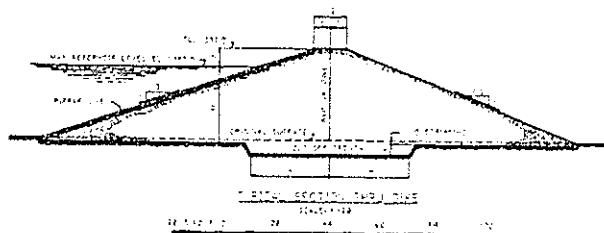
SECTION A-A  
SCALE: 1/4" = 1'-0"

RAE BOULVARD HYDROELECTRIC PROJECT  
 LIVERPOOL, N.Y.  
**CARRY FALLS PROJECT**  
 PLAN AND SECTIONS  
 TAINTER GATE AND SPILLWAY  
 EXHIBIT F SCALE: 1/4" = 1'-0" SHEET NO. 3

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3		REVISION OF ISSUE OF LICENSE	PL				

ORIGINAL ISSUE DATE	FILE NAME	ZONE OF LOGS
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STATE GEOLOGICAL SURVEY  
LYNNBOROUGH, N.H.

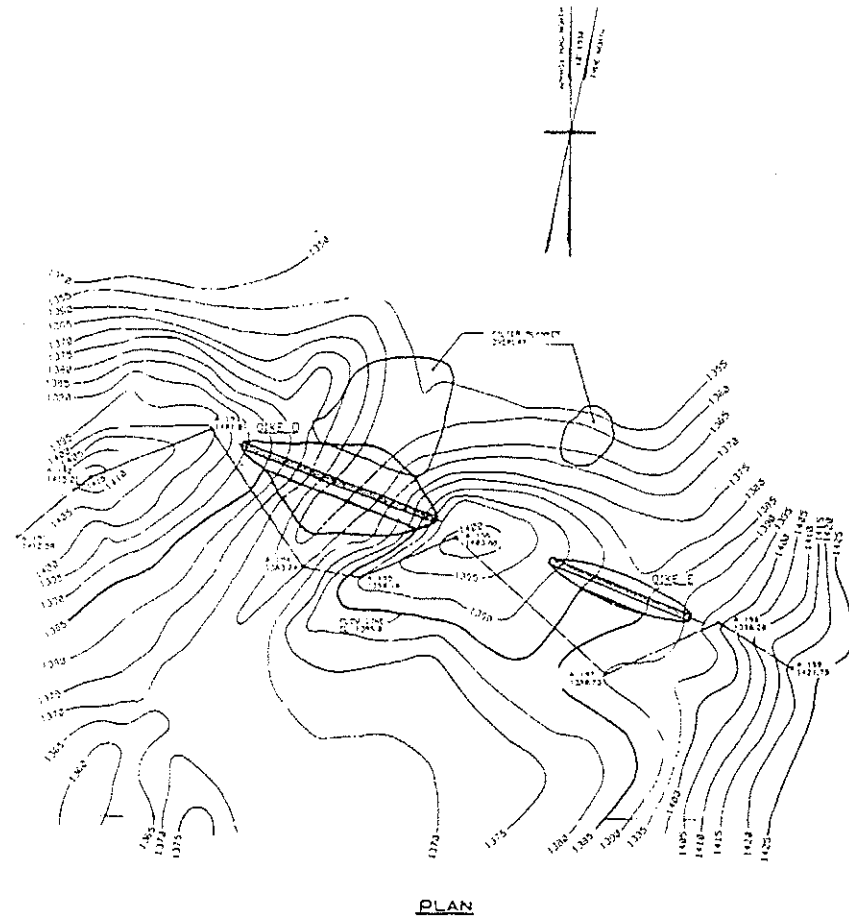
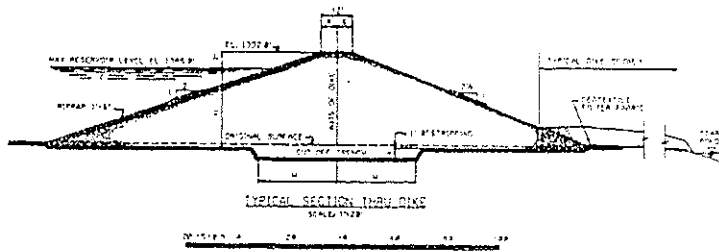
**CARRY FALLS PROJECT**  
**PLAN AND SECTION DIKE "C"**

EXHIBIT F
SCALE 1" = 100'
SHEET NO. 5

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DATE		DATE	

ORIGINAL FILE NO. 2006-1000  
 FILE NAME 2006-1000  
 FERC NO. 2040-100

DRAWN		CHECKED	
DATE		DATE	

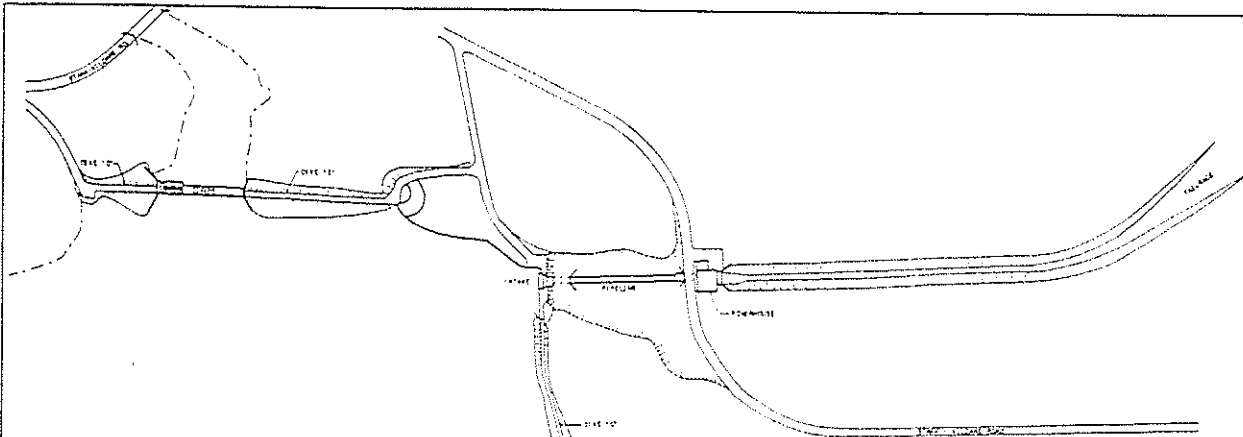


EAST SOUTHWEST HYDROLOGICAL LP  
 CARRY FALLS PROJECT  
 PLAN AND SECTION DIKES 'D' AND 'E'  
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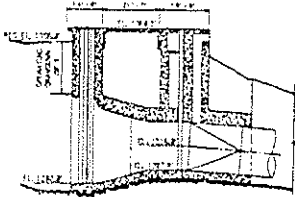
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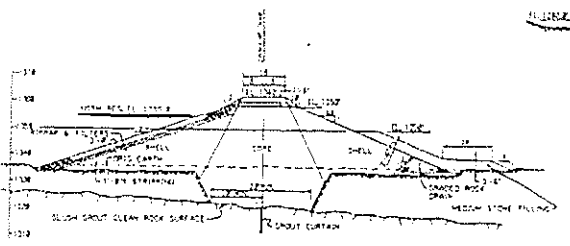
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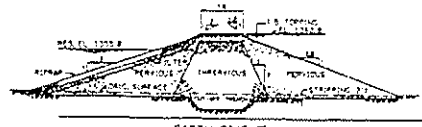
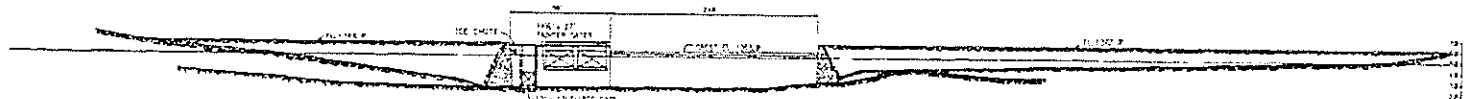
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NORMAL EL. 1355.0'



SECTION TWO INTAKE  
SCALE 1/2"



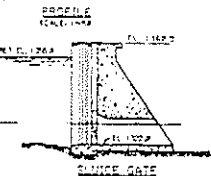
SECTION THREE DINE 12  
SCALE 1/2"



PART ONE DINE 11  
SCALE 1/2"



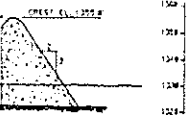
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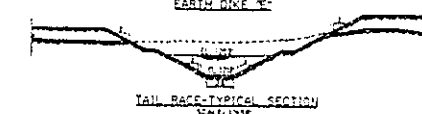
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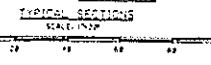
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SPILLWAY  
SCALE 1/2"




TAIL RACE-TYPICAL SECTION  
SCALE 1/2"



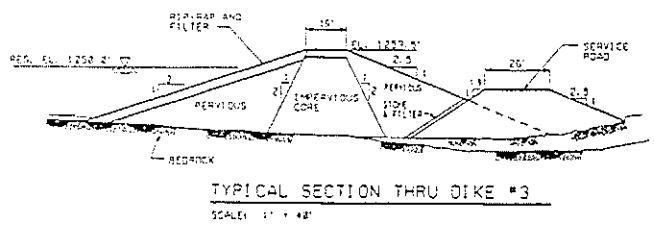
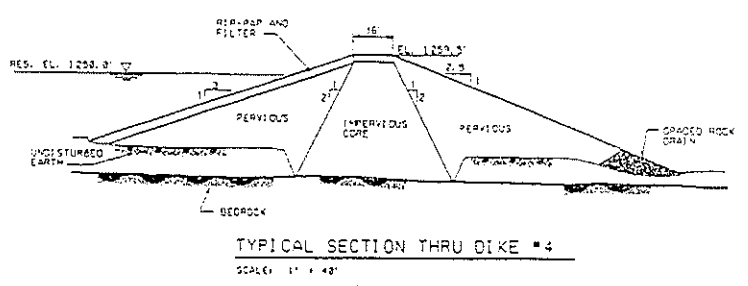
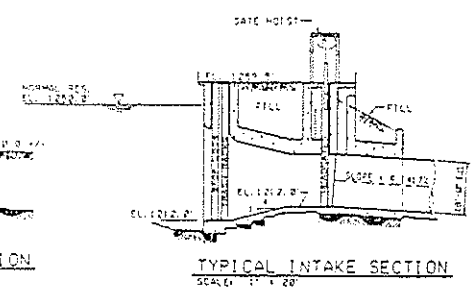
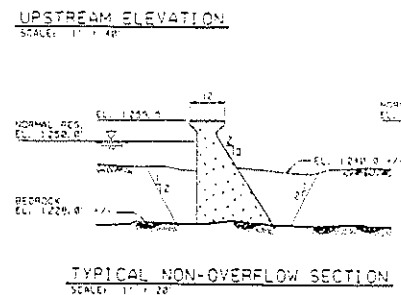
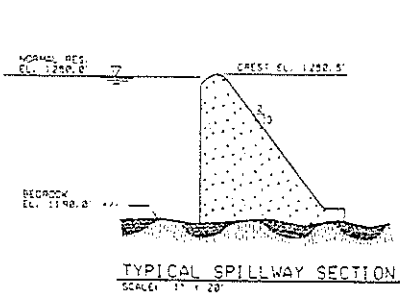
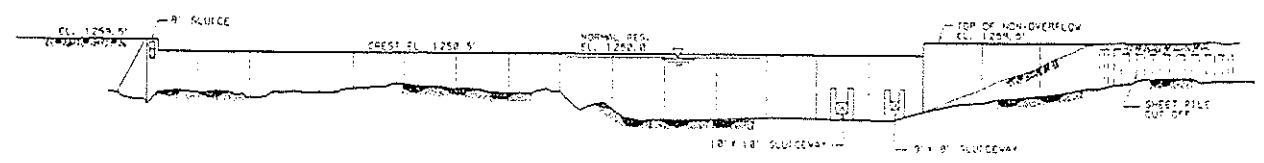
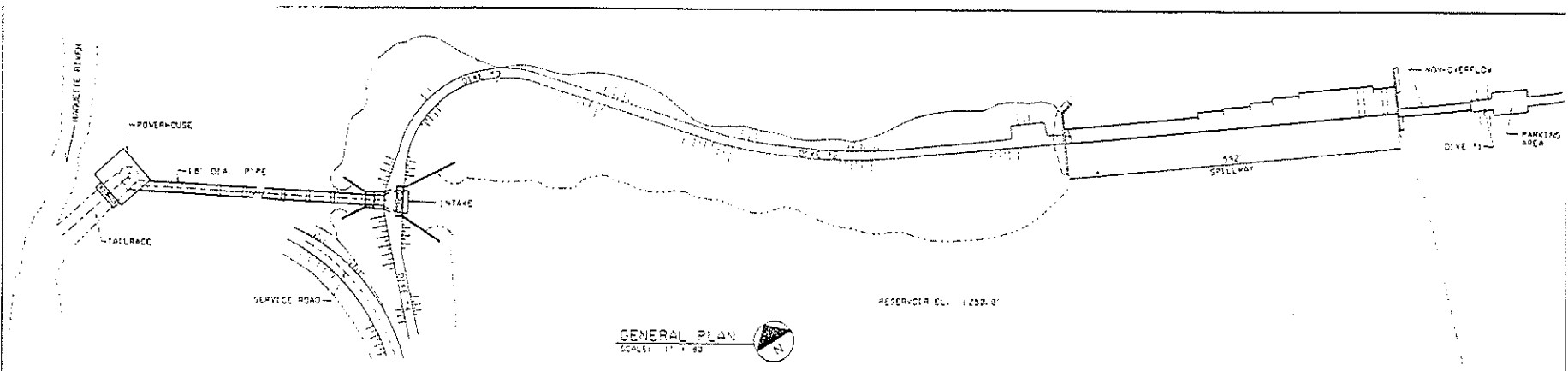
TYPICAL SECTIONS  
SCALE 1/2"

MAE BOULEVARD HYDROPOWER LP  
LYTLEBOROUGH, KY  
UPPER RAQUETTE RIVER PROJECT  
STARK DEVELOPMENT  
PLAN AND SECTIONS OF DAM AND INTAKE

EXHIBIT F SCALE 1/4" = 1' SHEET NO. 1



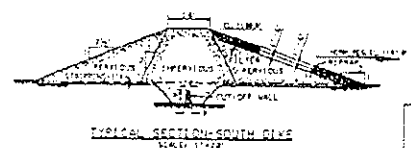
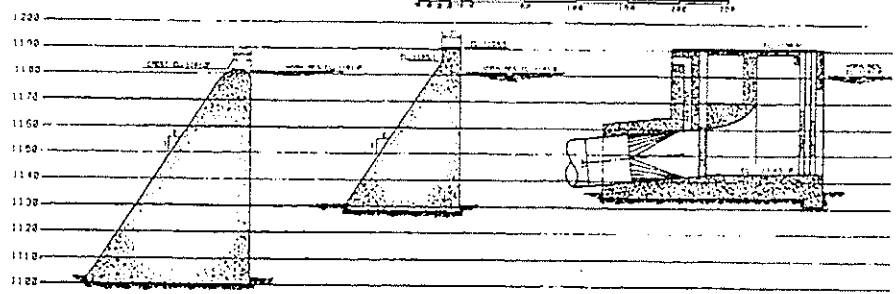
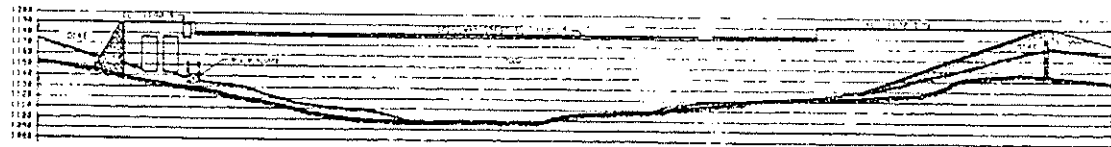
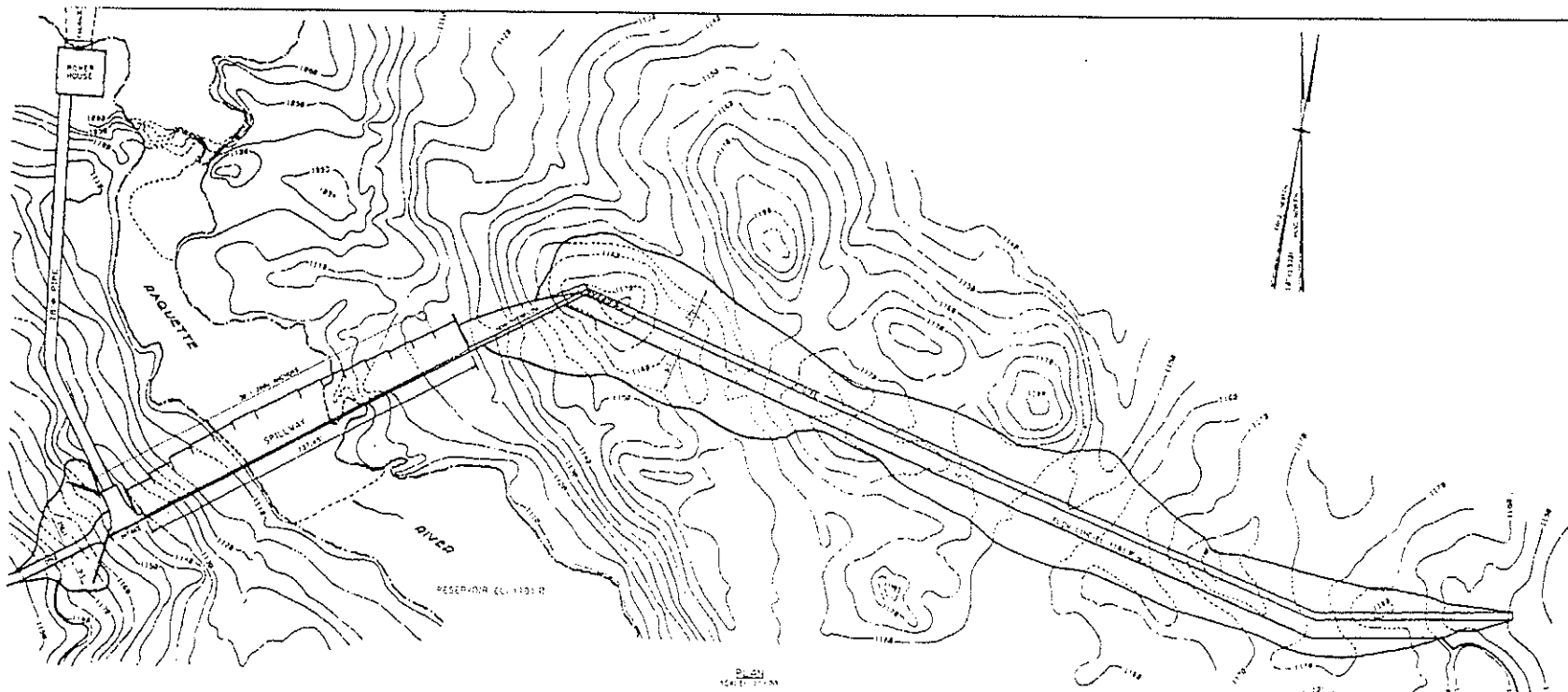
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5	4/11/14	ISSUE ISSUED REVISED DRAWING	JK	JK	4/11/14	
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48	4/11/14	ISSUE ISSUED REVISED DRAWING	JK	JK	4/11/14	
49	4/11/14	ISSUE ISSUED REVISED DRAWING	JK	JK	4/11/14	
50	4/11/14	ISSUE ISSUED REVISED DRAWING	JK	JK	4/11/14	



MR. SOUTHWEST HYDROPOWER CO.  
 LIVERMORE, CALIF.  
 UPPER SACRAMENTO RIVER PROJECT  
 BLAKE DEVELOPMENT  
 PLAN AND SECTIONS OF DAM AND INTAKE

EXHIBIT # \_\_\_\_\_ SCALE: AS SHOWN SHEET NO. 2

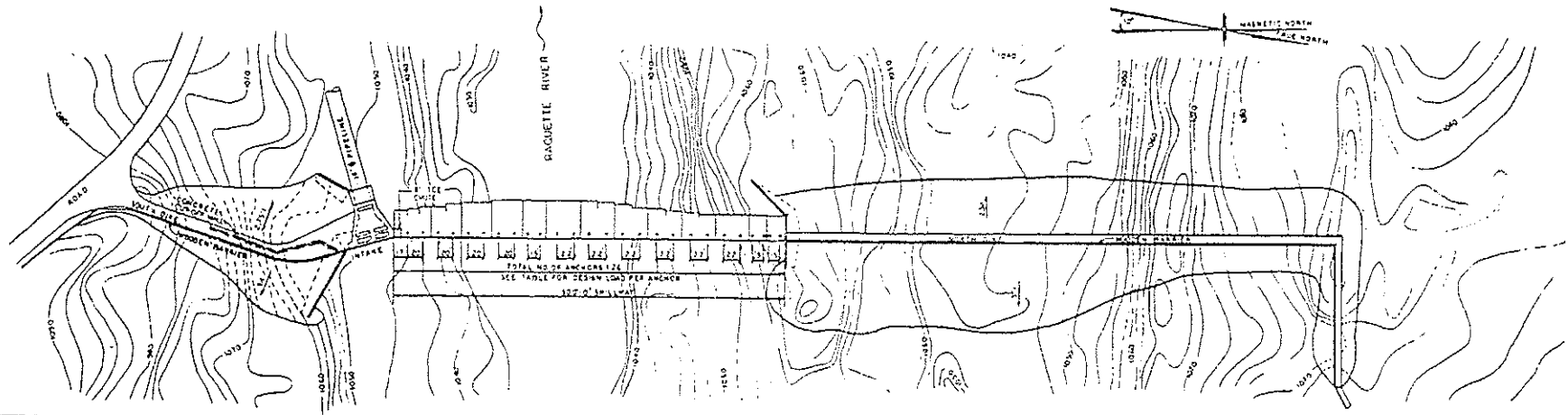
DESIGNED BY	W. H. HARRIS	DATE	12/15/54
CHECKED BY	J. H. HARRIS	DATE	1/10/55
APPROVED BY	W. H. HARRIS	DATE	1/10/55
FILE NO.	F22084.D04	PROJECT NO.	2084-01



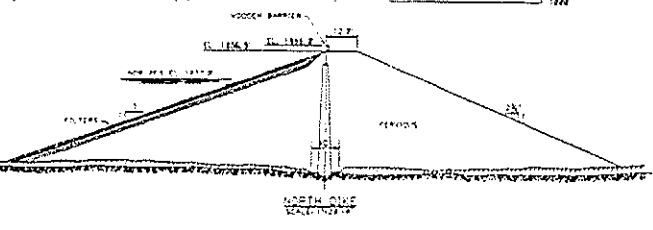
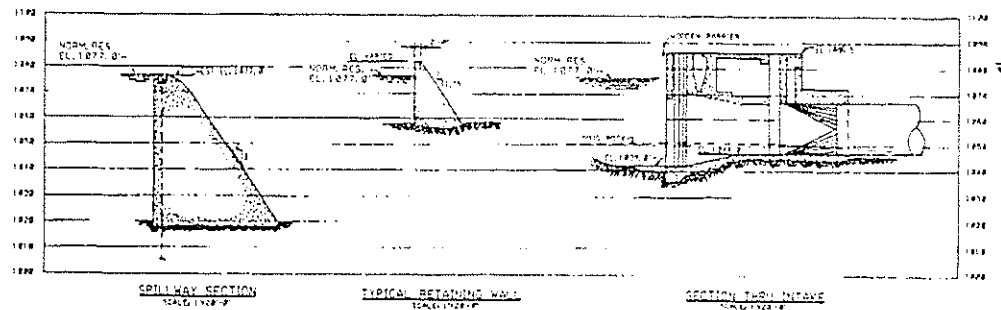
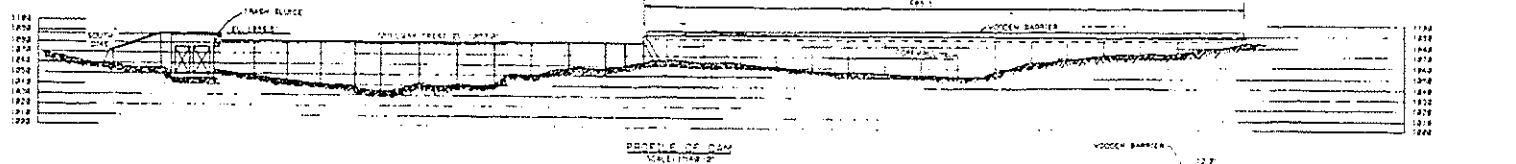
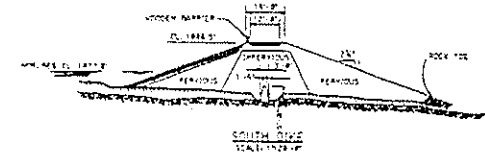
AND MICHAEL BETHLEHEM CO.  
 LYNN, MASS., U.S.A.  
 UPPER RAINBOW RIVER PROJECT  
 RAINBOW DEVELOPMENT  
 PLAN AND SECTIONS OF DAM AND INTAKE  
 SHEET NO. 3  
 SCALE: PLAN  
 0 20 40 60 80 100

NO.	DATE	DESCRIPTION	BY	CHKD.	APP'D.	ORIGINAL ISSUE DATE
1	1-15-52	ISSUE ENGINEERING LICENSE	W. J.	W. J.	W. J.	
2	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
3	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
4	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
5	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
6	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
7	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
8	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
9	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
10	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
11	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
12	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
13	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
14	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
15	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
16	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
17	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
18	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
19	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
20	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
21	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
22	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
23	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
24	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
25	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
26	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
27	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
28	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
29	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
30	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
31	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
32	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
33	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
34	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
35	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
36	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
37	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
38	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
39	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
40	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
41	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
42	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
43	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
44	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
45	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
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47	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
48	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
49	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
50	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
51	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
52	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
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54	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
55	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
56	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
57	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
58	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
59	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
60	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
61	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
62	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
63	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
64	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
65	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
66	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
67	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
68	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
69	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
70	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
71	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
72	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
73	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
74	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
75	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
76	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
77	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
78	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
79	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
80	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
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82	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
83	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
84	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
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86	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
87	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
88	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
89	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
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91	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
92	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
93	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
94	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
95	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
96	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
97	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
98	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
99	1-15-52	REVISIONS	W. J.	W. J.	W. J.	
100	1-15-52	REVISIONS	W. J.	W. J.	W. J.	





FIVE FALLS					
LOCATION	NUMBER OF ANCHORS	DESIGN LOAD (KIPS)	# OF ANCHORS FROM VERTICAL CENTERLINE	ANCHOR DEPTH INTO ROCK (FT.)	WINDUP BOARD LENGTH
MONOLITH 1 (A, B, C, D, E)	12	175.0	8"	30'	25'
MONOLITH 2 (A, B, C, D, E)	18	157.8	8"	33'	25'
MONOLITH 3 (A, B, C, D, E)	4	197.8	8"	30'	25'



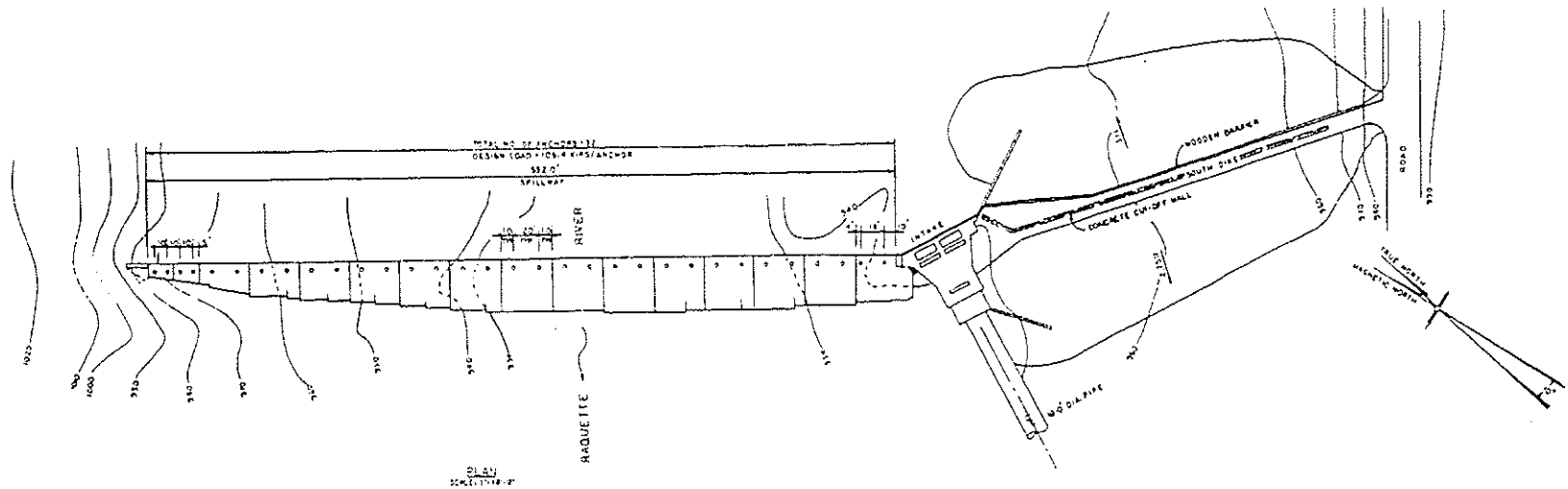
EAST ROCKY MOUNTAIN HYDROPOWER CO.  
 LITTLEPOOL, N.Y.  
 UPPER RAQUETTE RIVER PROJECT  
**FIVE FALLS DEVELOPMENT**  
 PLAN AND SECTIONS OF DAM AND INTAKE

SHEET NO. 4

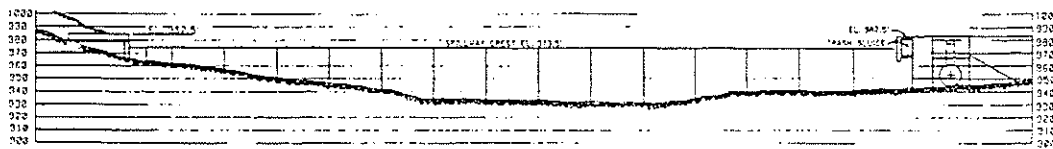
HORIZONTAL SCALE: 1" = 100'  
 VERTICAL SCALE: 1" = 20'

NO.	DATE	DESCRIPTION	BY	CHKD.	APP'D.	SCALE
1	7-17-77	DRAWN BY: J. J. GIBSON	J. J. GIBSON			
2	8-1-77	DESIGNED BY: J. J. GIBSON	J. J. GIBSON			
3	8-1-77	REVISIONS: SEE REVISION SHEET 3	J. J. GIBSON			
4	8-1-77	REVISIONS: SEE REVISION SHEET 3	J. J. GIBSON			

DRAWING TITLE DATE  
 FILE # 42084.DWG  
 PLOT DATE 8/28/87  
 PLOT NUMBER 2084-103

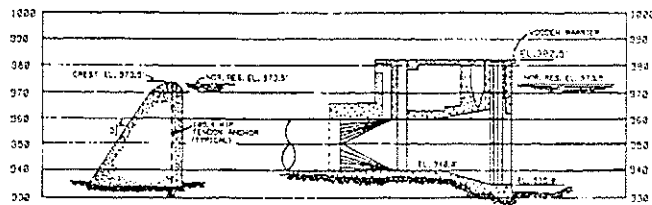


PLAN  
SCALE 1/4" = 1'-0"

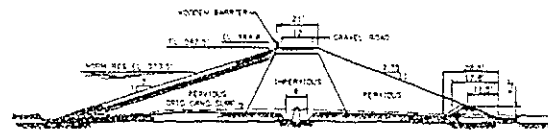
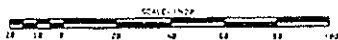


PROFILE OF DAM  
SCALE 1/4" = 1'-0"

SOUTH COLTON					
LOCATION	NUMBER OF ANCHORS	DESIGN LOAD (KIPS)	F OF ANCHOR FROM VERT. (DEGREES)	ANCHOR DEPTH INTO ROCK (FT.)	MIN. BOND LENGTH (FT.)
SPILLWAY	32	140.4	0°	25	28'

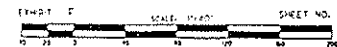


SPILLWAY SECTION SECTION THRU INTAKE



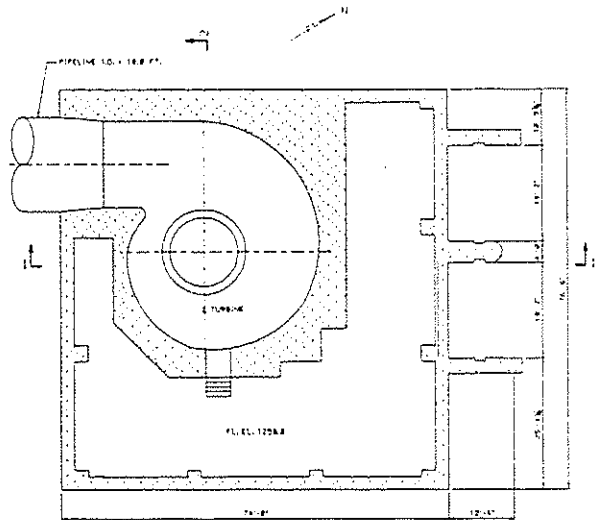
CONCRETE CURB-OFF WALL  
SCALE 1/4" = 1'-0"

BASIS SOCIETY AND HYDROPOWER, LP  
LIVERPOOL, N.Y.  
UPPER RAQUETTE RIVER PROJECT  
SOUTH COLTON DEVELOPMENT  
PLAN AND SECTIONS OF DAM AND INTAKE

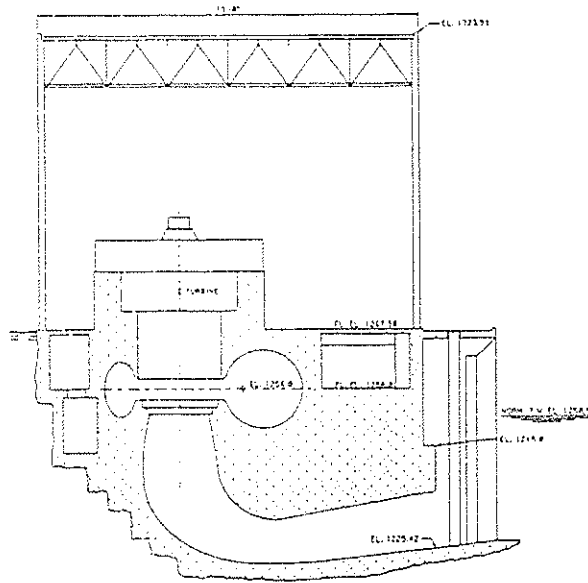


NO.	DESCRIPTION	DATE	BY	CHECKED	APPROVED
1	DESIGN	11/15/84	J. J. GIBSON	J. J. GIBSON	J. J. GIBSON
2	CONSTRUCTION	11/15/84	J. J. GIBSON	J. J. GIBSON	J. J. GIBSON
3	AS-BUILT	11/15/84	J. J. GIBSON	J. J. GIBSON	J. J. GIBSON

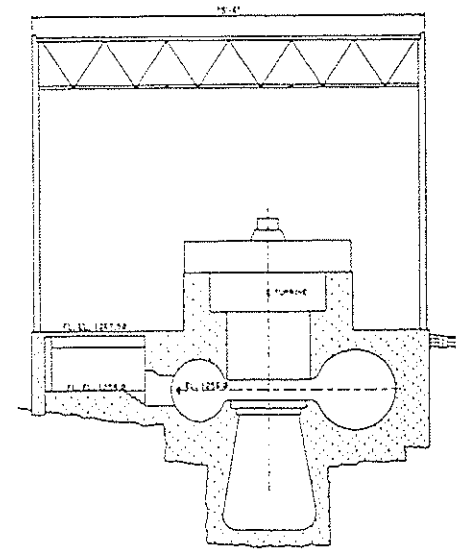
ORIGINAL ISSUE DATE  
FILE NO. 752084-00N  
DRAWING NO. 752084-01P  
JOB NO. 2084-00A



PLAN VIEW  
F14 FLOOR EL. 1256.8

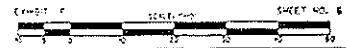


SECTION 1-1



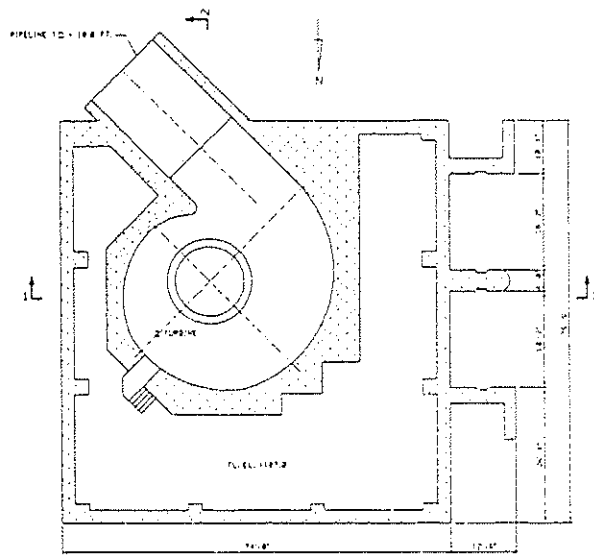
SECTION 2-2

STATE BUREAU OF HYDROPOWER  
LITTLE ROCK, AR.  
UPPER RAQUETTE RIVER PROJECT  
STARK DEVELOPMENT  
PLAN AND SECTIONS OF POWERHOUSE

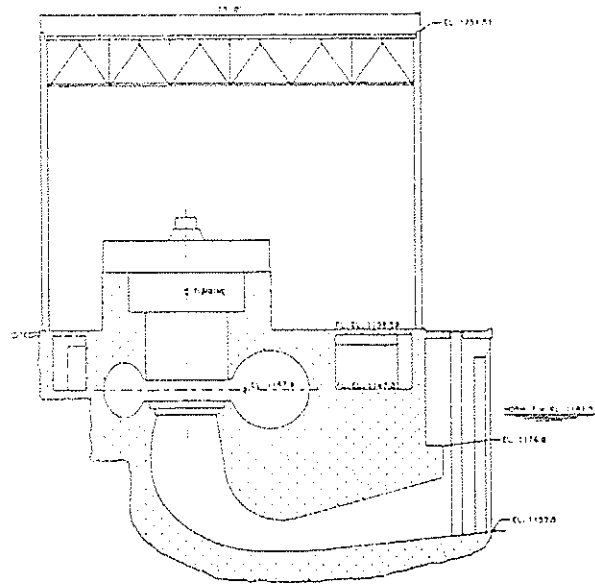


SHEET NO. 6

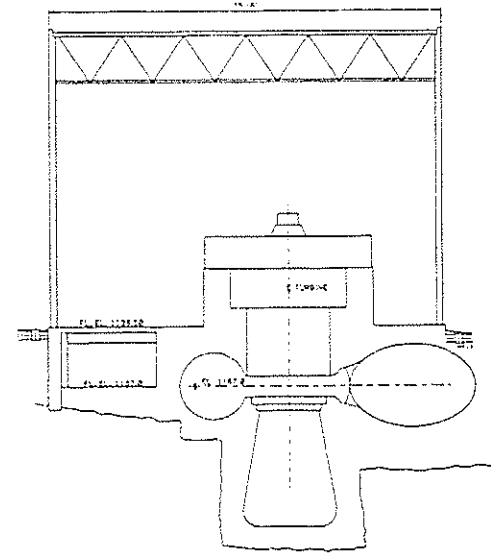
		ORIGINAL TITLE DATE		
1	1978-03	UNDER ISSUING NEW LICENSE	FL	JWS TWS
		SEE COMMENTS EMPLOYED NEW FEPC REVISIONS - 2/18/78		
NO.	337	2002 FROM THE TRACK OF REVISION 33	FL	JWS
			FILE NO.	2084-1015



PLAN VIEW  
MIN. FLOOR EL. 1187.0



SECTION 1-1

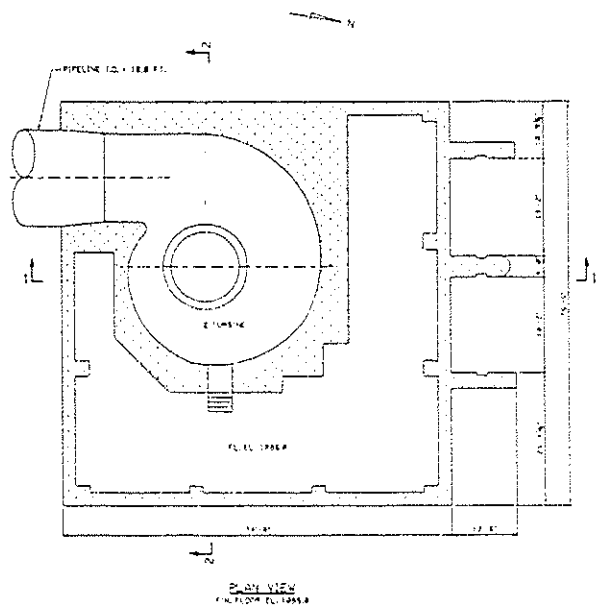


SECTION 2-2

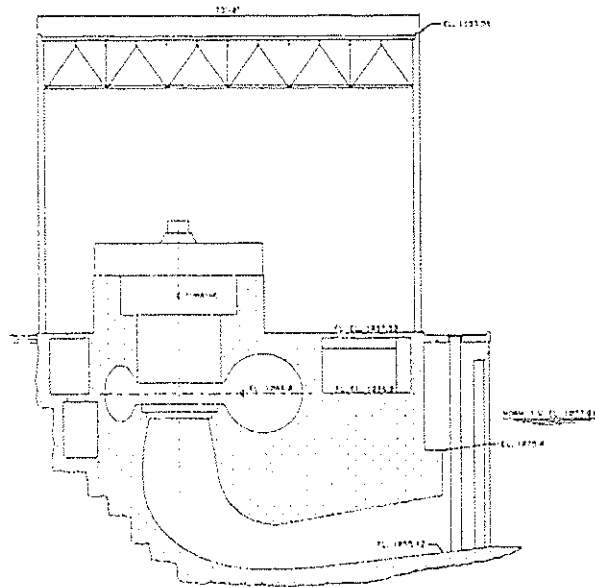
STATE OF NEW YORK  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
UPPER RAquette RIVER PROJECT  
BLAKE DEVELOPMENT  
PLAN AND SECTIONS OF POWERHOUSE

EPH018 F SCALE: 1/4"=1'-0" SHEET NO. 7

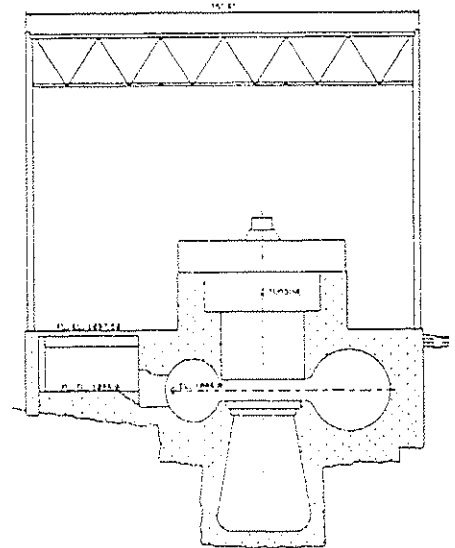
		ORIGINAL ISSUE DATE		
NO.	DATE	DESCRIPTION OF WORK OR REVISION	BY	CHK.
1	08/14/06	ORDER ISSUED FOR LICENSE	MM	YUN
2	08/14/06	NEW PERMITS OBTAINED FOR PERMITS		
3	08/14/06	PERMITS RATED 3.0 MW		
4	08/14/06	REVISION OF WORK ON REVISION	JS	CA
		TOTAL NUMBER		
		2084-10/6		



PLAN VIEW  
F.T. FROM ELEV. 1055.8



SECTION 1-1

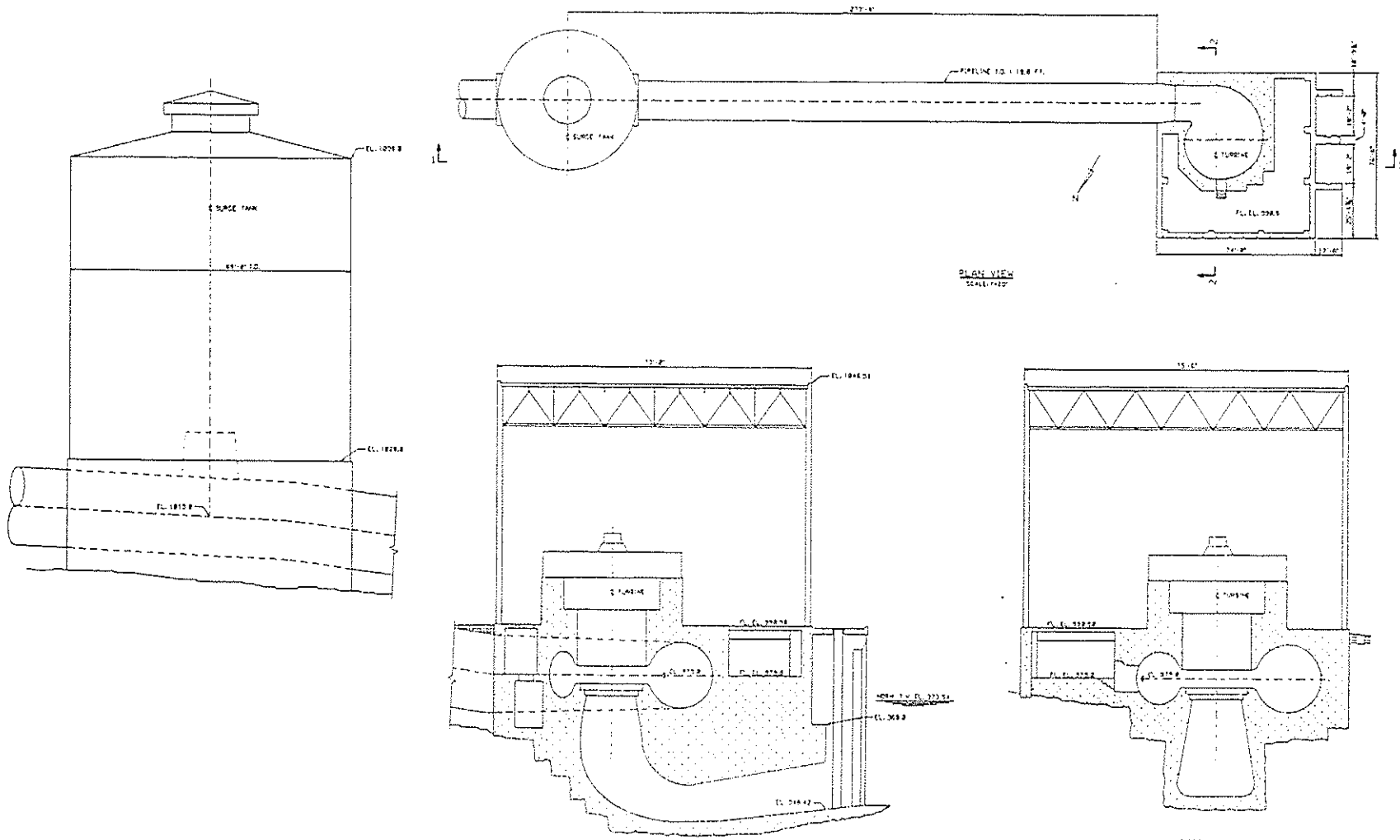


SECTION 2-2

BAIR BOULEVARD HYDROELECTRIC  
LITTLEPOOL, N.Y.  
UPPER RAQUETTE RIVER PROJECT  
RAINBOW DEVELOPMENT  
PLAN AND SECTIONS OF POWERHOUSE

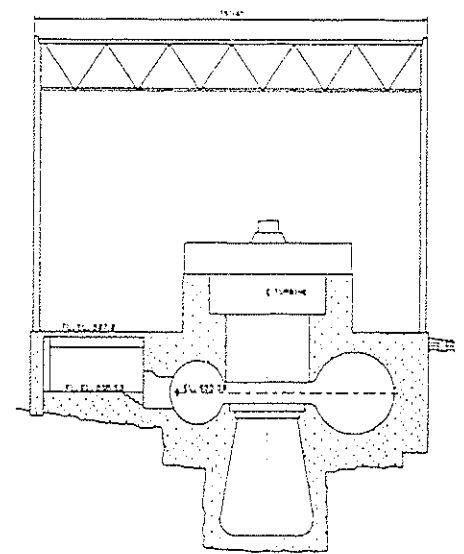
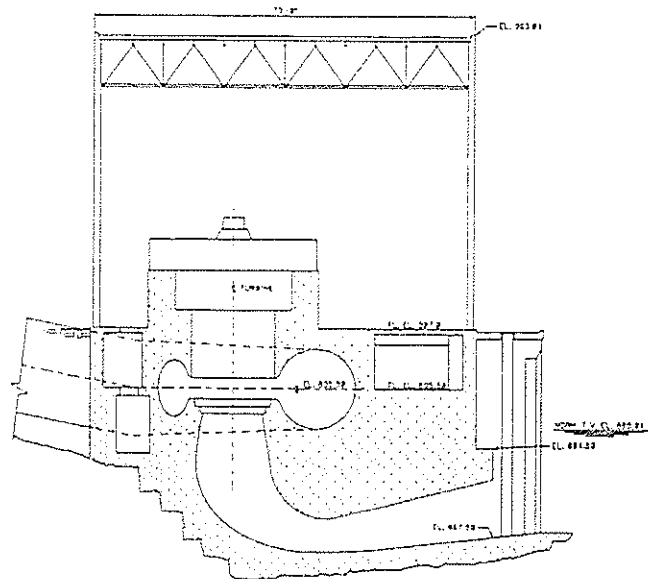
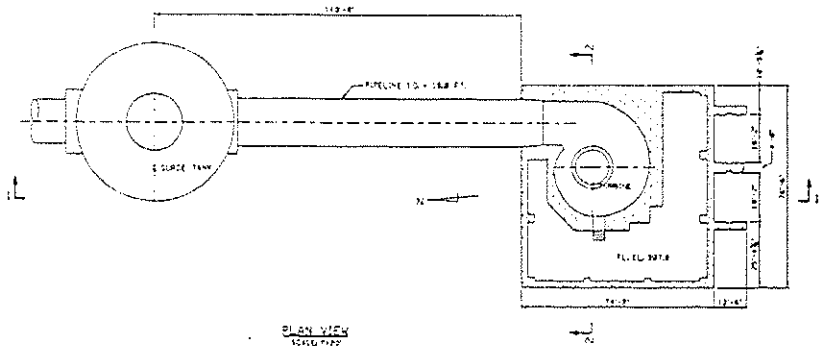
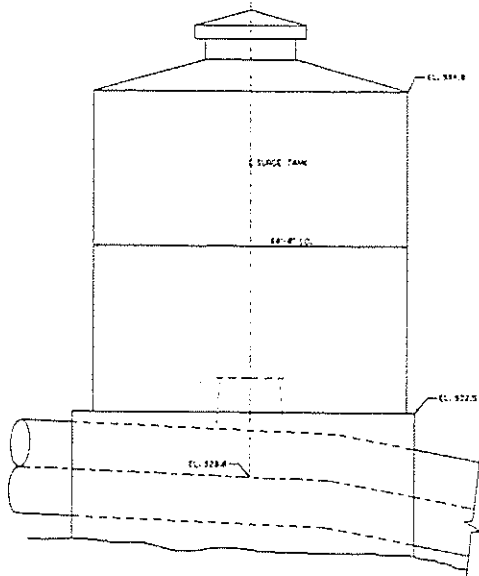
EXHIBIT F SCALE: 1"=10' SHEET NO. 8

		ORIGINAL ISSUE DATE					
1	2/10/77	ORDER ISSUED PER LICENSE	RA	FWS	WHL	DWG. NO.	F82084.DCH
		NEW DIMENSIONS CREATED PER PERC				PERC	2084-017
		DATE OF ISSUE OF PERC					
REV.	DATE	DESCRIPTION OF ISSUE OR REVISION	BY	CHK.	APP.		



NEW YORK STATE HYDROPOWER PLAN  
 LIVERPOOL, N.Y.  
 UPPER RAQUETTE RIVER PROJECT  
 FIVE FALLS DEVELOPMENT  
 PLAN AND SECTIONS OF POWERHOUSE AND SURGE TANK  
 EXHIBIT 1 SCALE: 1"=10' SHEET NO. 9

NO.	DATE	DESCRIPTION OF TASK OR REVISION	BY	CHKD.	APP.	ORIGINAL ISSUE DATE
1	10/23/57	ISSUED FOR NEW SCHEME	PA	TWS	TWS	FILE NO. F 92094.DON
2	11/15/57	REVISIONS TO PLAN AND SECTION	PA	CE	LPA	FIG. NO. 2084-10:8



SECTION 1-1

SECTION 2-2

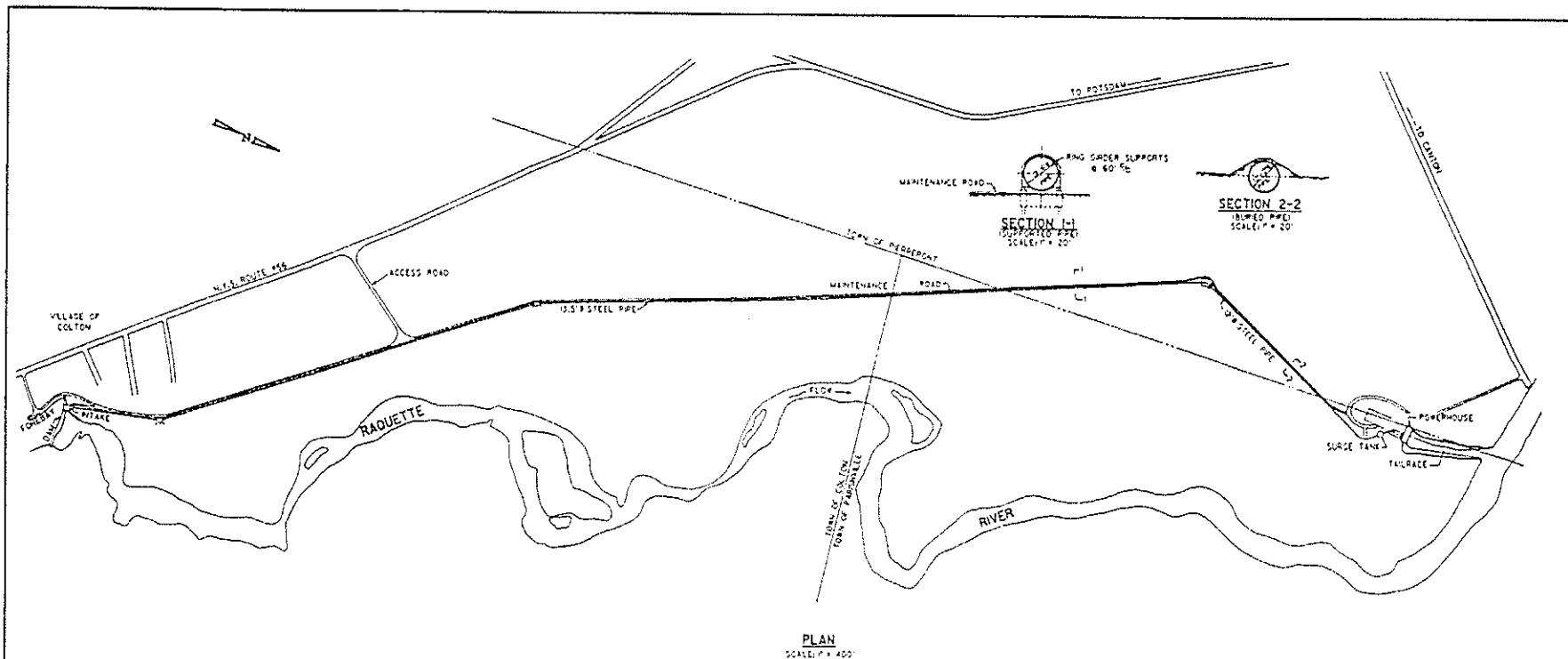
SAS BOULEVARD BETHLEHEM, PA.  
 LYNDEN, N.Y.  
 UPPER PACQUETTE ADNER PROJECT  
 SOUTH COLTON DEVELOPMENT  
 PLAN AND RECTIONS OF POWERHOUSE AND SURGE TANK

EXHIBIT F SCALE: 1/4" = 1'-0" SHEET NO. 10

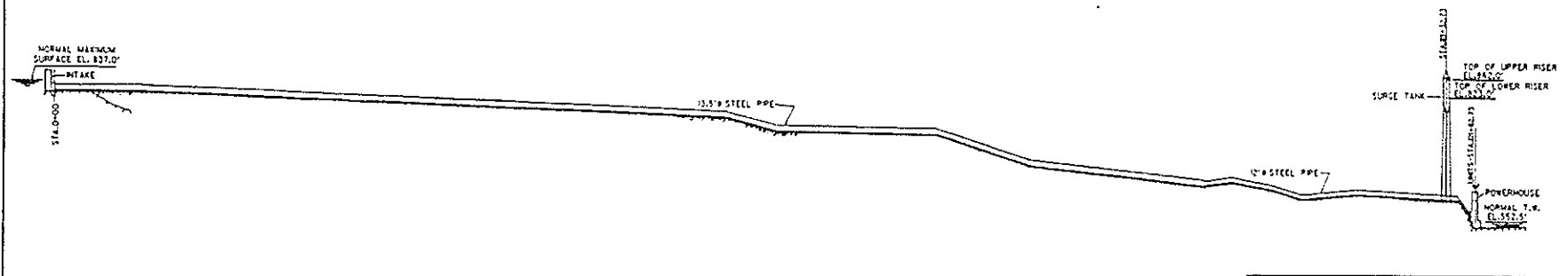
NO.	DATE	DESCRIPTION	BY	CHK.	APP.	ORIGINAL ISSUE DATE
1	1-1-57	ORDER DRAWING NEW LICENSE	PA	1-1-57		FILE NAME F102084.DGN
2	1-1-57	NEW EXHIBIT CREATED PER FERC SUPPLEMENT DATED 12/27/51				FILE NAME 2084-1019







PLAN  
SCALE: 1" = 400'



PROFILE  
SCALE: HORIZ. 1" = 400'  
VERT. 1" = 50'

ELKS SOCIETY AND STEPHENSON, INC.  
LITTON, N.Y.

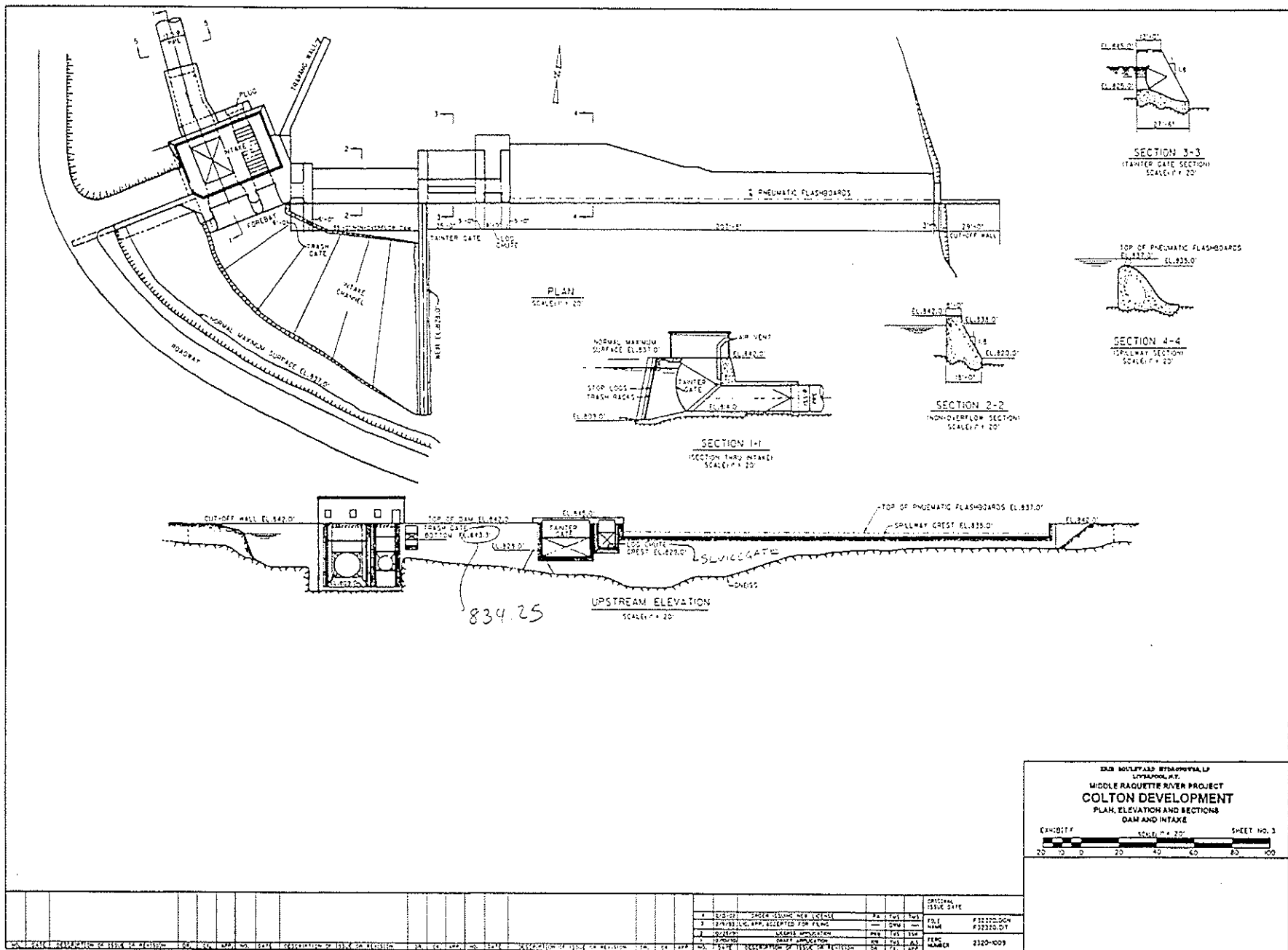
MIDDLE RAQUETTE RIVER PROJECT  
COLTON DEVELOPMENT  
GENERAL PLAN AND PROFILE

EXHIBIT # \_\_\_\_\_ SCALE: 1" = 400' SHEET NO. 2

NO.	DESCRIPTION OF ITEM OR SECTION	DATE	BY	CHKD.	APPROVED	REVISION
1	DESIGN	1958	...	...	...	...
2	CONSTRUCTION	1959	...	...	...	...
3	...	...	...	...	...	...
4	...	...	...	...	...	...
5	...	...	...	...	...	...
6	...	...	...	...	...	...
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8	...	...	...	...	...	...
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17	...	...	...	...	...	...
18	...	...	...	...	...	...
19	...	...	...	...	...	...
20	...	...	...	...	...	...
21	...	...	...	...	...	...
22	...	...	...	...	...	...
23	...	...	...	...	...	...
24	...	...	...	...	...	...
25	...	...	...	...	...	...
26	...	...	...	...	...	...
27	...	...	...	...	...	...
28	...	...	...	...	...	...
29	...	...	...	...	...	...
30	...	...	...	...	...	...
31	...	...	...	...	...	...
32	...	...	...	...	...	...
33	...	...	...	...	...	...
34	...	...	...	...	...	...
35	...	...	...	...	...	...
36	...	...	...	...	...	...
37	...	...	...	...	...	...
38	...	...	...	...	...	...
39	...	...	...	...	...	...
40	...	...	...	...	...	...
41	...	...	...	...	...	...
42	...	...	...	...	...	...
43	...	...	...	...	...	...
44	...	...	...	...	...	...
45	...	...	...	...	...	...
46	...	...	...	...	...	...
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DATE: 12/20/58

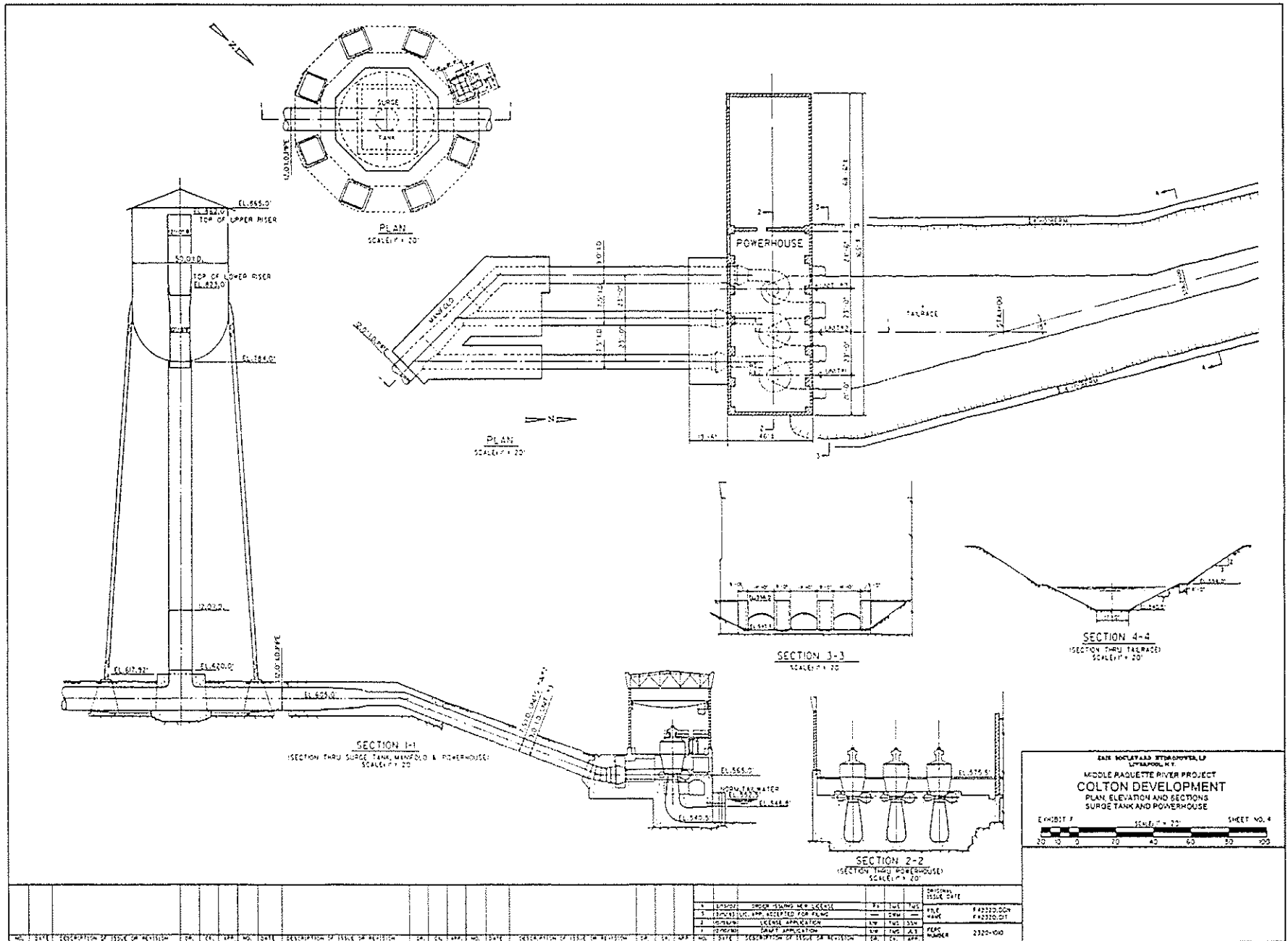
PROJECT NO: 2320-4008



COLTON DEVELOPMENT WITHDRAWAL BY  
 LYONSVILLE, N.C.  
**MIDDLE RAGUETTE RIVER PROJECT**  
**COLTON DEVELOPMENT**  
 PLAN, ELEVATION AND SECTIONS  
 DAM AND INTAKE

EXHIBIT F SCALE: 1" = 20' SHEET NO. 3

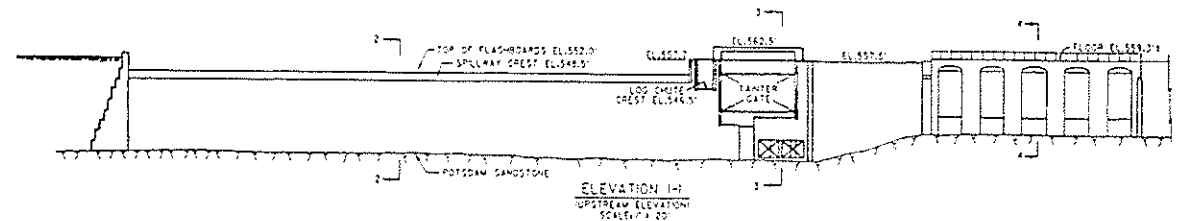
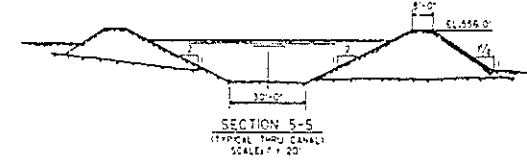
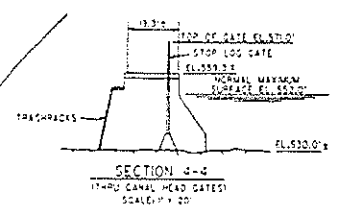
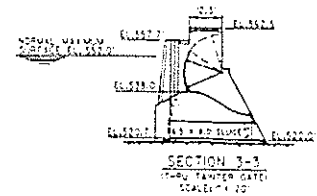
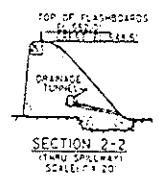
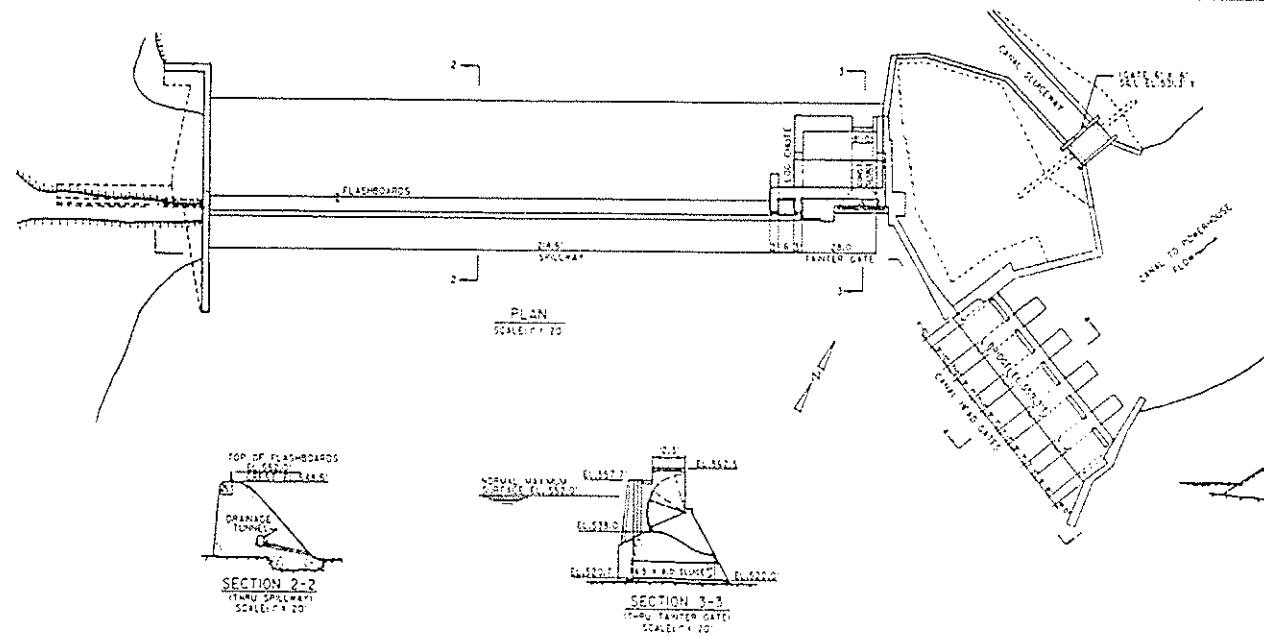
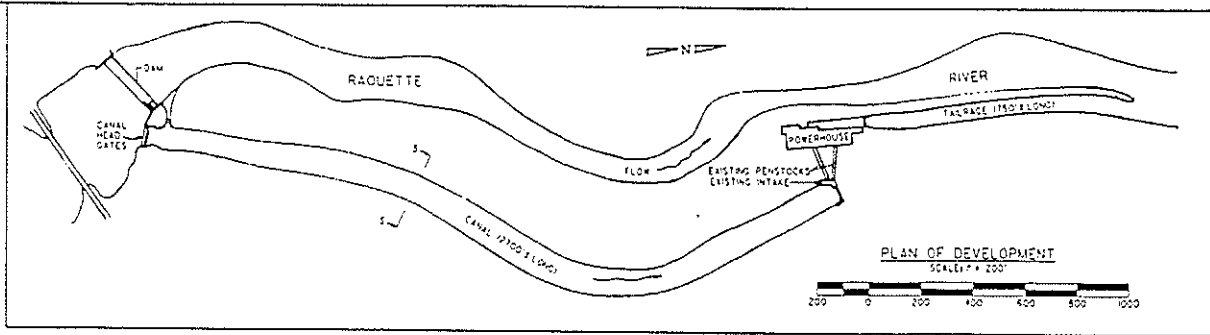
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2	12/15/09	ISSUE FOR PERMITS	...	...	...
3	12/15/09	ISSUE FOR PERMITS	...	...	...
4	12/15/09	ISSUE FOR PERMITS	...	...	...
5	12/15/09	ISSUE FOR PERMITS	...	...	...
6	12/15/09	ISSUE FOR PERMITS	...	...	...
7	12/15/09	ISSUE FOR PERMITS	...	...	...
8	12/15/09	ISSUE FOR PERMITS	...	...	...
9	12/15/09	ISSUE FOR PERMITS	...	...	...
10	12/15/09	ISSUE FOR PERMITS	...	...	...
11	12/15/09	ISSUE FOR PERMITS	...	...	...
12	12/15/09	ISSUE FOR PERMITS	...	...	...
13	12/15/09	ISSUE FOR PERMITS	...	...	...
14	12/15/09	ISSUE FOR PERMITS	...	...	...
15	12/15/09	ISSUE FOR PERMITS	...	...	...
16	12/15/09	ISSUE FOR PERMITS	...	...	...
17	12/15/09	ISSUE FOR PERMITS	...	...	...
18	12/15/09	ISSUE FOR PERMITS	...	...	...
19	12/15/09	ISSUE FOR PERMITS	...	...	...
20	12/15/09	ISSUE FOR PERMITS	...	...	...



EAST SOCIETY AND HYDROPOWER, LP  
 LYONSVILLE, VA  
**MIDDLE RAQUETTE RIVER PROJECT**  
**COLTON DEVELOPMENT**  
 PLAN, ELEVATION AND SECTIONS  
 SURGE TANK AND POWERHOUSE

E 400017 P SCALE: 1" = 20' SHEET NO. 4  
 20 40 60 80 100

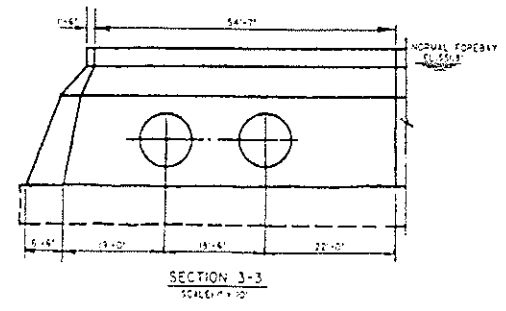
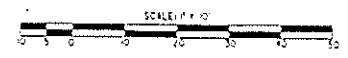
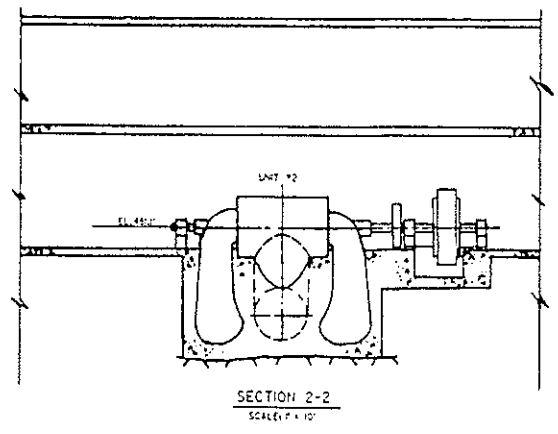
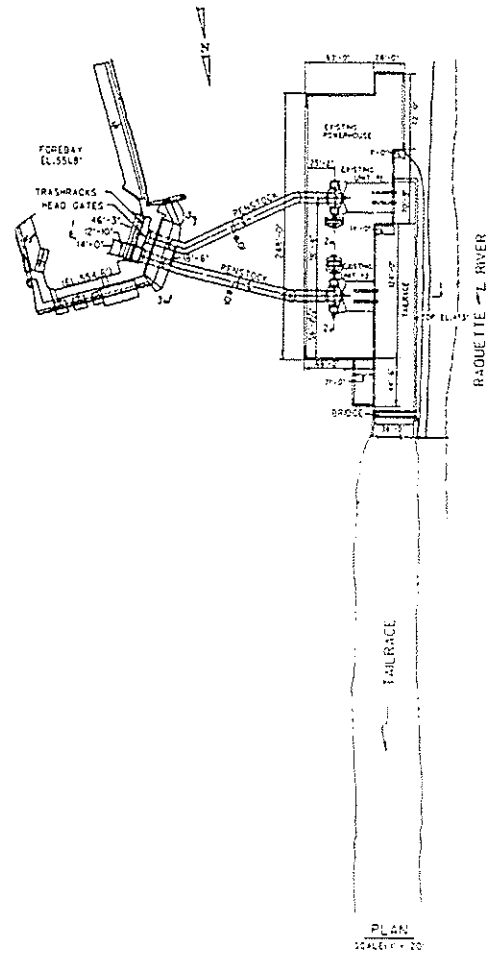
NO.	DATE	DESCRIPTION OF REVISION OR ACTION	BY	CHK.	APP.
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3	12/15/00	ISSUE APPLICATION	...	...	...
4	01/15/01	SALE APPLICATION	...	...	...
5	02/15/01	...	...	...	...
6	03/15/01	...	...	...	...
7	04/15/01	...	...	...	...
8	05/15/01	...	...	...	...
9	06/15/01	...	...	...	...
10	07/15/01	...	...	...	...
11	08/15/01	...	...	...	...
12	09/15/01	...	...	...	...
13	10/15/01	...	...	...	...
14	11/15/01	...	...	...	...
15	12/15/01	...	...	...	...
16	01/15/02	...	...	...	...
17	02/15/02	...	...	...	...
18	03/15/02	...	...	...	...
19	04/15/02	...	...	...	...
20	05/15/02	...	...	...	...
21	06/15/02	...	...	...	...
22	07/15/02	...	...	...	...
23	08/15/02	...	...	...	...
24	09/15/02	...	...	...	...
25	10/15/02	...	...	...	...
26	11/15/02	...	...	...	...
27	12/15/02	...	...	...	...
28	01/15/03	...	...	...	...
29	02/15/03	...	...	...	...
30	03/15/03	...	...	...	...
31	04/15/03	...	...	...	...
32	05/15/03	...	...	...	...
33	06/15/03	...	...	...	...
34	07/15/03	...	...	...	...
35	08/15/03	...	...	...	...
36	09/15/03	...	...	...	...
37	10/15/03	...	...	...	...
38	11/15/03	...	...	...	...
39	12/15/03	...	...	...	...
40	01/15/04	...	...	...	...
41	02/15/04	...	...	...	...
42	03/15/04	...	...	...	...
43	04/15/04	...	...	...	...
44	05/15/04	...	...	...	...
45	06/15/04	...	...	...	...
46	07/15/04	...	...	...	...
47	08/15/04	...	...	...	...
48	09/15/04	...	...	...	...
49	10/15/04	...	...	...	...
50	11/15/04	...	...	...	...
51	12/15/04	...	...	...	...
52	01/15/05	...	...	...	...
53	02/15/05	...	...	...	...
54	03/15/05	...	...	...	...
55	04/15/05	...	...	...	...
56	05/15/05	...	...	...	...
57	06/15/05	...	...	...	...
58	07/15/05	...	...	...	...
59	08/15/05	...	...	...	...
60	09/15/05	...	...	...	...
61	10/15/05	...	...	...	...
62	11/15/05	...	...	...	...
63	12/15/05	...	...	...	...
64	01/15/06	...	...	...	...
65	02/15/06	...	...	...	...
66	03/15/06	...	...	...	...
67	04/15/06	...	...	...	...
68	05/15/06	...	...	...	...
69	06/15/06	...	...	...	...
70	07/15/06	...	...	...	...
71	08/15/06	...	...	...	...
72	09/15/06	...	...	...	...
73	10/15/06	...	...	...	...
74	11/15/06	...	...	...	...
75	12/15/06	...	...	...	...
76	01/15/07	...	...	...	...
77	02/15/07	...	...	...	...
78	03/15/07	...	...	...	...
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80	05/15/07	...	...	...	...
81	06/15/07	...	...	...	...
82	07/15/07	...	...	...	...
83	08/15/07	...	...	...	...
84	09/15/07	...	...	...	...
85	10/15/07	...	...	...	...
86	11/15/07	...	...	...	...
87	12/15/07	...	...	...	...
88	01/15/08	...	...	...	...
89	02/15/08	...	...	...	...
90	03/15/08	...	...	...	...
91	04/15/08	...	...	...	...
92	05/15/08	...	...	...	...
93	06/15/08	...	...	...	...
94	07/15/08	...	...	...	...
95	08/15/08	...	...	...	...
96	09/15/08	...	...	...	...
97	10/15/08	...	...	...	...
98	11/15/08	...	...	...	...
99	12/15/08	...	...	...	...
100	01/15/09	...	...	...	...



1825 SOCIETY HILL SPILLWAY  
MIDDLE RAQUETTE RIVER PROJECT  
HANNAWA DEVELOPMENT  
PLAN, ELEVATION AND SECTIONS  
DAM, CANAL INTAKE, AND CANAL

EXHIBIT 1 SCALE: 1" = 20' SHEET NO. 5

NO.	DESCRIPTION	DATE	BY	CHKD.	APP'D.
1	DESIGN	1952	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
2	CONSTRUCTION	1953	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
3	REVISION	1954	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
4	REVISION	1955	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
5	REVISION	1956	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
6	REVISION	1957	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
7	REVISION	1958	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
8	REVISION	1959	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
9	REVISION	1960	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
10	REVISION	1961	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
11	REVISION	1962	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
12	REVISION	1963	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
13	REVISION	1964	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
14	REVISION	1965	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
15	REVISION	1966	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
16	REVISION	1967	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
17	REVISION	1968	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
18	REVISION	1969	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
19	REVISION	1970	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
20	REVISION	1971	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
21	REVISION	1972	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
22	REVISION	1973	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
23	REVISION	1974	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
24	REVISION	1975	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
25	REVISION	1976	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
26	REVISION	1977	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
27	REVISION	1978	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
28	REVISION	1979	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
29	REVISION	1980	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
30	REVISION	1981	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
31	REVISION	1982	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
32	REVISION	1983	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
33	REVISION	1984	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
34	REVISION	1985	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
35	REVISION	1986	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
36	REVISION	1987	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
37	REVISION	1988	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
38	REVISION	1989	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
39	REVISION	1990	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
40	REVISION	1991	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
41	REVISION	1992	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
42	REVISION	1993	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
43	REVISION	1994	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
44	REVISION	1995	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
45	REVISION	1996	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
46	REVISION	1997	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
47	REVISION	1998	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
48	REVISION	1999	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
49	REVISION	2000	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
50	REVISION	2001	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
51	REVISION	2002	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
52	REVISION	2003	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
53	REVISION	2004	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
54	REVISION	2005	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
55	REVISION	2006	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
56	REVISION	2007	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
57	REVISION	2008	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
58	REVISION	2009	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
59	REVISION	2010	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
60	REVISION	2011	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
61	REVISION	2012	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
62	REVISION	2013	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
63	REVISION	2014	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
64	REVISION	2015	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
65	REVISION	2016	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
66	REVISION	2017	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
67	REVISION	2018	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
68	REVISION	2019	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
69	REVISION	2020	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
70	REVISION	2021	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
71	REVISION	2022	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
72	REVISION	2023	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
73	REVISION	2024	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS
74	REVISION	2025	J. H. HARRIS	J. H. HARRIS	J. H. HARRIS

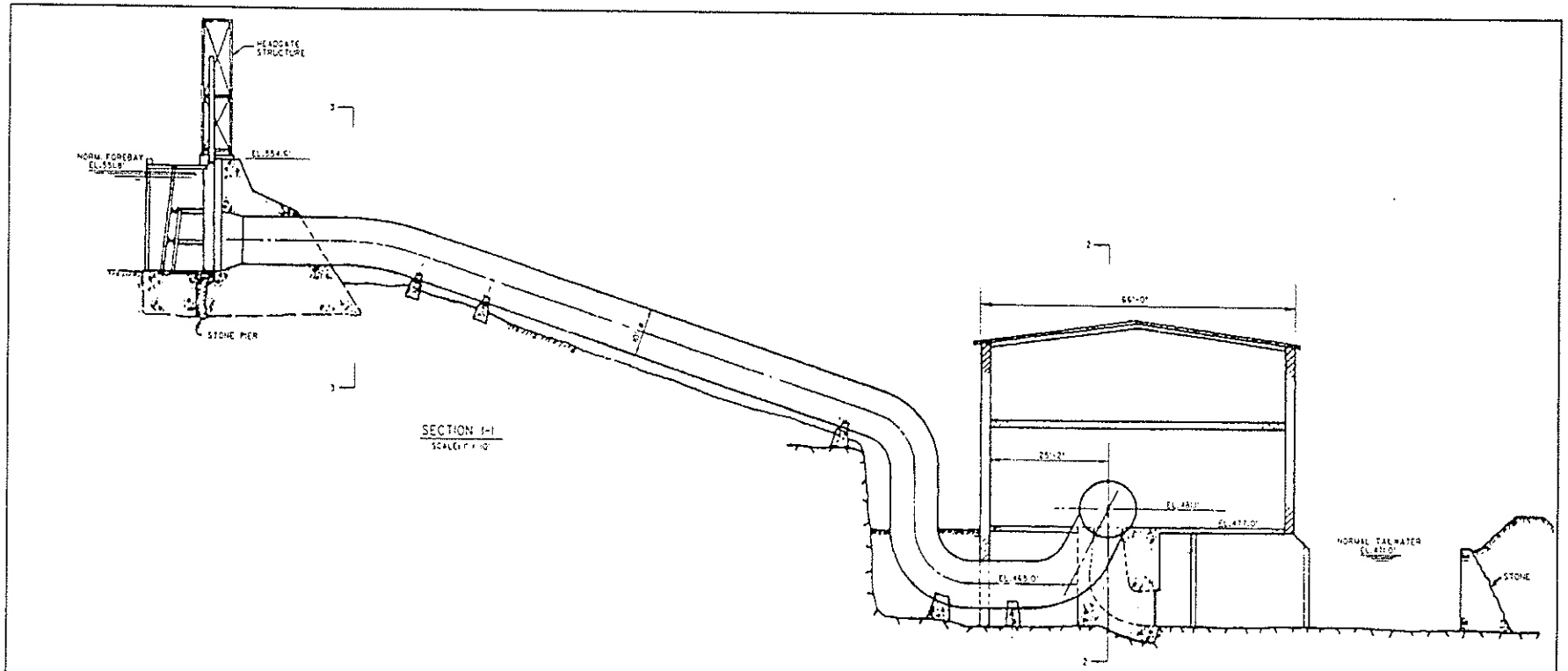


MAIN BOULEVARD HYDROPOWER LP  
 LYNNWOOD, WY.  
**MIDDLE RAGUETTE RIVER PROJECT**  
**HANNAWA DEVELOPMENT**  
 PLAN, ELEVATION AND SECTIONS  
 FOREBAY, INTAKE, PENSTOCKS & POWERHOUSE

EXHIBIT F  
 SCALE: 1" = 20'  
 SHEET NO. 4  
 0 10 20 30 40 50 60 70

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	BY	CHKD.	APPROV.	DATE	DESCRIPTION OF ISSUE OR REVISION	BY	CHKD.	APPROV.	DATE	DESCRIPTION OF ISSUE OR REVISION	BY	CHKD.	APPROV.	DATE	DESCRIPTION OF ISSUE OR REVISION	
1		ISSUED UNDER PERMITS NEW LICENSE				24	AUG	2013										
2		DESIGN AND CONSTRUCTION ACCEPTED FOR PERMITS				16	JUN	2014										
3		ISSUED UNDER PERMITS NEW LICENSE				16	JUN	2014										
4		ISSUED UNDER PERMITS NEW LICENSE				16	JUN	2014										
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12		ISSUED UNDER PERMITS NEW LICENSE				16	JUN	2014										
13		ISSUED UNDER PERMITS NEW LICENSE				16	JUN	2014										
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19		ISSUED UNDER PERMITS NEW LICENSE				16	JUN	2014										
20		ISSUED UNDER PERMITS NEW LICENSE				16	JUN	2014										

ORIGINAL  
 ISSUE DATE  
 FILE # 662322.DWG  
 NAME 162322.DWG  
 DATE 16 JUN 2014  
 TIME 10:11:11  
 USER  
 PLOT SCALE 1/20  
 PLOT DATE 16 JUN 2014  
 PLOT TIME 10:11:11

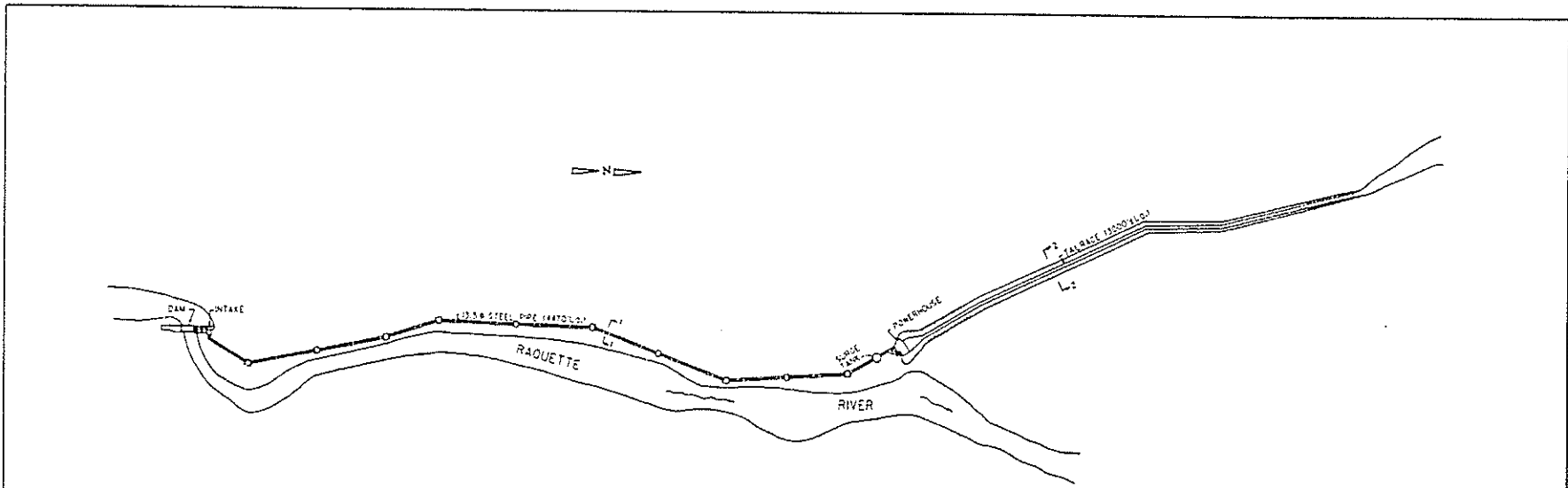


SECTION I-I  
SCALE 1/4"

1428 BULLYVALE BYTHORNFIELD  
 LYTHAM, N.Y.  
 MIDDLE RAGUETTE RIVER PROJECT  
**HANNAWA DEVELOPMENT**  
 SECTION OF FOREBAY INTAKE  
 PENSTOCKS & POWERHOUSE

EXHIBIT F      SCALE 1/4"      SHEET NO. 7  
 0    20    40    60    80    100

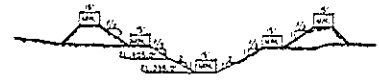
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2	10/11/20	DESIGN	...	...	...			...	...
3	10/12/20	DESIGN	...	...	...			...	...
4	10/13/20	DESIGN	...	...	...			...	...
5	10/14/20	DESIGN	...	...	...			...	...
6	10/15/20	DESIGN	...	...	...			...	...
7	10/16/20	DESIGN	...	...	...			...	...
8	10/17/20	DESIGN	...	...	...			...	...
9	10/18/20	DESIGN	...	...	...			...	...
10	10/19/20	DESIGN	...	...	...			...	...
11	10/20/20	DESIGN	...	...	...			...	...
12	10/21/20	DESIGN	...	...	...			...	...
13	10/22/20	DESIGN	...	...	...			...	...
14	10/23/20	DESIGN	...	...	...			...	...
15	10/24/20	DESIGN	...	...	...			...	...
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18	10/27/20	DESIGN	...	...	...			...	...
19	10/28/20	DESIGN	...	...	...			...	...
20	10/29/20	DESIGN	...	...	...			...	...
21	10/30/20	DESIGN	...	...	...			...	...
22	10/31/20	DESIGN	...	...	...			...	...
23	11/01/20	DESIGN	...	...	...			...	...
24	11/02/20	DESIGN	...	...	...			...	...
25	11/03/20	DESIGN	...	...	...			...	...
26	11/04/20	DESIGN	...	...	...			...	...
27	11/05/20	DESIGN	...	...	...			...	...
28	11/06/20	DESIGN	...	...	...			...	...
29	11/07/20	DESIGN	...	...	...			...	...
30	11/08/20	DESIGN	...	...	...			...	...
31	11/09/20	DESIGN	...	...	...			...	...
32	11/10/20	DESIGN	...	...	...			...	...
33	11/11/20	DESIGN	...	...	...			...	...
34	11/12/20	DESIGN	...	...	...			...	...
35	11/13/20	DESIGN	...	...	...			...	...
36	11/14/20	DESIGN	...	...	...			...	...
37	11/15/20	DESIGN	...	...	...			...	...
38	11/16/20	DESIGN	...	...	...			...	...
39	11/17/20	DESIGN	...	...	...			...	...
40	11/18/20	DESIGN	...	...	...			...	...
41	11/19/20	DESIGN	...	...	...			...	...
42	11/20/20	DESIGN	...	...	...			...	...
43	11/21/20	DESIGN	...	...	...			...	...
44	11/22/20	DESIGN	...	...	...			...	...
45	11/23/20	DESIGN	...	...	...			...	...
46	11/24/20	DESIGN	...	...	...			...	...
47	11/25/20	DESIGN	...	...	...			...	...
48	11/26/20	DESIGN	...	...	...			...	...
49	11/27/20	DESIGN	...	...	...			...	...
50	11/28/20	DESIGN	...	...	...			...	...
51	11/29/20	DESIGN	...	...	...			...	...
52	11/30/20	DESIGN	...	...	...			...	...
53	12/01/20	DESIGN	...	...	...			...	...
54	12/02/20	DESIGN	...	...	...			...	...
55	12/03/20	DESIGN	...	...	...			...	...
56	12/04/20	DESIGN	...	...	...			...	...
57	12/05/20	DESIGN	...	...	...			...	...
58	12/06/20	DESIGN	...	...	...			...	...
59	12/07/20	DESIGN	...	...	...			...	...
60	12/08/20	DESIGN	...	...	...			...	...
61	12/09/20	DESIGN	...	...	...			...	...
62	12/10/20	DESIGN	...	...	...			...	...
63	12/11/20	DESIGN	...	...	...			...	...
64	12/12/20	DESIGN	...	...	...			...	...
65	12/13/20	DESIGN	...	...	...			...	...
66	12/14/20	DESIGN	...	...	...			...	...
67	12/15/20	DESIGN	...	...	...			...	...
68	12/16/20	DESIGN	...	...	...			...	...
69	12/17/20	DESIGN	...	...	...			...	...
70	12/18/20	DESIGN	...	...	...			...	...
71	12/19/20	DESIGN	...	...	...			...	...
72	12/20/20	DESIGN	...	...	...			...	...
73	12/21/20	DESIGN	...	...	...			...	...
74	12/22/20	DESIGN	...	...	...			...	...
75	12/23/20	DESIGN	...	...	...			...	...
76	12/24/20	DESIGN	...	...	...			...	...
77	12/25/20	DESIGN	...	...	...			...	...
78	12/26/20	DESIGN	...	...	...			...	...
79	12/27/20	DESIGN	...	...	...			...	...
80	12/28/20	DESIGN	...	...	...			...	...
81	12/29/20	DESIGN	...	...	...			...	...
82	12/30/20	DESIGN	...	...	...			...	...
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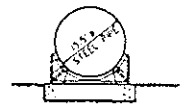
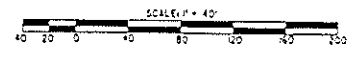
PLAN  
SCALE: 1" = 300'



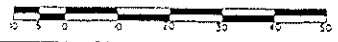
PROFILE  
SCALE: HORIZONTAL 1" = 300'  
VERTICAL 1" = 40'



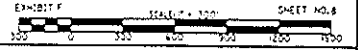
SECTION 2-2  
TYPICAL FOR TAILRACE  
SCALE: 1" = 40'



SECTION 1-1  
TYPICAL AT PIPE SUPPORT  
SCALE: 1" = 20'

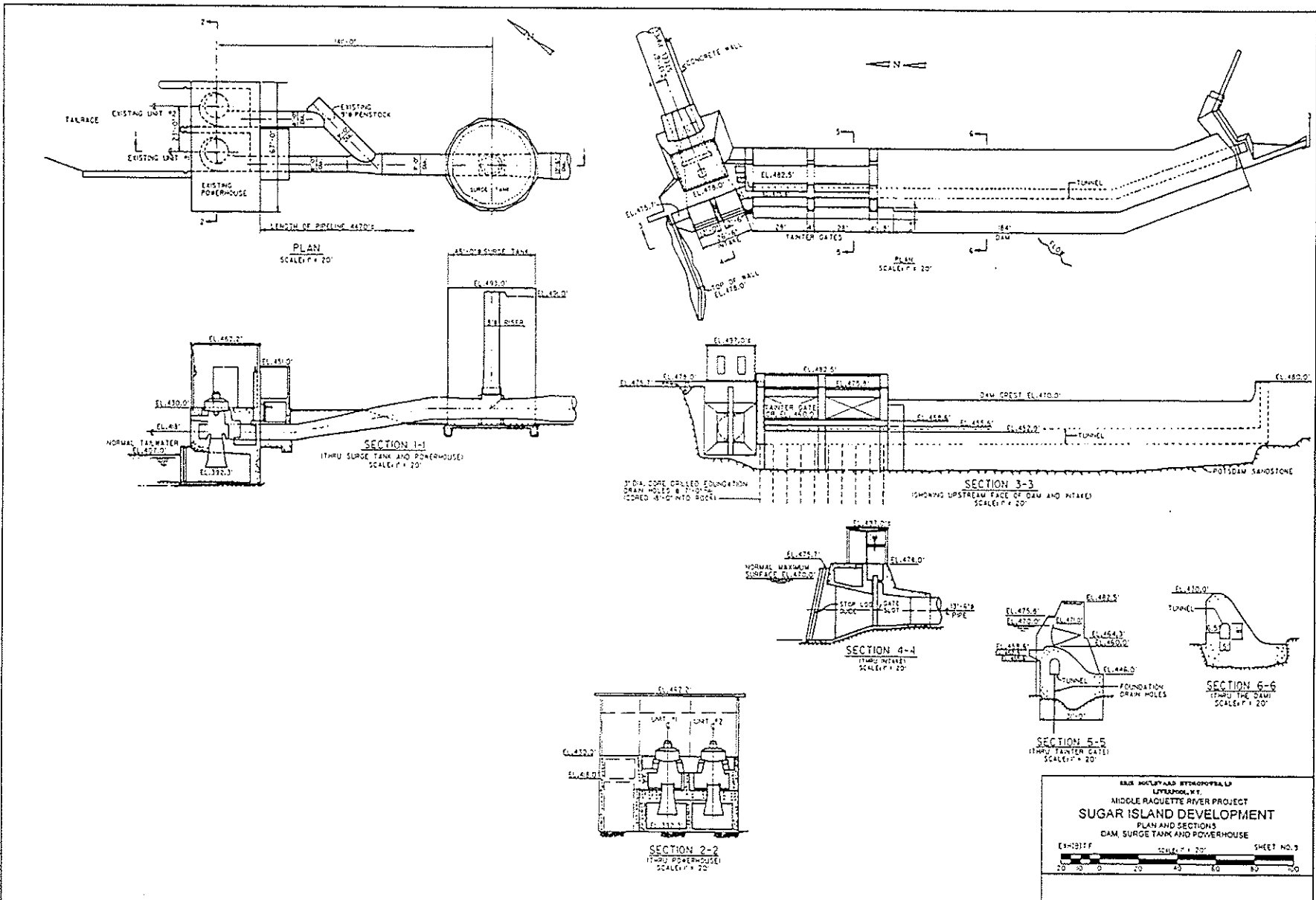


BASIS NOTYLAND HYDROPOWER  
LIVERMORE REP.  
MIDDLE RAQUETTE RIVER PROJECT  
SUGAR ISLAND DEVELOPMENT  
GENERAL PLAN AND PROFILE



NO.	DATE	DESCRIPTION OF ISSUE OR ACTION	BY	APP'D.	NO.	DATE	DESCRIPTION OF ISSUE OR ACTION	BY	APP'D.	NO.	DATE	DESCRIPTION OF ISSUE OR ACTION	BY	APP'D.	NO.	DATE	DESCRIPTION OF ISSUE OR ACTION	BY	APP'D.	
1		ISSUE																		
2		REVISION																		
3		REVISION																		
4		REVISION																		
5		REVISION																		

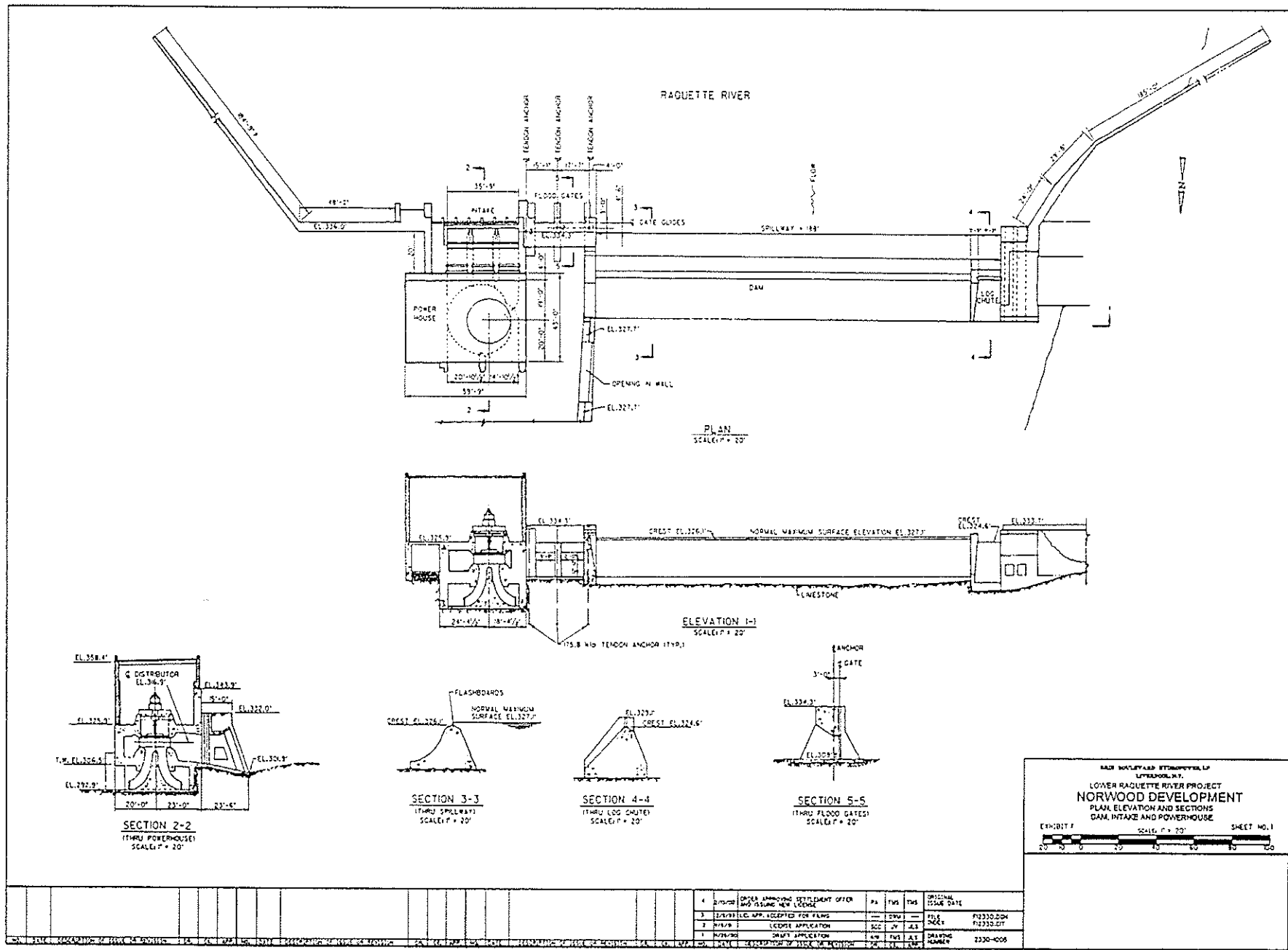
DESIGNER	HYDROPOWER	DATE	8/22/54
FILE	882220-004	ISSUE	1
PROJECT	MIDDLE RAQUETTE RIVER PROJECT	SCALE	AS SHOWN
NO.	2270-104	DATE	8/22/54



NO.	DATE	DESCRIPTION OF WORK OR REVISION	BY	CHK.	APP.	NO.	DATE	DESCRIPTION OF WORK OR REVISION	BY	CHK.	APP.	NO.	DATE	DESCRIPTION OF WORK OR REVISION	BY	CHK.	APP.
1		ISSUED UNDER NEW ORDER															
2		REVISIONS ACCEPTED FOR PRINT															
3		REVISIONS ACCEPTED FOR PRINT															
4		REVISIONS ACCEPTED FOR PRINT															
5		REVISIONS ACCEPTED FOR PRINT															
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EARL HULLYARD HYDROPOWER LTD.  
 LITTLETON, N.Y.  
**MIDDLE RAGUETTE RIVER PROJECT**  
**SUGAR ISLAND DEVELOPMENT**  
 PLAN AND SECTIONS  
 DAM, SURGE TANK AND POWERHOUSE  
 EXHIBIT F SCALE: 1" = 20' SHEET NO. 5  
 ORIGINAL ISSUE DATE: 1/23/50  
 FILE NAME: 132330.004  
 FILE NUMBER: 132330.001  
 DRAFT APPLICATION: NEW PUMP TEST  
 PENC NUMBER: 2322-105

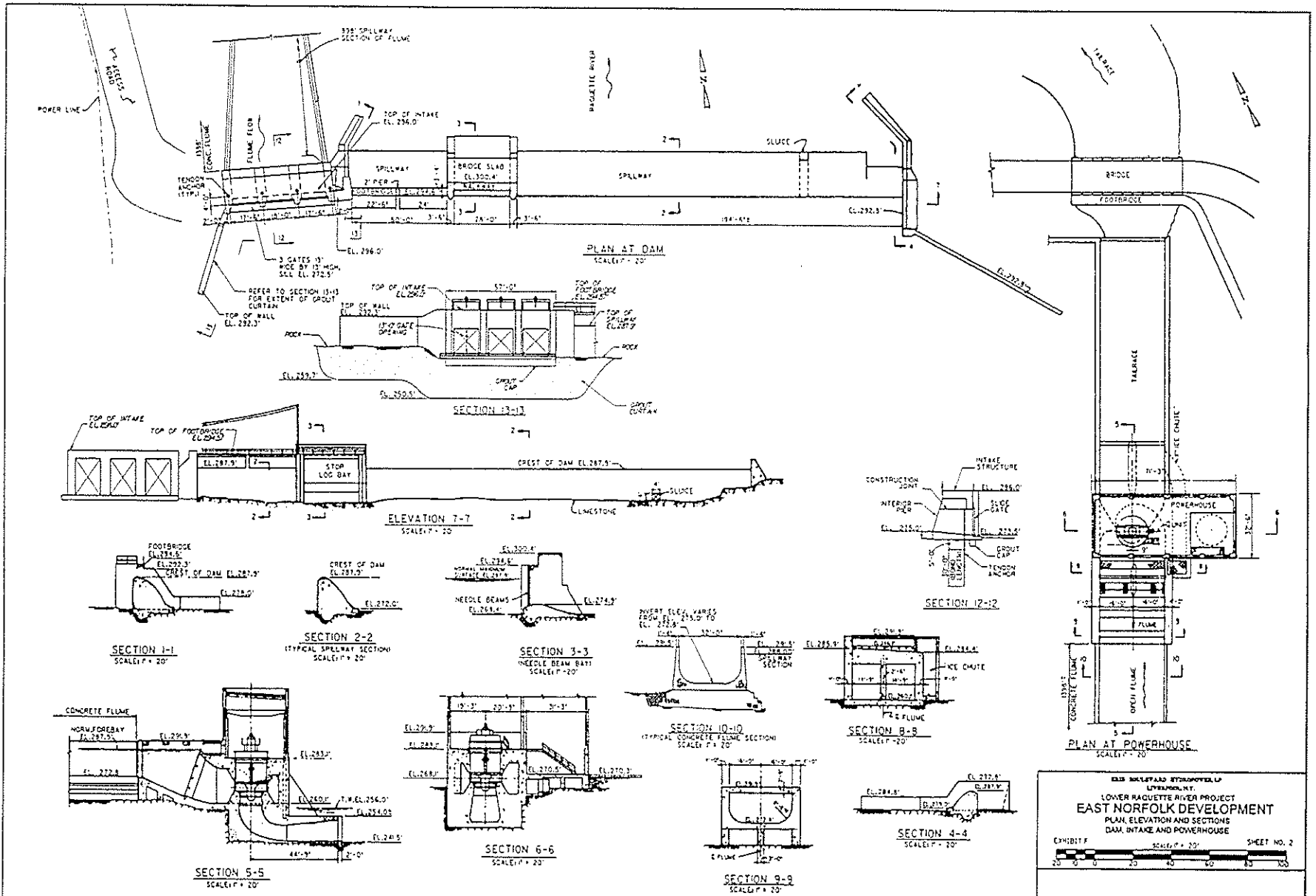




BAE SOUTHWEST ENGINEERING  
 LITTLETON, CO.  
**NORWOOD DEVELOPMENT**  
 PLAN, ELEVATION AND SECTIONS  
 DAM, INTAKE AND POWERHOUSE

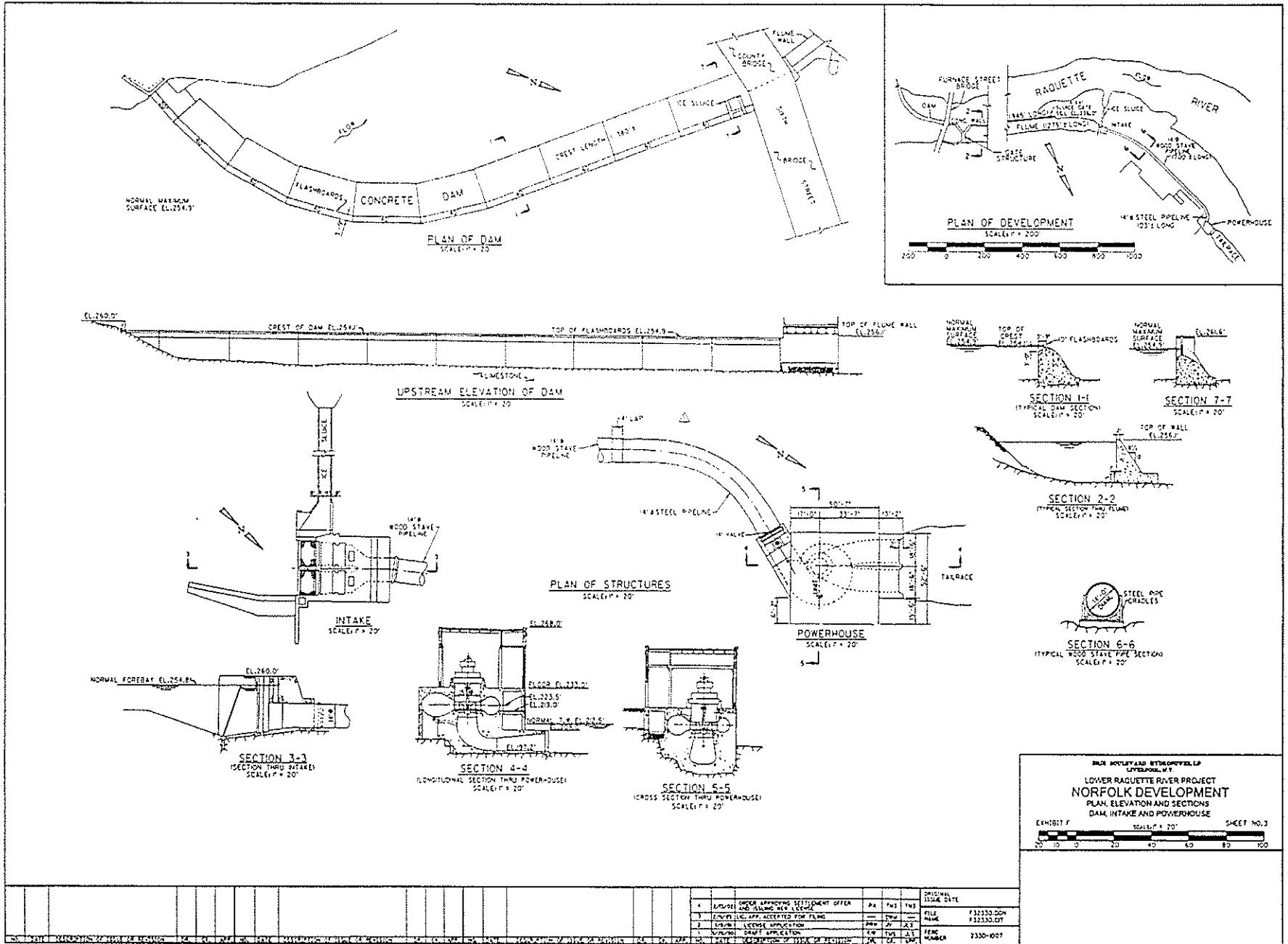
EXHIBIT F SCALE: 1" = 20'  
 SHEET NO. 1

NO.	DATE	DESCRIPTION	BY	CHECKED	APPROVED	ORIGINAL ISSUE DATE
1	2/15/20	ORDER APPROVING SETTLEMENT OFFER AND ISSUING NEW LICENSE	PA	FWS	FWS	
2	2/15/20	EXHIBIT F.I.C. APP. ACCEPTED FOR PLANS	SCC	JY	JLS	7/23/2020
3	2/15/20	LICENSE APPLICATION	SCC	JY	JLS	7/23/2020
4	2/15/20	ORDER APPROVING SETTLEMENT OFFER	PA	FWS	FWS	

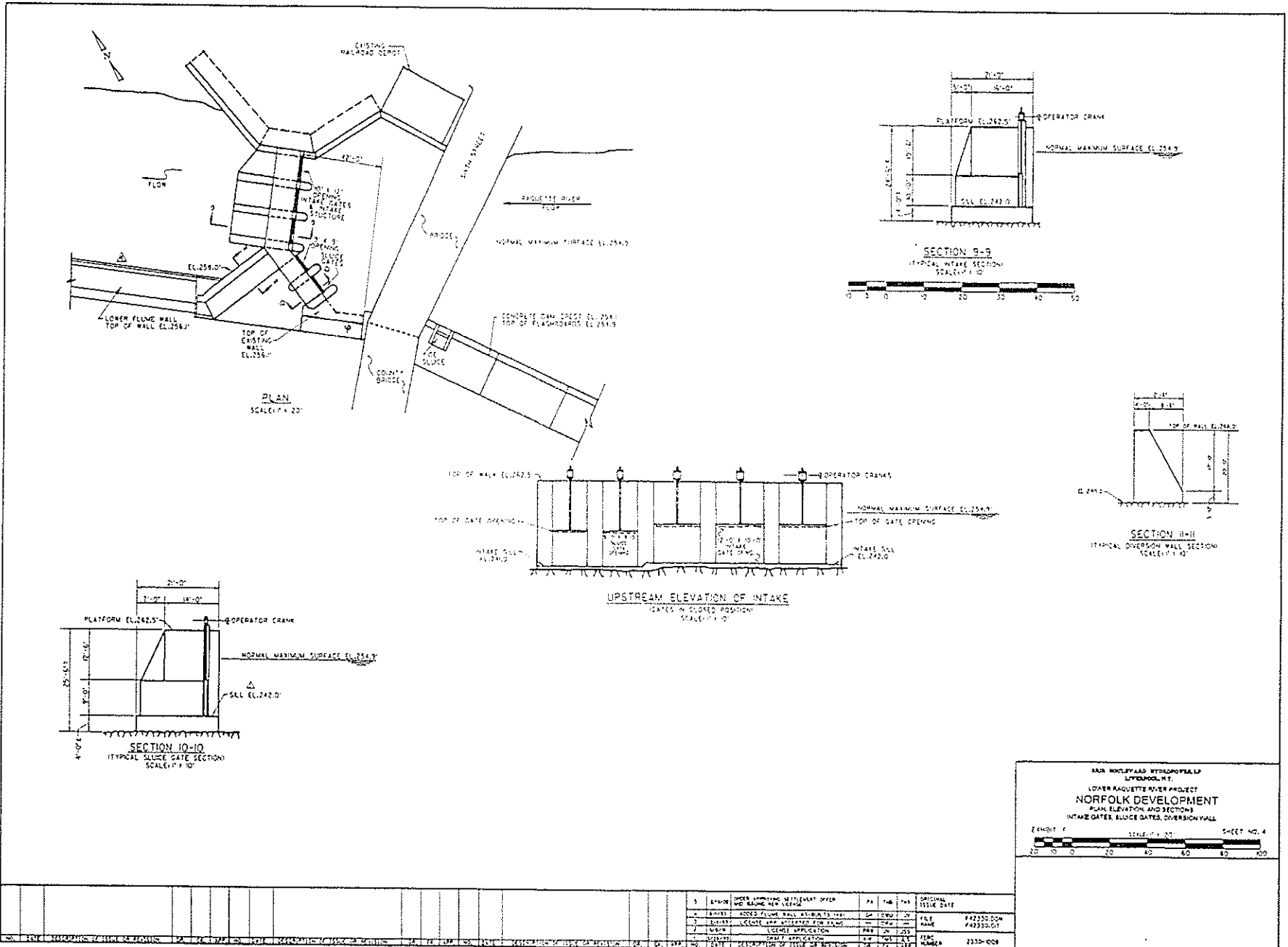


EAST NORFOLK DEVELOPMENT  
 LOWER RACQUETTE RIVER PROJECT  
**EAST NORFOLK DEVELOPMENT**  
 PLAN, ELEVATION AND SECTIONS  
 DAM, INTAKE AND POWERHOUSE  
 EXHIBIT F SCALE: 1" = 20' SHEET NO. 2

NO.	DATE	DESCRIPTION	BY	CHKD.	APP.	DATE
1	12/15/50	PREPARED FOR CONSTRUCTION	...	...	...	...
2	1/10/51	REVISIONS	...	...	...	...
3	2/20/51	...	...	...	...	...
4	3/15/51	...	...	...	...	...
5	4/10/51	...	...	...	...	...
6	5/5/51	...	...	...	...	...
7	6/1/51	...	...	...	...	...
8	7/1/51	...	...	...	...	...
9	8/1/51	...	...	...	...	...
10	9/1/51	...	...	...	...	...
11	10/1/51	...	...	...	...	...
12	11/1/51	...	...	...	...	...
13	12/1/51	...	...	...	...	...
14	1/1/52	...	...	...	...	...
15	2/1/52	...	...	...	...	...
16	3/1/52	...	...	...	...	...
17	4/1/52	...	...	...	...	...
18	5/1/52	...	...	...	...	...
19	6/1/52	...	...	...	...	...
20	7/1/52	...	...	...	...	...
21	8/1/52	...	...	...	...	...
22	9/1/52	...	...	...	...	...
23	10/1/52	...	...	...	...	...
24	11/1/52	...	...	...	...	...
25	12/1/52	...	...	...	...	...
26	1/1/53	...	...	...	...	...
27	2/1/53	...	...	...	...	...
28	3/1/53	...	...	...	...	...
29	4/1/53	...	...	...	...	...
30	5/1/53	...	...	...	...	...
31	6/1/53	...	...	...	...	...
32	7/1/53	...	...	...	...	...
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34	9/1/53	...	...	...	...	...
35	10/1/53	...	...	...	...	...
36	11/1/53	...	...	...	...	...
37	12/1/53	...	...	...	...	...
38	1/1/54	...	...	...	...	...
39	2/1/54	...	...	...	...	...
40	3/1/54	...	...	...	...	...
41	4/1/54	...	...	...	...	...
42	5/1/54	...	...	...	...	...
43	6/1/54	...	...	...	...	...
44	7/1/54	...	...	...	...	...
45	8/1/54	...	...	...	...	...
46	9/1/54	...	...	...	...	...
47	10/1/54	...	...	...	...	...
48	11/1/54	...	...	...	...	...
49	12/1/54	...	...	...	...	...
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51	2/1/55	...	...	...	...	...
52	3/1/55	...	...	...	...	...
53	4/1/55	...	...	...	...	...
54	5/1/55	...	...	...	...	...
55	6/1/55	...	...	...	...	...
56	7/1/55	...	...	...	...	...
57	8/1/55	...	...	...	...	...
58	9/1/55	...	...	...	...	...
59	10/1/55	...	...	...	...	...
60	11/1/55	...	...	...	...	...
61	12/1/55	...	...	...	...	...
62	1/1/56	...	...	...	...	...
63	2/1/56	...	...	...	...	...
64	3/1/56	...	...	...	...	...
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66	5/1/56	...	...	...	...	...
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69	8/1/56	...	...	...	...	...
70	9/1/56	...	...	...	...	...
71	10/1/56	...	...	...	...	...
72	11/1/56	...	...	...	...	...
73	12/1/56	...	...	...	...	...
74	1/1/57	...	...	...	...	...
75	2/1/57	...	...	...	...	...
76	3/1/57	...	...	...	...	...
77	4/1/57	...	...	...	...	...
78	5/1/57	...	...	...	...	...
79	6/1/57	...	...	...	...	...
80	7/1/57	...	...	...	...	...
81	8/1/57	...	...	...	...	...
82	9/1/57	...	...	...	...	...
83	10/1/57	...	...	...	...	...
84	11/1/57	...	...	...	...	...
85	12/1/57	...	...	...	...	...
86	1/1/58	...	...	...	...	...
87	2/1/58	...	...	...	...	...
88	3/1/58	...	...	...	...	...
89	4/1/58	...	...	...	...	...
90	5/1/58	...	...	...	...	...
91	6/1/58	...	...	...	...	...
92	7/1/58	...	...	...	...	...
93	8/1/58	...	...	...	...	...
94	9/1/58	...	...	...	...	...
95	10/1/58	...	...	...	...	...
96	11/1/58	...	...	...	...	...
97	12/1/58	...	...	...	...	...
98	1/1/59	...	...	...	...	...
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100	3/1/59	...	...	...	...	...



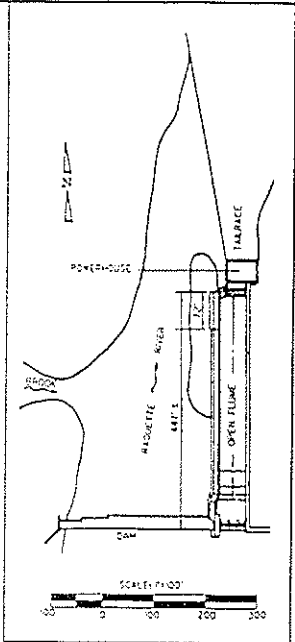
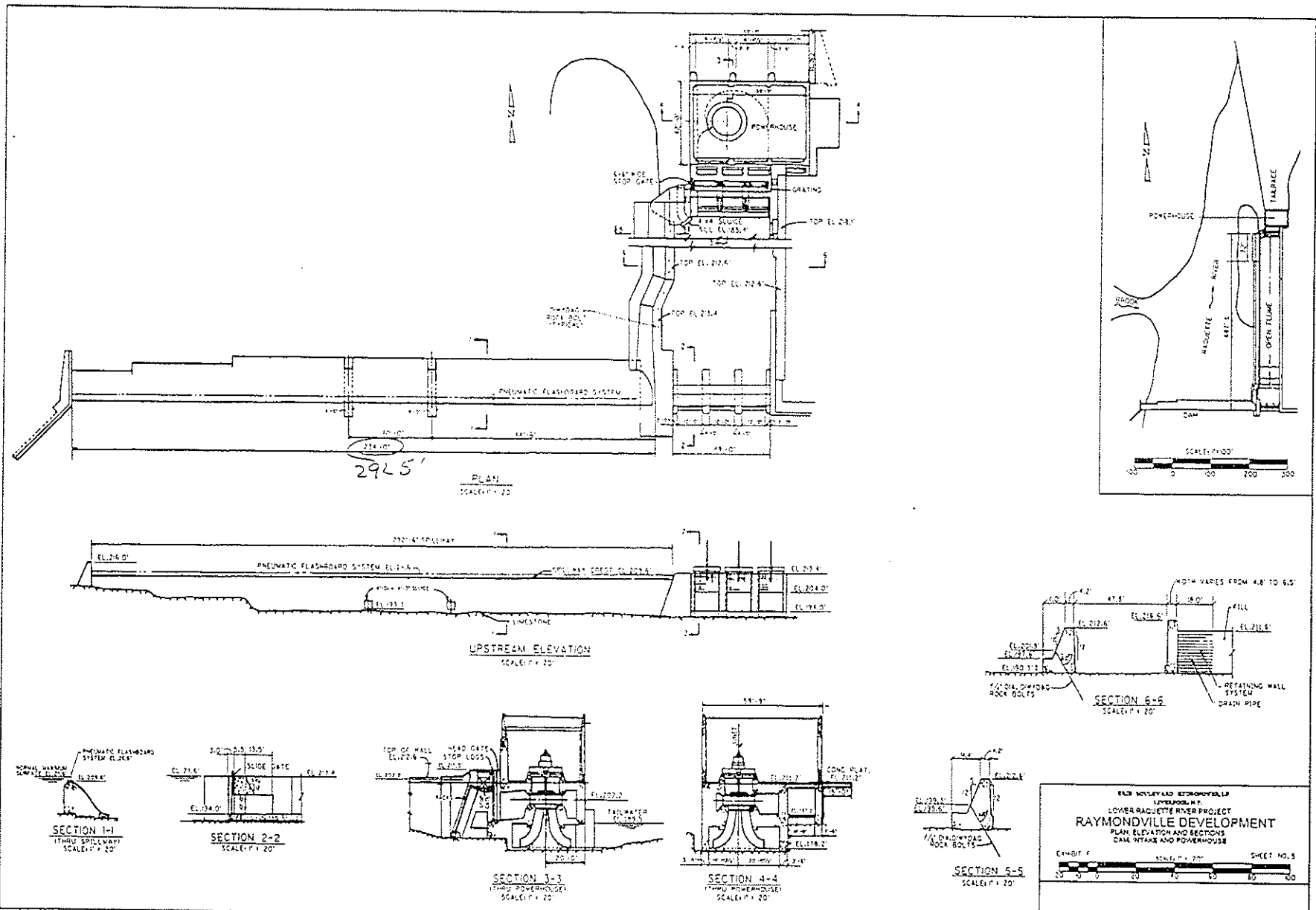
NO.	DATE	DESCRIPTION OF WORK OR REVISION	BY	CHK.	APP.	ORIGINAL ISSUE DATE
1		OWNER APPROVING SETTLEMENT OFFER	PA	FWS	FWS	
2		DESIGNER AND ENGINEER REVIEW				
3		LOWER RAQUETTE APP. ACCEPTED FOR PLANS				FILE NUMBER: F32330.004 F32330.007
4		DESIGNER LICENSE APPLICATION	PAW	SW	JAT	
5		WORKING DRAFT AMENDMENT	KW	FWS	JAT	
6		FINAL REVISIONS BY STATE OF MICHIGAN	JAT	FWS	JAT	PROJECT NUMBER: 2330-1007



NO.	DATE	DESCRIPTION	BY	CHKD.	APPROVED	REVISION
1	10/10/08	UNDER LAMPING SETTLEMENT OFFER	PA	WAB	YES	ORIGINAL ISSUE DATE
2	10/10/08	ADDED FLOW WALL ELEVATIONS	GP	WAB	NO	FILE #42350-004
3	10/10/08	CLIENT AND SUPPLIER FOR FLOW	GP	WAB	NO	FILE #42350-011
4	10/10/08	DESIGN APPLICATION	WAB	WAB	NO	FILE #42350-025
5	10/10/08	DESIGN APPLICATION	WAB	WAB	NO	FILE #42350-025
6	10/10/08	DESIGN APPLICATION	WAB	WAB	NO	FILE #42350-025

KAN NORFOLK RIVER DEVELOPMENT LP  
 LYNDEN, N.H.  
 LOWER RAQUETTE RIVER PROJECT  
**NORFOLK DEVELOPMENT**  
 PLAN, ELEVATION AND SECTIONS  
 INTAKE GATES, SLUICE GATES, DIVERSION WALL

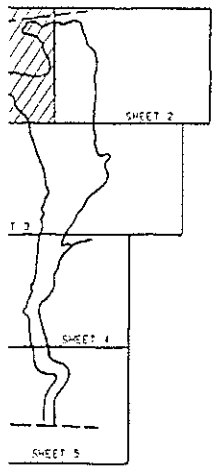
SHEET NO. 4  
 SCALE: 1" = 20'  
 0 10 20 30 40 50 60 70 80 90 100



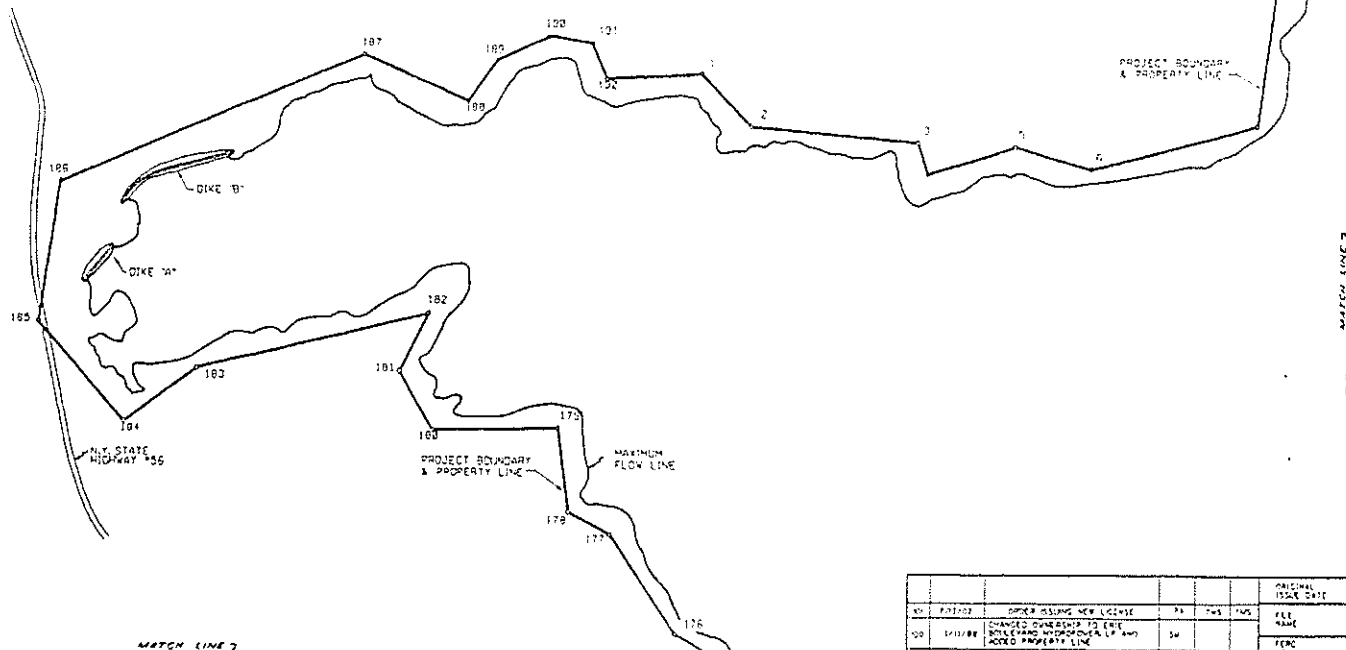
OLD WOLFLEAD ESTABLISHMENT  
UPPERMOUTH  
LOWER ROCKETT RIVER PROJECT  
**RAYMONDVILLE DEVELOPMENT**  
PLAN, ELEVATION AND SECTIONS  
DAM RETAIN AND POWERHOUSE

EXHIBIT F SCALE: 1" = 20' SHEET NO. 5

NO.	DATE	DESCRIPTION	BY	CHKD.	APP.	SCALE	ISSUE DATE
1	1933	PRELIMINARY DESIGN	...	...	...	...	...
2	1934	FINAL DESIGN	...	...	...	...	...
3	1935	CONSTRUCTION	...	...	...	...	...
4	1936	OPERATION	...	...	...	...	...
5	1937	MAINTENANCE	...	...	...	...	...
6	1938	REPAIRS	...	...	...	...	...
7	1939	UPDATES	...	...	...	...	...
8	1940	REVISIONS	...	...	...	...	...
9	1941	ADJUSTMENTS	...	...	...	...	...
10	1942	FINAL CHECK	...	...	...	...	...



**INDEX MAP**

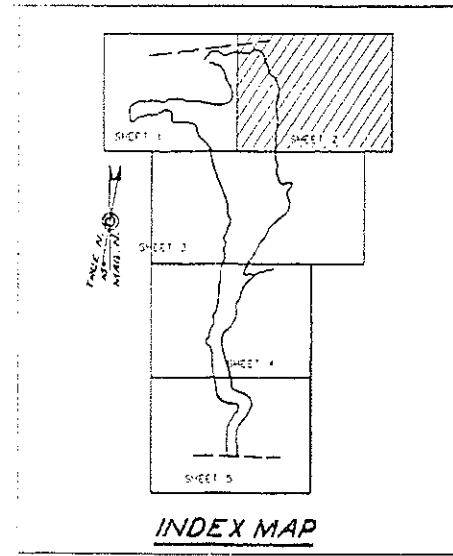
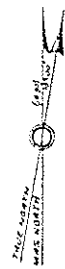
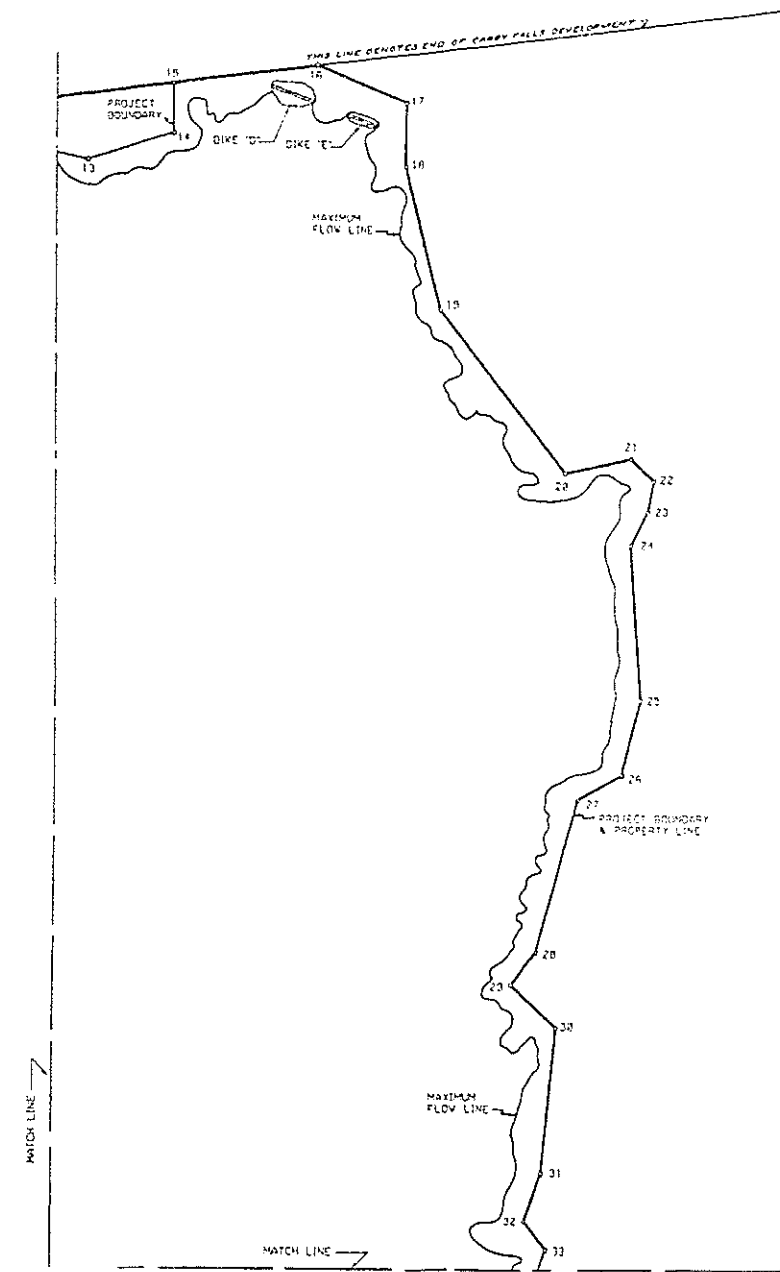


**LEGEND**  
 13 ANGLE POINT IN PROJECT BOUNDARY  
 — PROJECT BOUNDARY LINE

STATE OF NEW YORK  
 DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
**CARRY FALLS PROJECT**  
 PROJECT BOUNDARY AND LOCATION MAP  
 EXHIBIT 5 SCALE: 1"=400' SHEET NO. 1

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	BY	CHKD	APP'D	ORIGINAL ISSUE DATE
01	1/17/02	DAMPER ISSUES NEW LICENSE	PA	TWS	TWS	
02	1/11/02	CHANGED OWNERSHIP TO ERIC BOTTLEHEAD HYDROPOWER LP AND ADDED PROPERTY LINE	SW			
03	2/11	DESCRIPTION OF ISSUE OR REVISION	SW			

FILE NAME	20600105N
FILE NAME	20600101T
PERC NO.	2060-1001



**INDEX MAP**

**LEGEND**

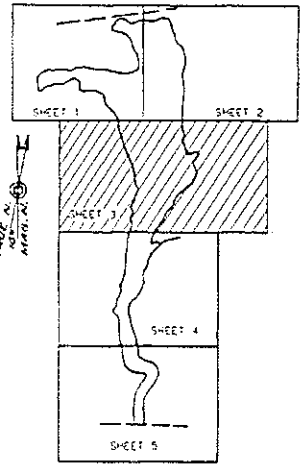
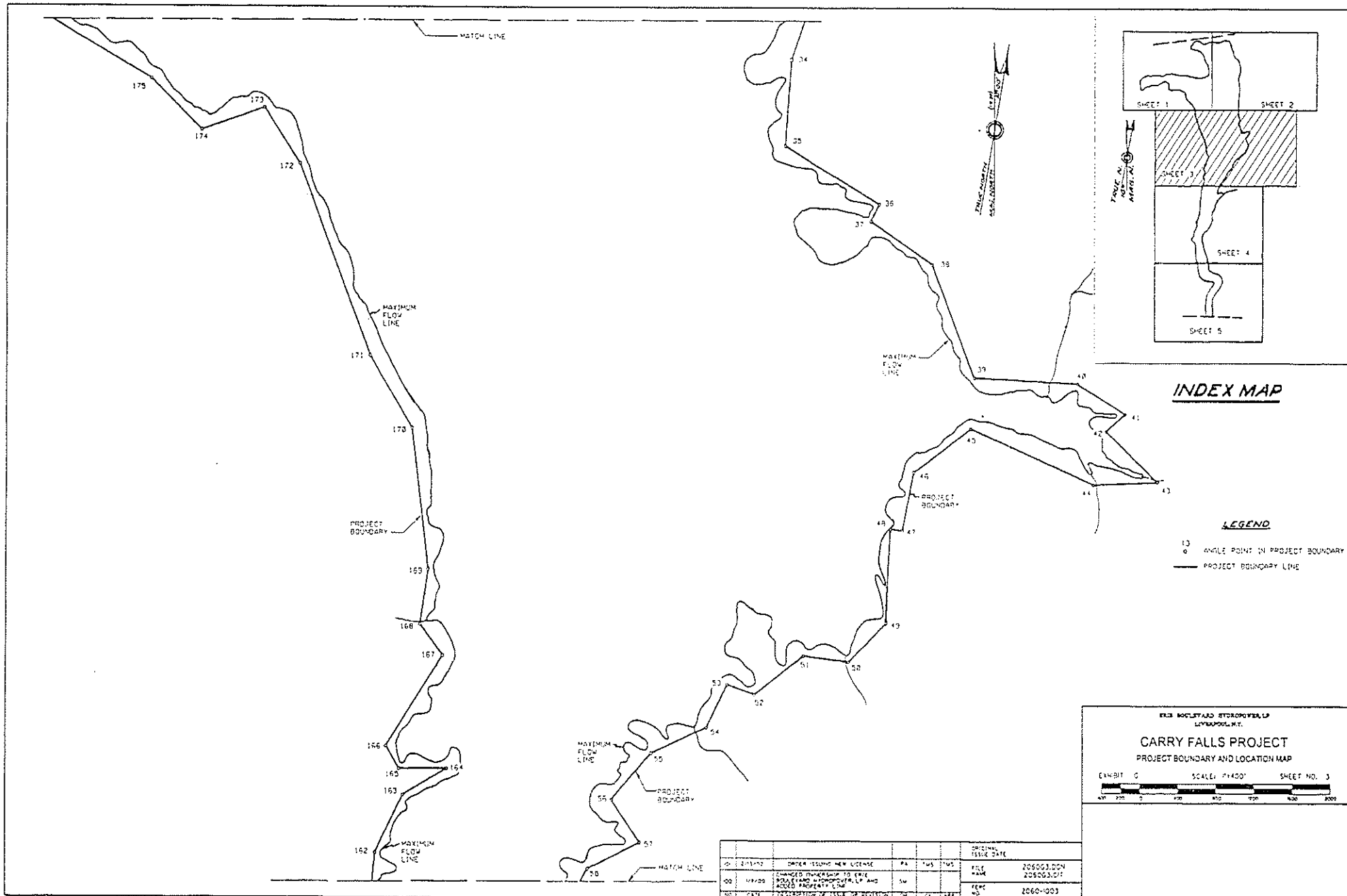
- ANGLE POINT IN PROJECT BOUNDARY
- PROJECT BOUNDARY LINE

EDLE BOULEY AND HYDROPOWER, LP  
LYONSVILLE, N.Y.

**CARRY FALLS PROJECT**  
PROJECT BOUNDARY AND LOCATION MAP

EVENT: G      SCALE: 1"=100'      SHEET NO. 2

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	BY	CHKD.	APP.	ORIGINAL ISSUE DATE
01	2/13/02	ORDER ISSUING NEW LICENSE	PA	TMS	TMS	FILE NAME: 206002.DGN
02	1/11/02	CHANGED DIMENSION TO EXIST BOLLIVARD WITH PROPERTY LINE AND ADDED PROPERTY LINE	SM			FILE NO: 2060-1002



**INDEX MAP**

**LEGEND**

- 13 ○ WYLE POINT IN PROJECT BOUNDARY
- PROJECT BOUNDARY LINE



EIR SOCIETY AND STORROPER, LP  
 LYNNPOOL, N.T.

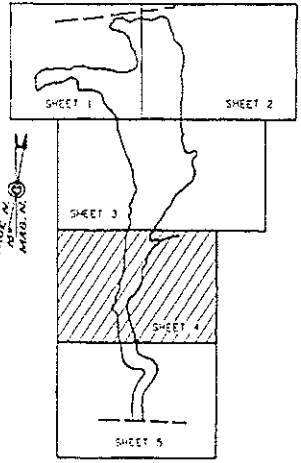
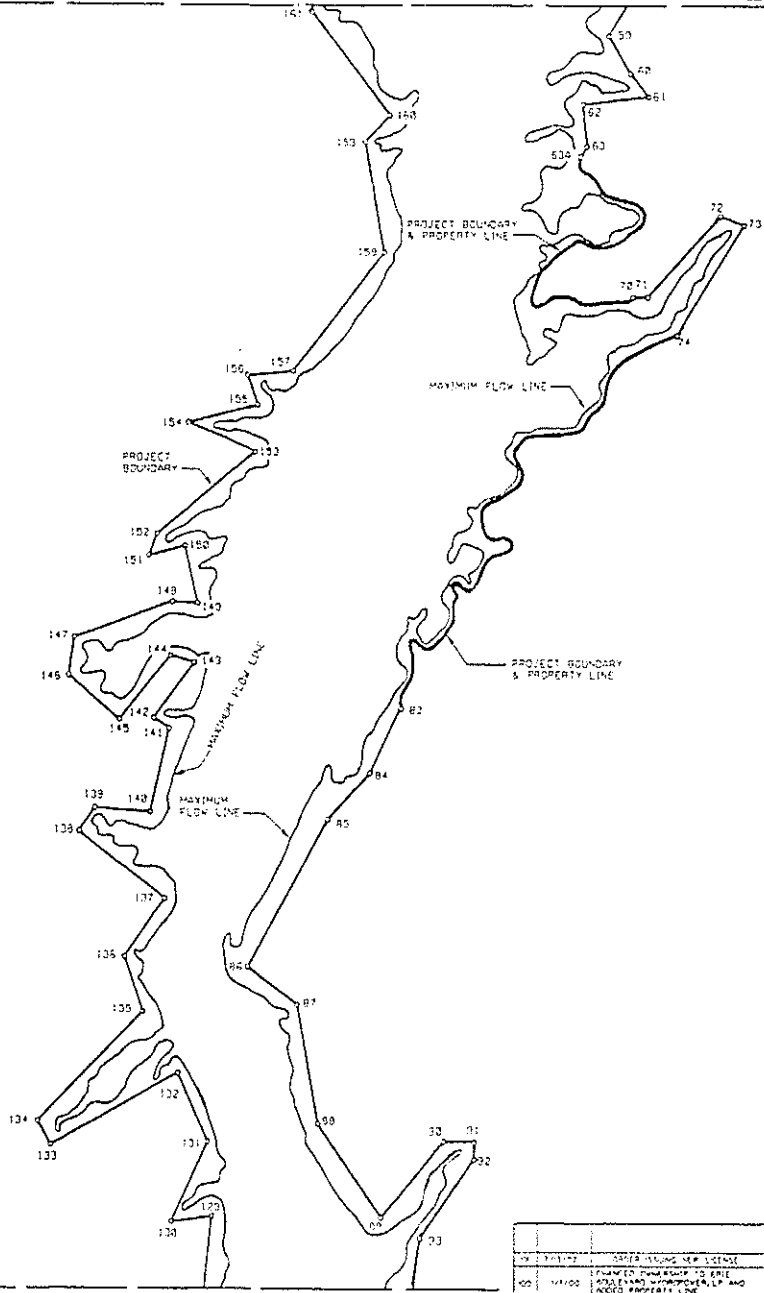
**CARRY FALLS PROJECT**  
 PROJECT BOUNDARY AND LOCATION MAP

EXHIBIT G      SCALE: 1"=400'      SHEET NO. 3

NO.	DATE	DESCRIPTION OF REVISION OR ACTION	BY	CHKD.	DATE
01	2/13/92	ORDER ISSUING NEW LICENSE	PA	FWS	FWS
00	11/1/90	CHANGED PERMISSION TO TAKE SOUTH FLOOD IN CONCEPTUAL AND ACROSS PROPERTY LINE	AW		

ORIGINAL ISSUE DATE	
FILE NAME	206003.DGN 206003.DWT
REVC NO	2060-1003



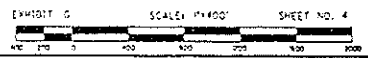


**INDEX MAP**

**LEGEND**

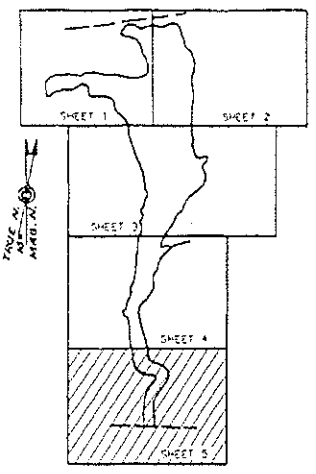
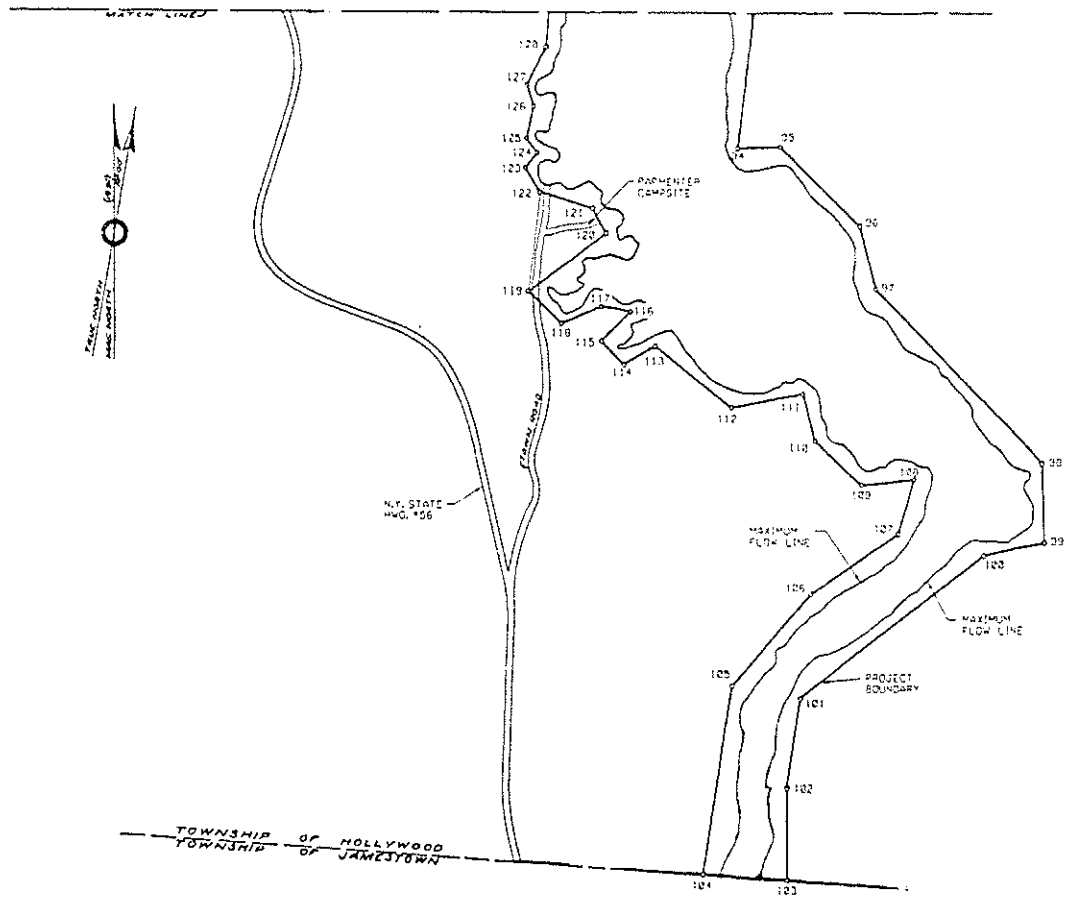
- ANGLE POINT IN PROJECT BOUNDARY
- PROJECT BOUNDARY LINE

BOB BOULEY AND HYDROPOWER, LP  
 LIVERPOOL, N.Y.  
**CARRY FALLS PROJECT**  
 PROJECT BOUNDARY AND LOCATION MAP



NO.	DATE	DESCRIPTION	BY	CHKD.	APP'D.
1	10/1/02	START ISSUING NEW SCHEMATIC	RA	RA	RA
2	11/1/02	ISSUED TO PROPERTY OWNER	RA	RA	RA
3	11/1/02	ISSUED TO PROPERTY OWNER AND AGED PROPERTY LINE	RA	RA	RA
4	11/1/02	ISSUED TO PROPERTY OWNER AND AGED PROPERTY LINE	RA	RA	RA

ORIGINAL ISSUE DATE	2004.004
FILE NAME	2004.004
YEAR	2004



**INDEX MAP**

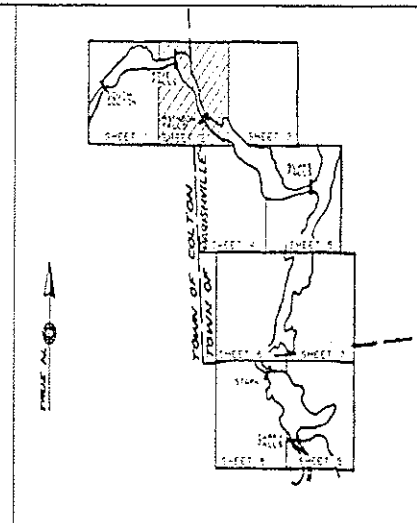
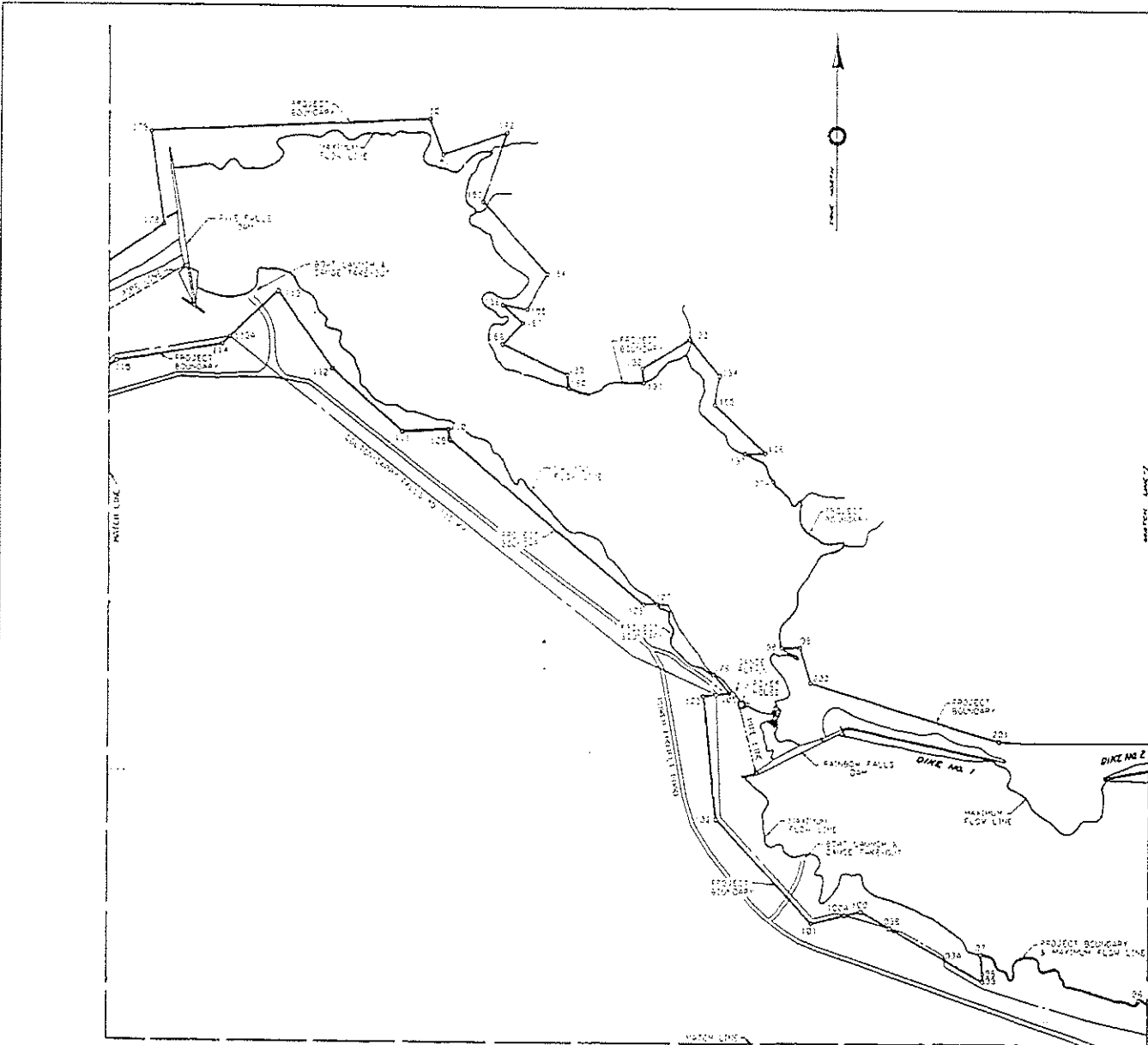
**LEGEND**

- 1/2" = 1' ANGLE POINT IN PROJECT BOUNDARY
- PROJECT BOUNDARY LINE

ELS HOLLYWOOD HYDROPOWER LP  
 LYNDBOUL, N.Y.  
**CARRY FALLS PROJECT**  
**PROJECT BOUNDARY AND LOCATION MAP**  
 EXHIBIT G SCALE 1"=400' SHEET NO. 5

NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	BY	CHK'D BY	APP'D BY	ORIGINAL ISSUE DATE
01	3/23/02	ORDER ISSUING NEW LICENSE	RS	TWS	STMS	
02	1/17/05	CHANGED OWNERSHIP TO ERIE ROLLERS AND HYDROPOWER LP AND MOVED PROJECT LINE	SM			FILE NAME 206005.DGN 206005.CIT
03	01/21/05	DESCRIPTION OF ISSUE OR REVISION	SM			GENC NO. 2060-1005





**INDEX MAP**

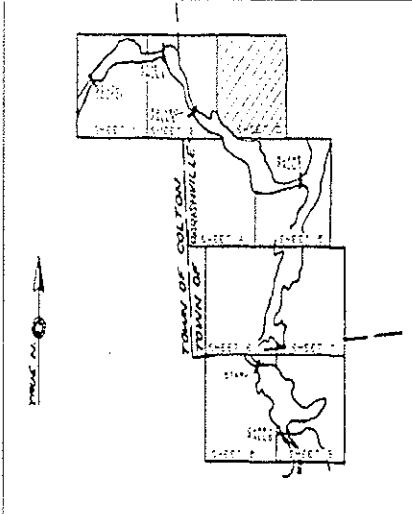
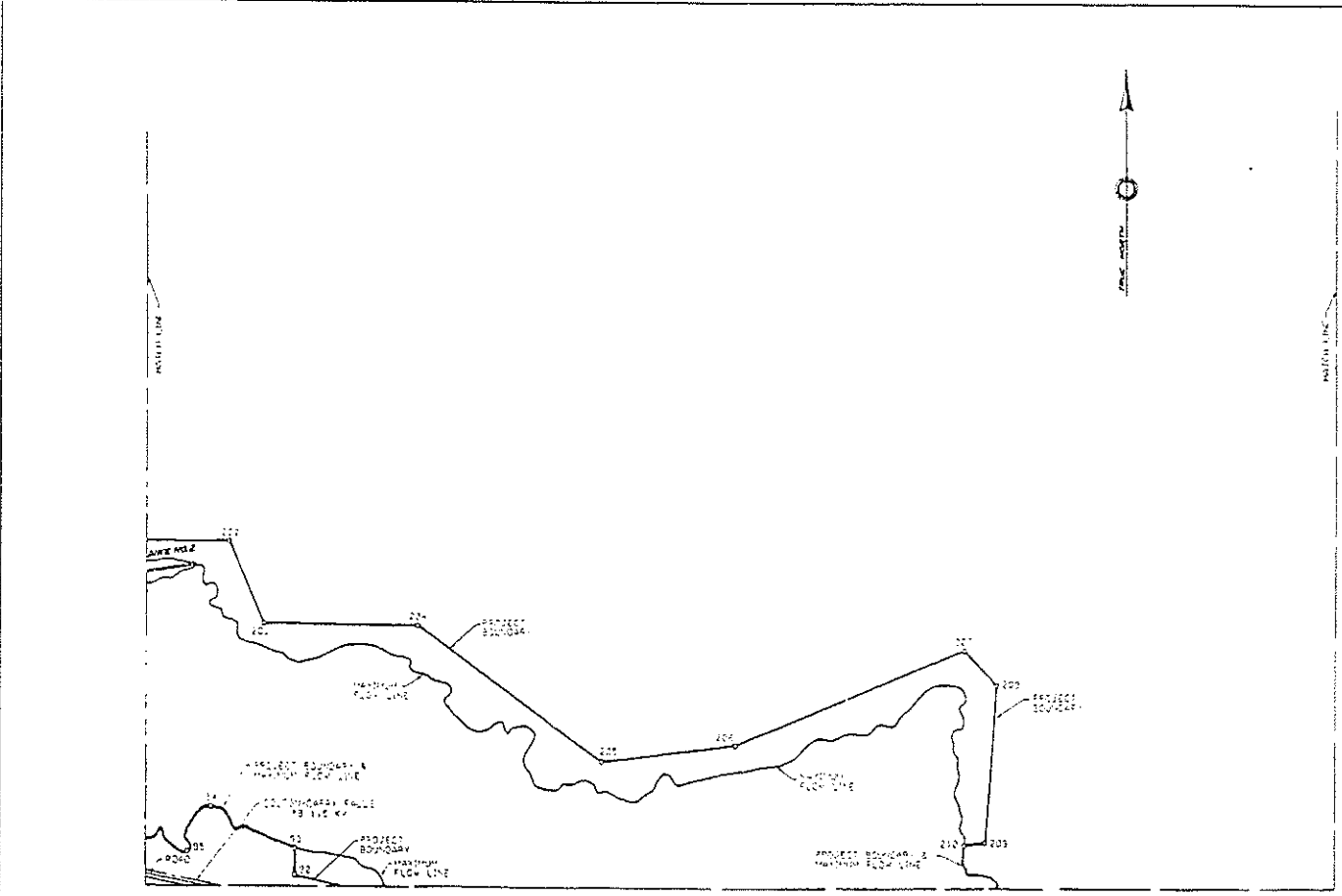
**LEGEND**

- WHOLE POINT IN PROJECT BOUNDARY
- PROJECT BOUNDARY LINE
- - - CENTERLINE OF TRANSMISSION LINE

MAZ ANGLYAS STRONGPHELIP  
 LITTLETON, N.Y.  
**UPPER RAQUETTE RIVER PROJECT**  
**PROJECT BOUNDARY AND LOCATION MAP**  
 EXHIBIT C      SCALE 1"=400'      SHEET NO. 2

DATE		DESCRIPTION OF WORK OR REVISION		DATE		DESCRIPTION OF WORK OR REVISION		DATE		DESCRIPTION OF WORK OR REVISION	

ORIGINAL ISSUE DATE	
FILE NAME	2084G2.DGN 2084G2.CIT
PROJECT NO.	2084-002



**INDEX MAP**

**LEGEND**

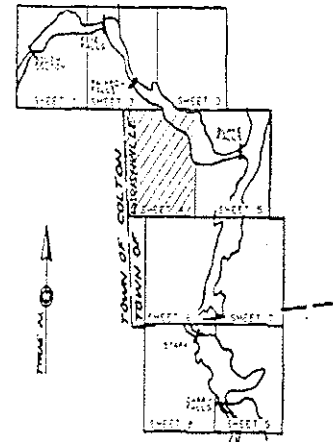
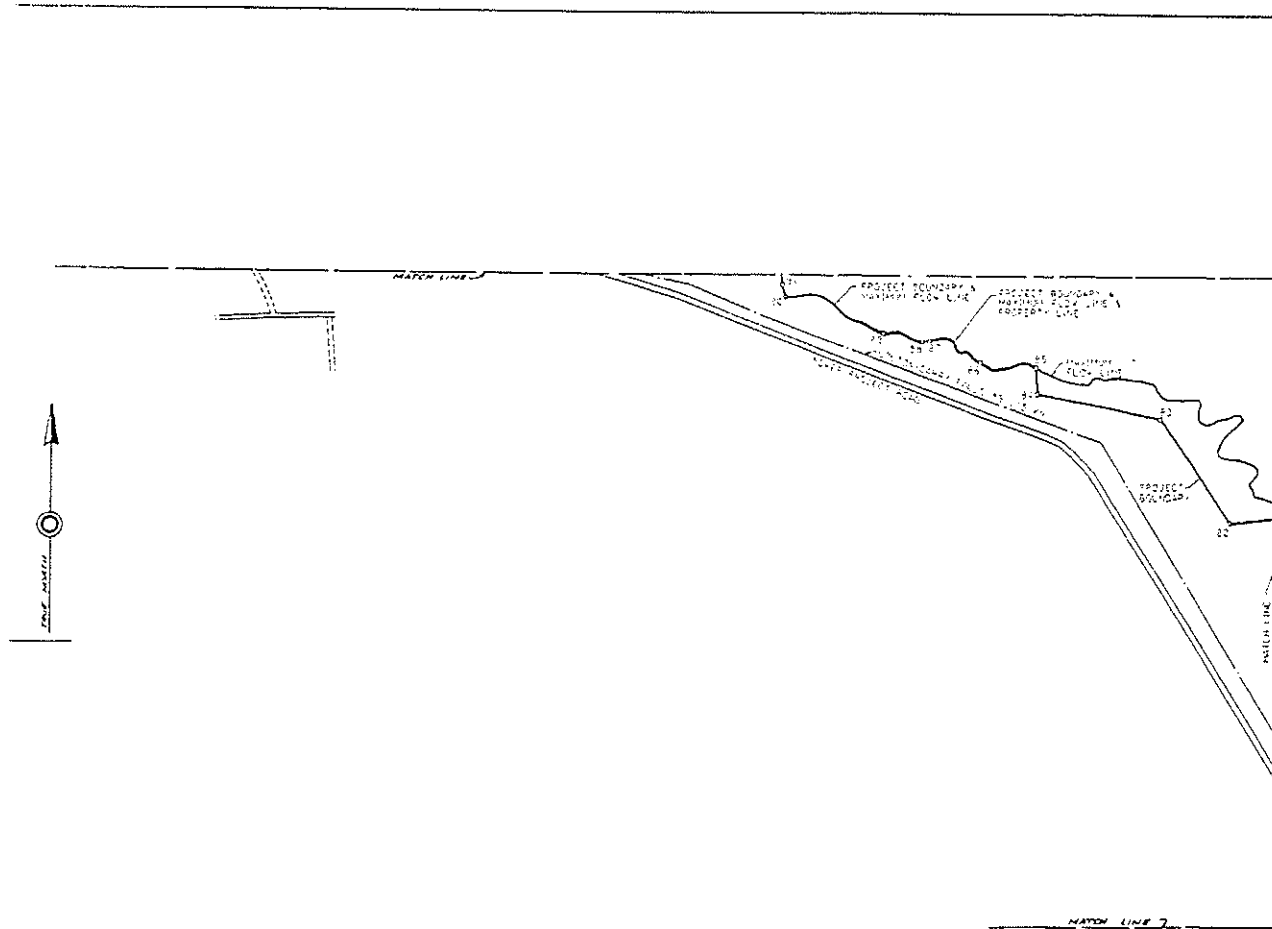
- WALE POINT IN PROJECT BOUNDARY
- PROJECT BOUNDARY LINE
- MAXIMUM FLOW LINE

440 SOUTHARD STATIONVILLE,  
LITCHFIELD, N.Y.

**UPPER RAQUETTE RIVER PROJECT  
PROJECT BOUNDARY AND LOCATION MAP**

EXHIBIT G SCALE: 1"=400' SHEET NO. 3

DATE	DESCRIPTION OF WORK OR REVISION	BY	CHKD	DATE	DESCRIPTION OF WORK OR REVISION	BY	CHKD	DATE	PROJECT	SHEET NO.	TOTAL SHEETS
									UPPER RAQUETTE RIVER PROJECT	3	3
									PROJECT	UPPER RAQUETTE RIVER PROJECT	
									DATE	2004-10-03	
									FILE NAME	2084G3.DGN	
									FILE MARK	2084G3.CIT	
									PROJECT	UPPER RAQUETTE RIVER PROJECT	
									DATE	2004-10-03	



**INDEX MAP**

**LEGEND**

- SINGLE POINT IN PROJECT BOUNDARY
- PROJECT BOUNDARY LINE
- - - CENTERLINE OF TRANSMISSION LINE

THIS PROJECT IS WITHIN THE JURISDICTION OF THE  
**UPPER RAQUETTE RIVER PROJECT  
 PROJECT BOUNDARY AND LOCATION MAP**

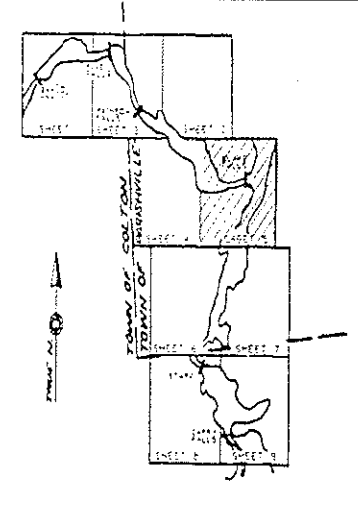
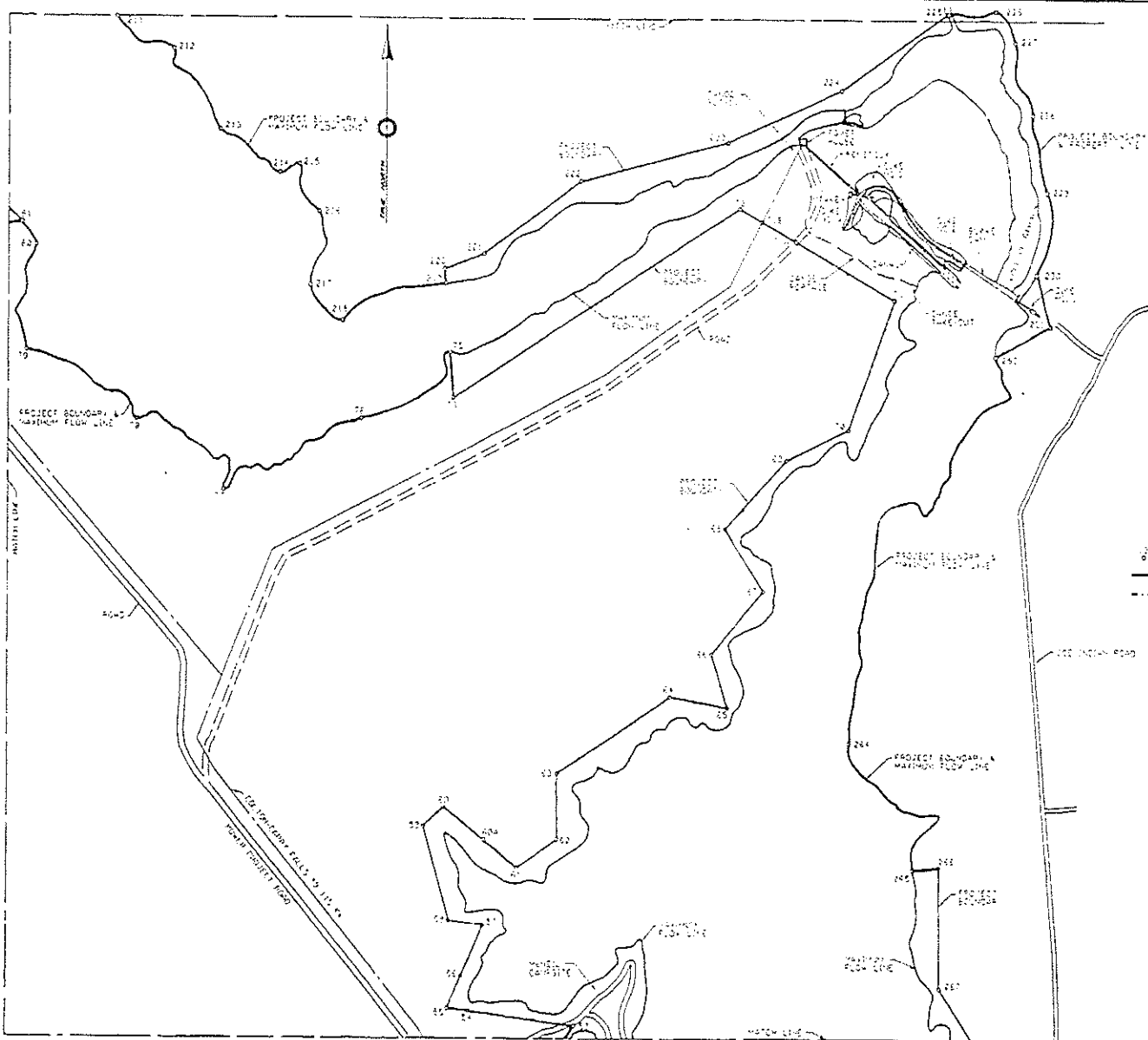
EXHIBIT C SCALE: PL. 000' SHEET NO. 4

DATE	DESCRIPTION OF ISSUE OR ACTION	BY	CO.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR ACTION	BY	CO.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR ACTION	BY	CO.	APP.	NO.	DATE	DESCRIPTION OF ISSUE OR ACTION	BY	CO.	APP.	NO.
1	EXISTING	OWNER	ISSUING	NEW	EXEMPT	PA	FWS	FWS	FWS	FWS	FWS	2008											

ORIGINAL  
 ISSUE DATE

FILE  
 NAME 208AC4.DGN  
 208AC4.CIT

FILE  
 NUMBER 2084-004

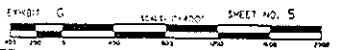


**INDEX MAP**

**LEGEND**

- WHOLE POINT IN PROJECT BOUNDARY
- PROJECT BOUNDARY LINE
- - - LINE OF TRANSMISSION

ASHE HOLLEMAN ENGINEERING  
LINTAQUENT  
**UPPER RAQUETTE RIVER PROJECT  
PROJECT BOUNDARY AND LOCATION MAP**



NO.	DATE	DESCRIPTION OF ISSUE OR REVISION	BY	CHECKED BY	DATE	REVISIONS	DATE	DESCRIPTION OF ISSUE OR REVISION	BY	CHECKED BY	DATE	REVISIONS

PROJECT NO. 209463.DWG  
DATE: 2024.05.21  
DRAWN: JRM  
CHECKED: JRM

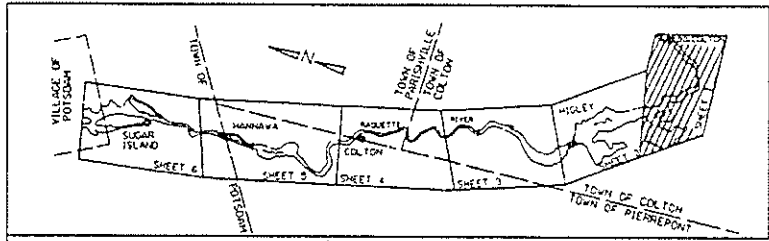
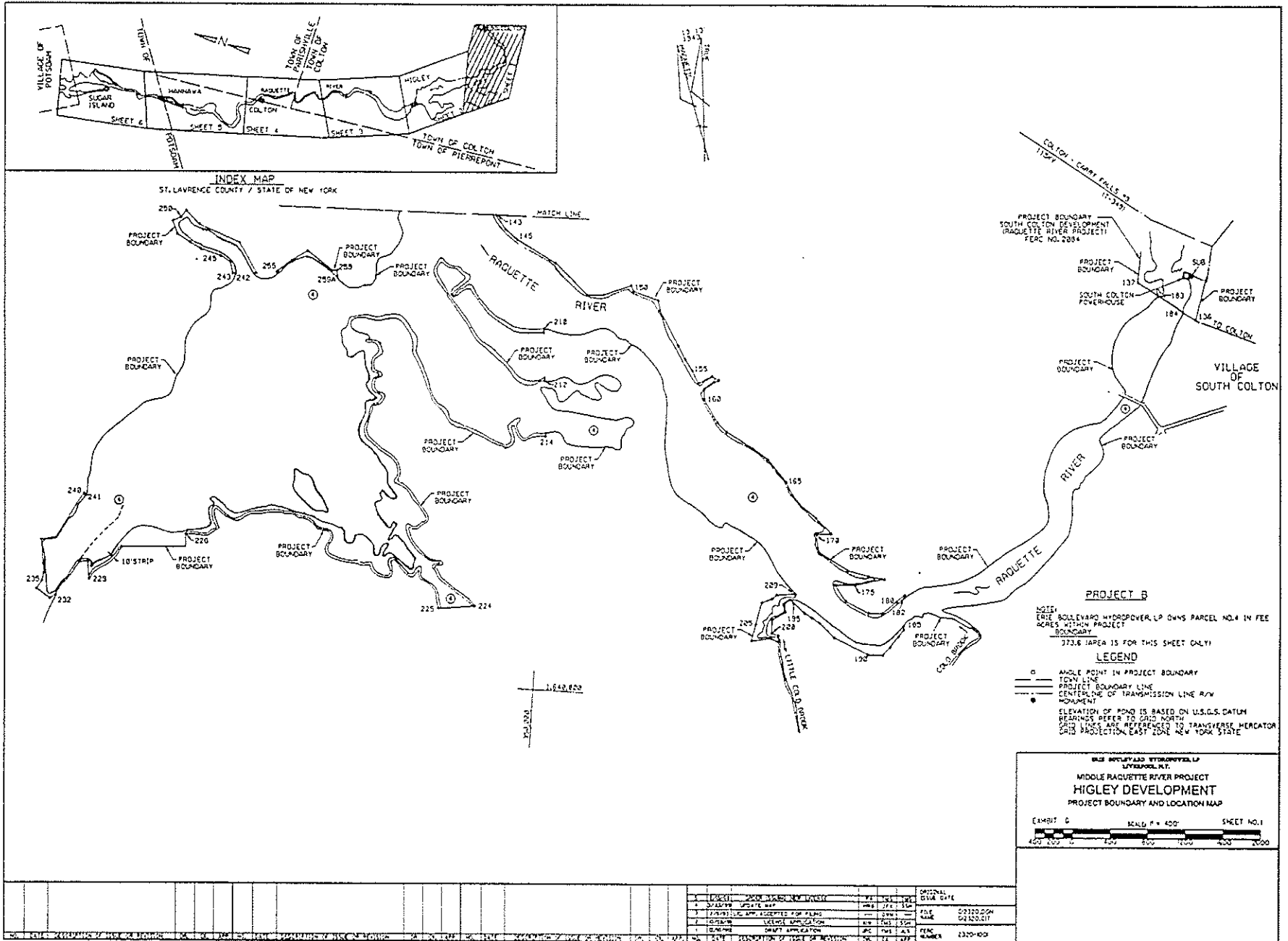












INDEX MAP  
ST. LAWRENCE COUNTY / STATE OF NEW YORK

PROJECT BOUNDARY  
SOUTH COLTON DEVELOPMENT  
(RAQUETTE RIVER PROJECT)  
PARC NO. 2884

PROJECT BOUNDARY  
SOUTH COLTON  
POWERHOUSE

VILLAGE OF  
SOUTH COLTON

COLTON - GARRETT FALLS RD  
11200

TO COLTON

PROJECT B

NOTE:  
BOLLEAUX HYDROPOWER LP OWNS PARCEL NO. 4 IN FEE  
ACRES WITHIN PROJECT  
BOUNDARY  
373.6 ACRES IS FOR THIS SHEET ONLY

LEGEND

- WHOLE POINT IN PROJECT BOUNDARY
- TOWN LINE
- PROJECT BOUNDARY LINE
- CENTERLINE OF TRANSMISSION LINE R/W
- MONUMENT

ELEVATION OF POND IS BASED ON U.S.G.S. DATUM  
BEARINGS REFER TO GRID NORTH  
GRID LINES ARE REFERENCED TO TRANSVERSE MERCATOR  
GRID PROJECTION, EAST ZONE, NEW YORK STATE

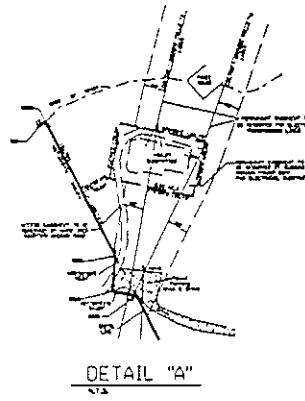
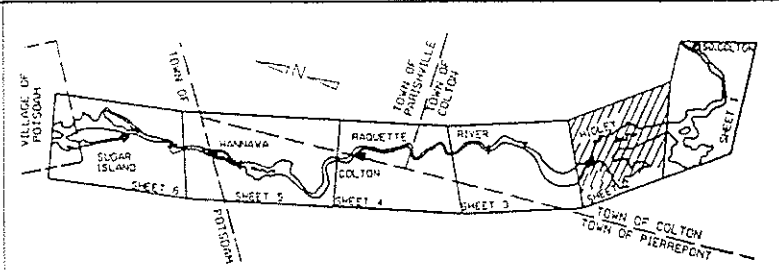
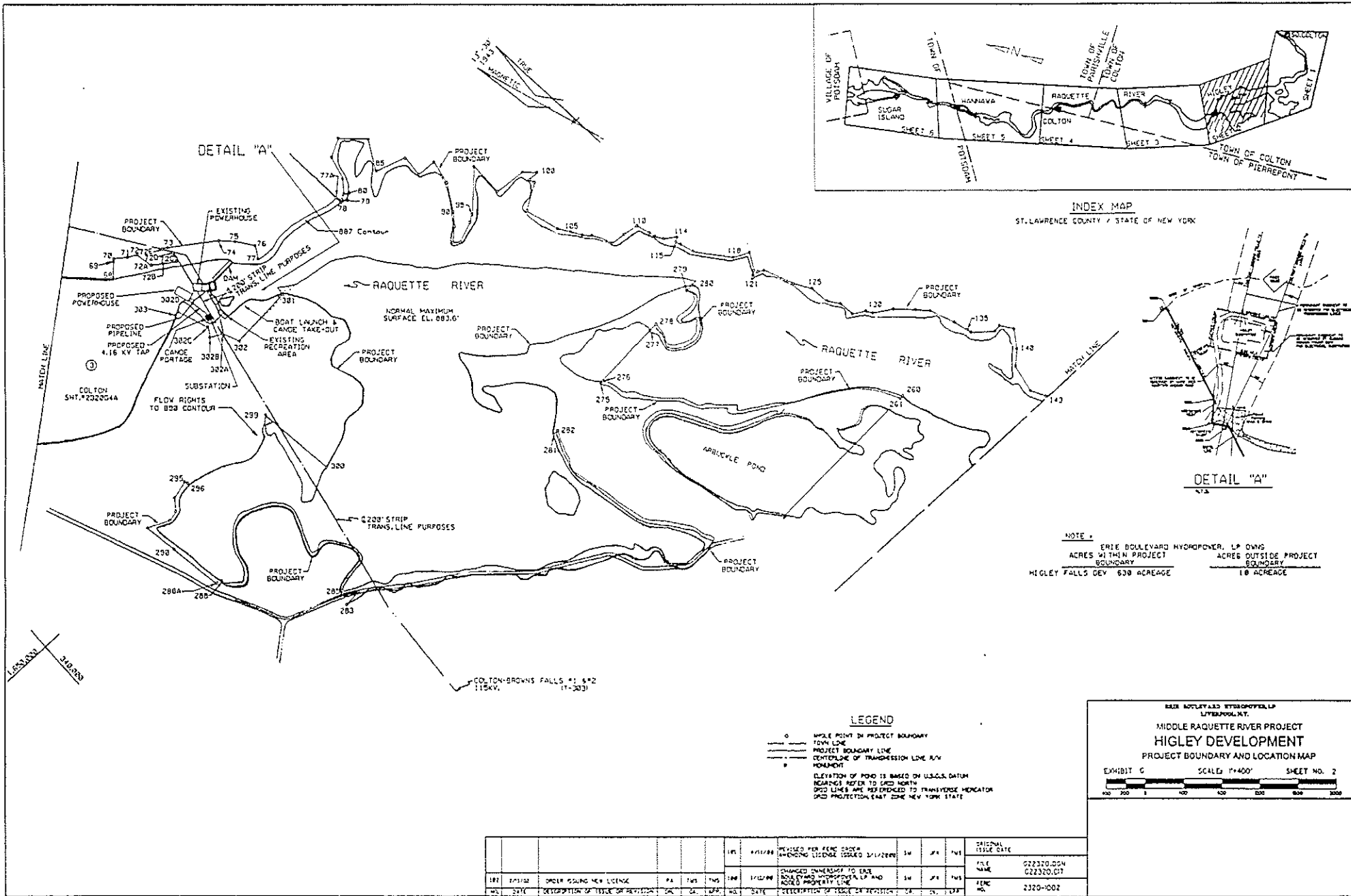
OLD BOLLEAUX HYDROPOWER LP  
LITTLETON, CO.

MIDDLE RAQUETTE RIVER PROJECT  
HIGLEY DEVELOPMENT  
PROJECT BOUNDARY AND LOCATION MAP

EXHIBIT G SCALE 1" = 400' SHEET NO. 1

400 200 0 200 400 600 800 1000 1200 1400 1600 1800 2000

1	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	ORIGINAL DRAW DATE
2	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	
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4	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	
5	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	
6	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	
7	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	
8	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	
9	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	
10	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	
11	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	
12	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	
13	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	
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17	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	
18	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	
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22	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	
23	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	
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99	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	
100	PROJECT BOUNDARY	DATE	11/1/81	BY	DL	



**NOTE :**  
ERIE BOULEVARD HYDROPOWER, LP OWNS ACRES WITHIN PROJECT BOUNDARY  
HIGLEY FOLLS DEV 630 ACREAGE ACRES OUTSIDE PROJECT BOUNDARY 18 ACREAGE

**LEGEND**

- WHOLE POINT IN PROJECT BOUNDARY
- TOWN LINE
- PROJECT BOUNDARY LINE
- CENTERLINE OF TRANSMISSION LINE AND MONUMENT

ELEVATION OF POND IS BASED ON U.S.G.S. DATUM  
REMARKS REFER TO GRID NORTH  
GRID LINES ARE REFERENCED TO TRANSVERSE MERIDIAN  
GRID PROJECTION EAST ZONE NEW YORK STATE

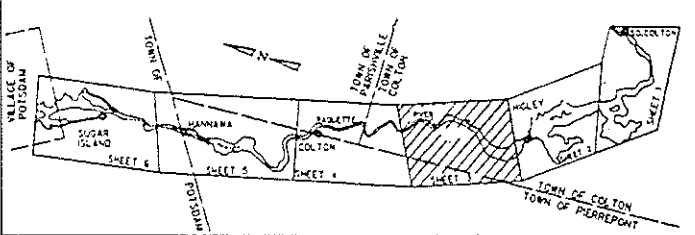
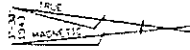
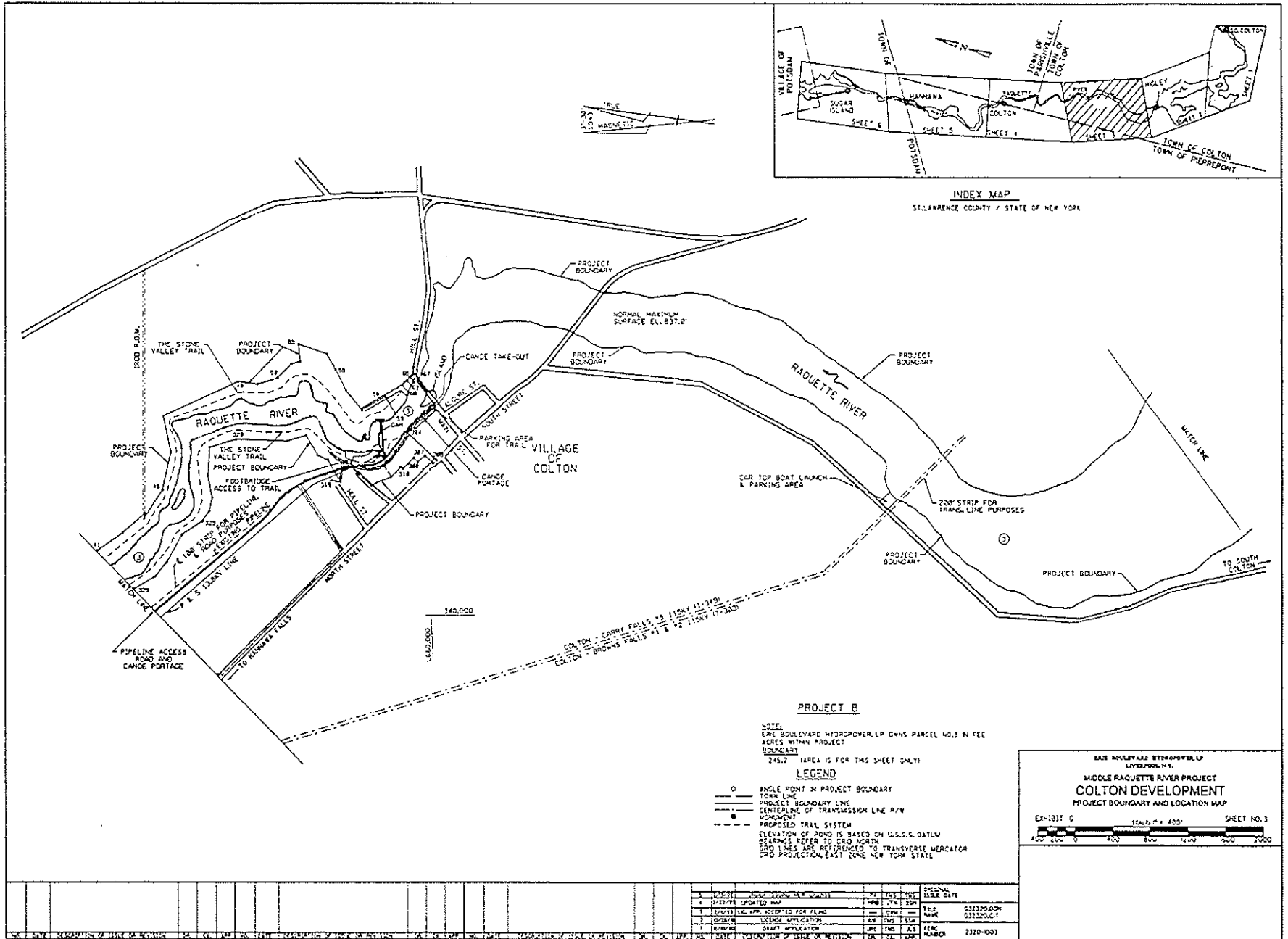
ERIE BOULEVARD HYDROPOWER, LP  
LIVERPOOL, N.Y.

**MIDDLE RAQUETTE RIVER PROJECT  
HIGLEY DEVELOPMENT  
PROJECT BOUNDARY AND LOCATION MAP**

EXHIBIT G SCALE 1"=400' SHEET NO. 2

0 200 400 600 800 1000

REV.	DATE	DESCRIPTION OF TITLE OR REVISION	BY	CHK.	DATE	REVISED PER PERM ORDER (AMENDING LICENSE ISSUED 8/11/2008)	SW	JR	TNT	ORIGINAL ISSUE DATE
1ST	07/10/02	ORDER PONDING NEW LICENSE	PA	TNT	TNS	8/12/08				FILE NAME: 022320.004 022320.017
2ND	07/10/02	DESCRIPTION OF TITLE OR REVISION	OK	OK	OK					FILE NO: 2320-002



INDEX MAP  
ST. LAWRENCE COUNTY / STATE OF NEW YORK

**PROJECT B**

DATE: 11/15/11  
 ERIE BOULEVARD HYDROPOWER LP OWN PARCEL NO. 3 IN FEE ACRES WITHIN PROJECT BOUNDARY  
 245.2 (AREA IS FOR THIS SHEET ONLY)

**LEGEND**

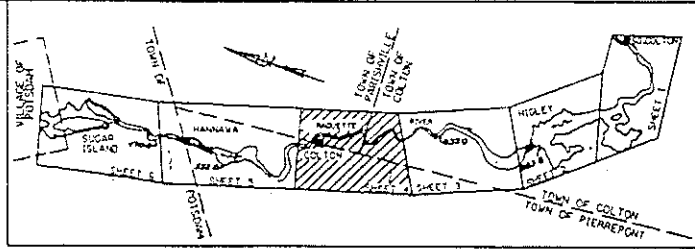
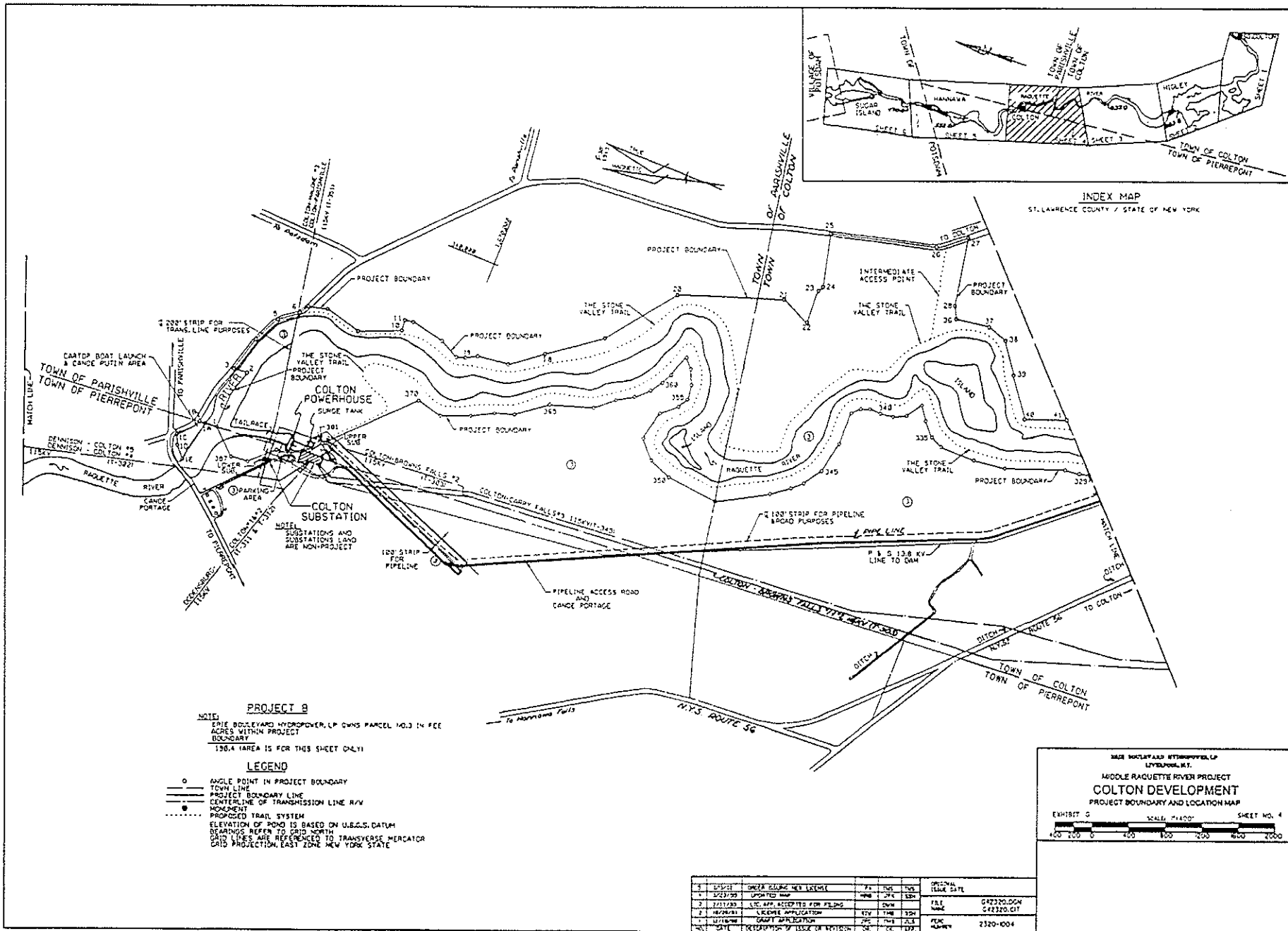
- ANGLE POINT IN PROJECT BOUNDARY
- TOWN LINE
- PROJECT BOUNDARY LINE
- CENTERLINE OF TRANSMISSION LINE P/W
- MONUMENT
- PROPOSED TRAIL SYSTEM

ELEVATION OF POND IS BASED ON U.S.C.S. DATUM  
 BEARINGS REFER TO GRID NORTH  
 200 LINES ARE REFERENCED TO TRANSVERSE MERCATOR  
 UTM PROJECTION EAST ZONE NEW YORK STATE

EAST NAD83 STATEWIDE LP  
 LEVEL: 1000 M.T.  
**MIDDLE RAQUETTE RIVER PROJECT**  
**COLTON DEVELOPMENT**  
 PROJECT BOUNDARY AND LOCATION MAP

EXHIBIT G      1:50,000      SHEET NO. 3

NO.	DESCRIPTION	DATE	BY	SCALE	PROJECT NO.
1	DESIGN	11/15/11	JK	1" = 100'	2310-001
2	REVISED	11/15/11	JK	1" = 100'	2310-001
3	REVISED	11/15/11	JK	1" = 100'	2310-001
4	REVISED	11/15/11	JK	1" = 100'	2310-001
5	REVISED	11/15/11	JK	1" = 100'	2310-001
6	REVISED	11/15/11	JK	1" = 100'	2310-001
7	REVISED	11/15/11	JK	1" = 100'	2310-001
8	REVISED	11/15/11	JK	1" = 100'	2310-001
9	REVISED	11/15/11	JK	1" = 100'	2310-001
10	REVISED	11/15/11	JK	1" = 100'	2310-001



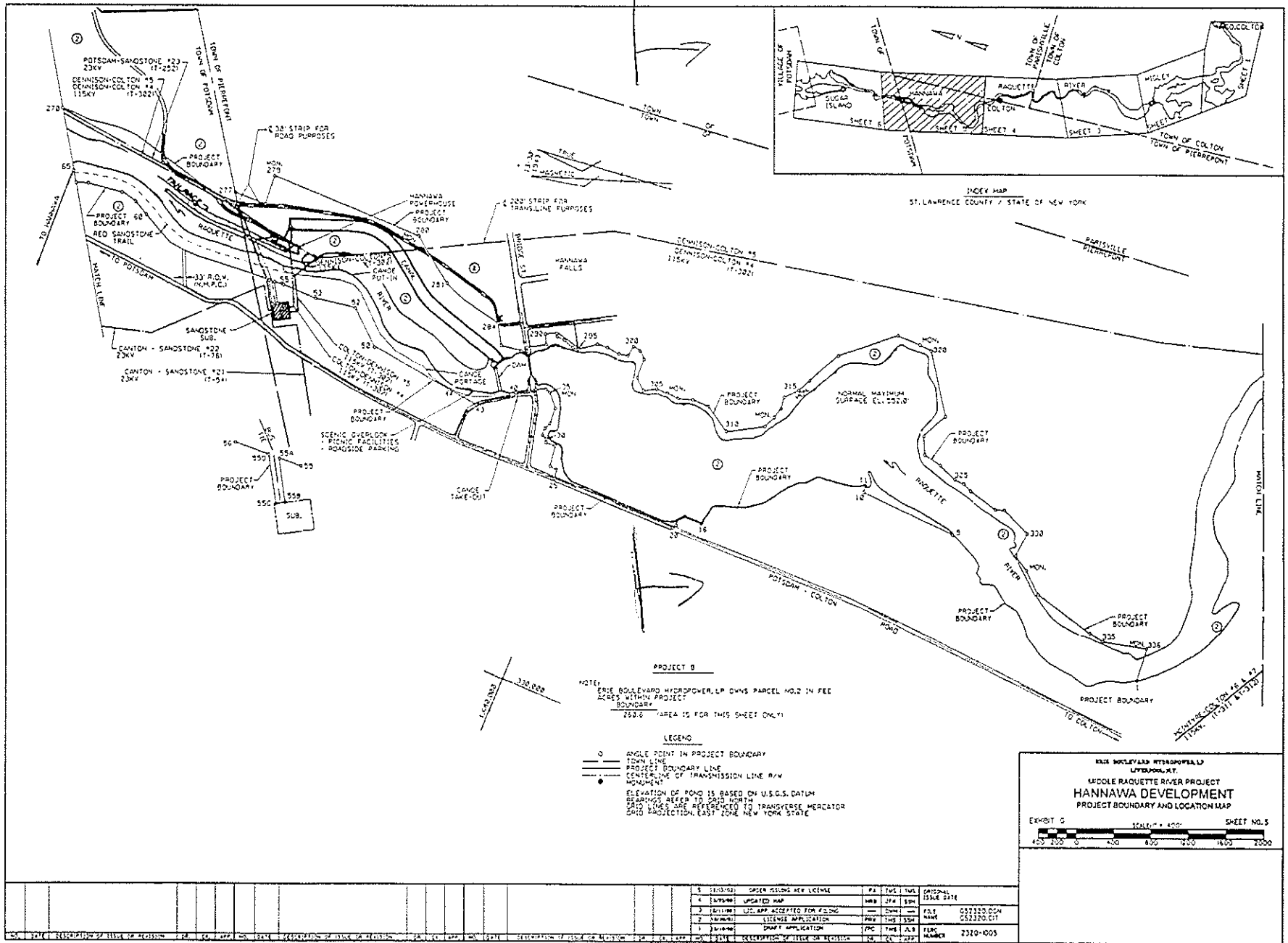
INDEX MAP  
ST. LAWRENCE COUNTY / STATE OF NEW YORK

**PROJECT B**  
 ERIE BOULEVARD HYDROPOWER, LP OWNS PARCEL NO.3 IN FEE  
 ACRES WITHIN PROJECT  
 BOUNDARY  
 150.4 AREA IS FOR THIS SHEET ONLY

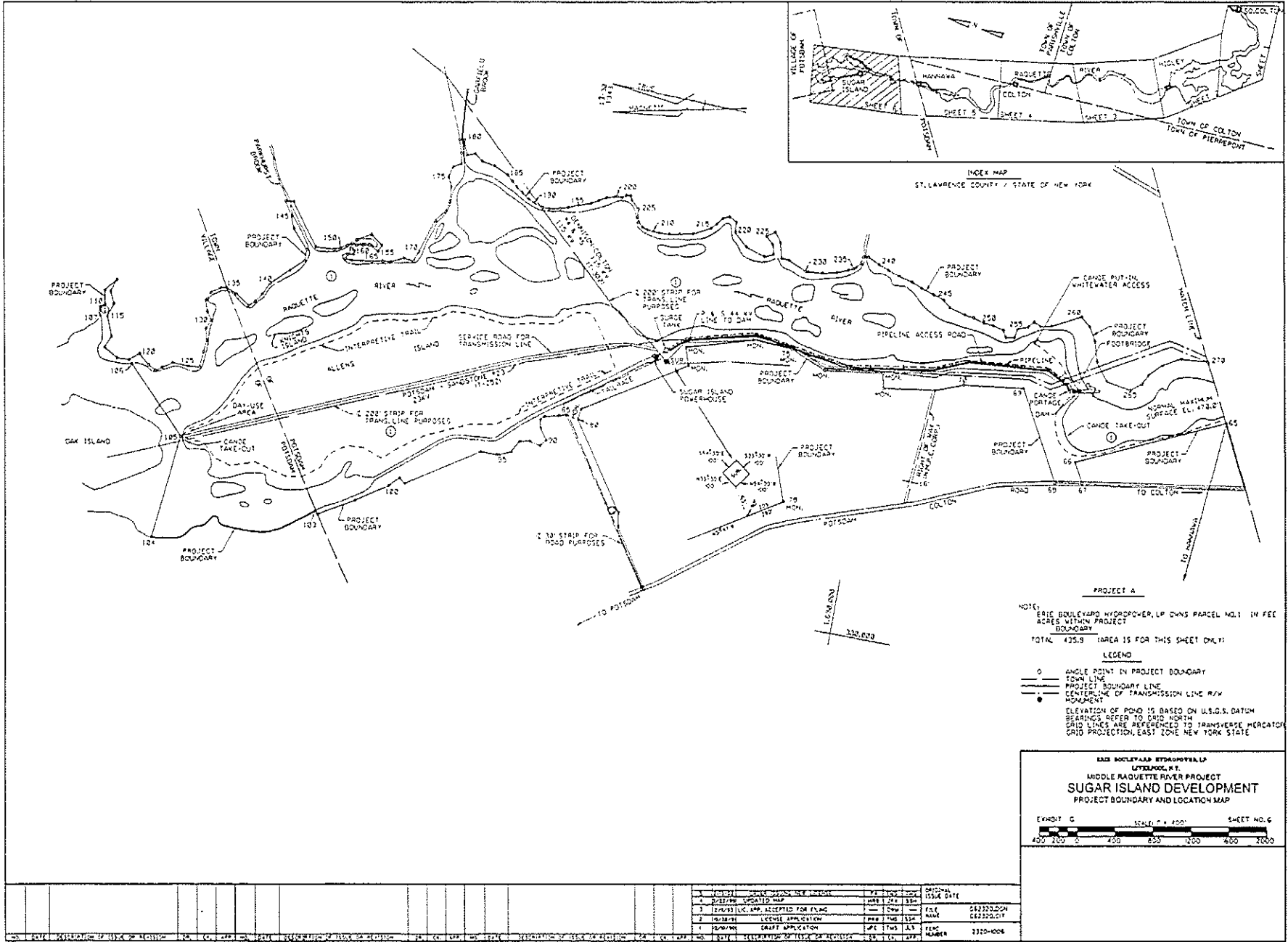
**LEGEND**  
 ○ ANGLE POINT IN PROJECT BOUNDARY  
 ——— TOWN LINE  
 - - - - - PROJECT BOUNDARY LINE  
 - - - - - CENTERLINE OF TRANSMISSION LINE R/W  
 ● MONUMENT  
 - - - - - PROPOSED TRAIL SYSTEM  
 ELEVATION OF POINT IS BASED ON U.S.G.S. DATUM  
 BEARINGS REFER TO GRID NORTH  
 GRID LINES ARE REFERENCED TO TRANSVERSE MERCATOR  
 GRID PROJECTION, EAST ZONE NEW YORK STATE

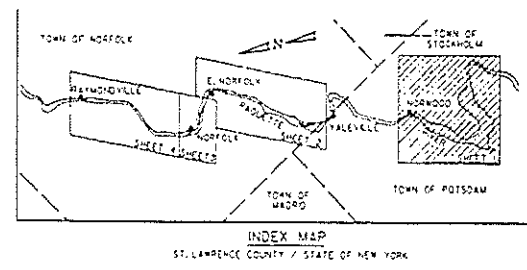
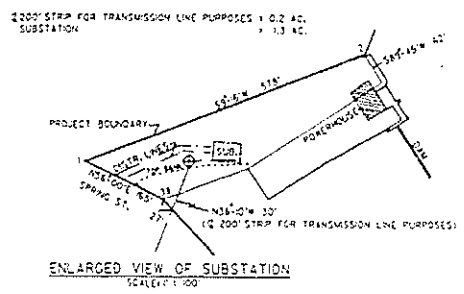
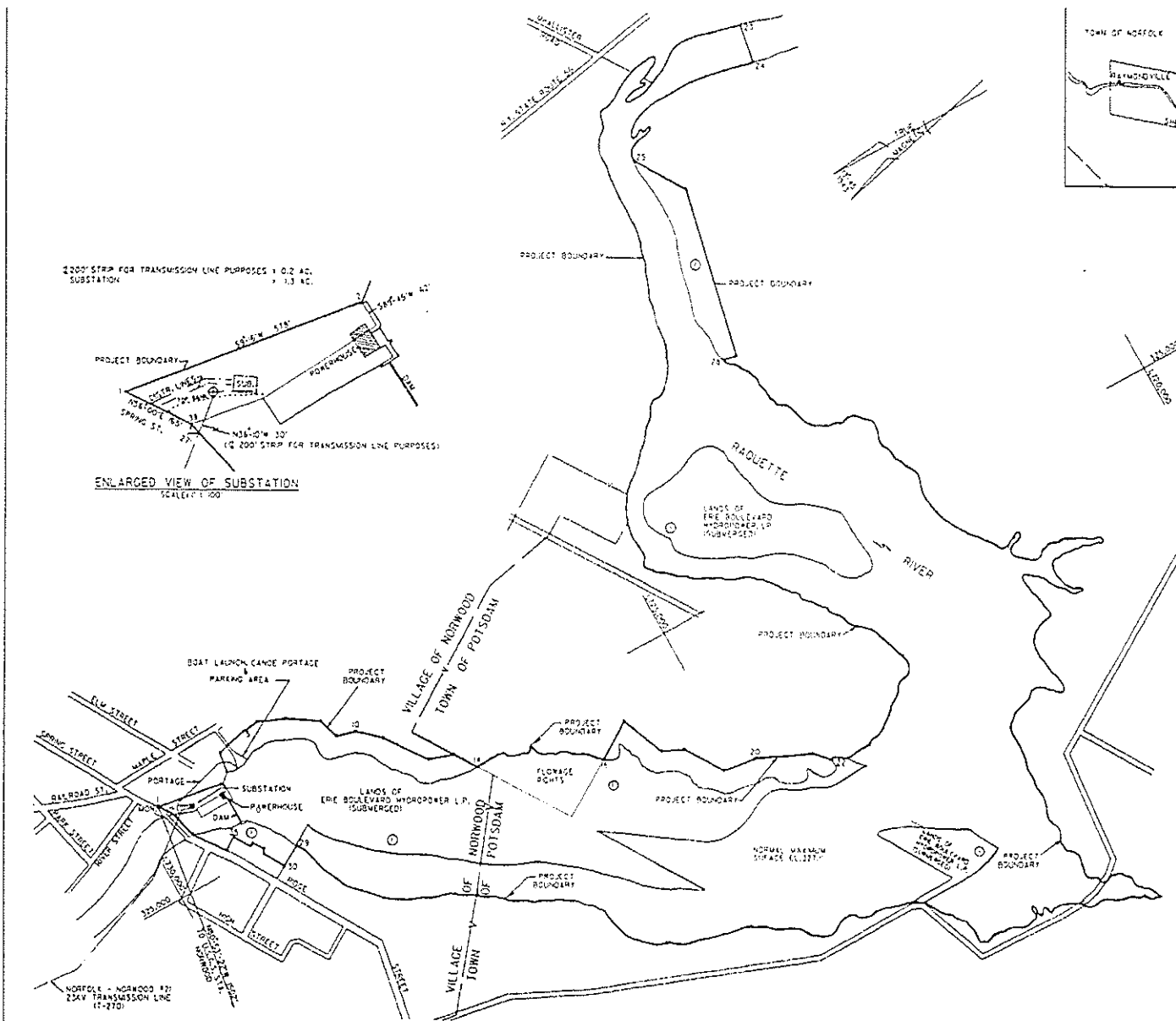
ERIE BOULEVARD HYDROPOWER, LP  
 LIVERPOOL, N.Y.  
**MIDDLE RAGUETTE RIVER PROJECT**  
**COLTON DEVELOPMENT**  
 PROJECT BOUNDARY AND LOCATION MAP  
 EXHIBIT G SCALE "1"=100' SHEET NO. 4  
 0 200 400 600 800 1000 1200 1400 1600 1800 2000

NO.	DATE	DESCRIPTION	BY	CHKD.	APPROVED	ORIGINAL FILED DATE
1	02/27/99	OWNER SIGNED NEW LICENSE	WJL	JFL	WJL	
2	02/27/99	UPDATED MAP	WJL	JFL	WJL	
3	03/11/99	LOC. APP. ACCEPTED FOR FILING	WJL	OWH	WJL	FILE 092320.DGN
4	06/04/99	LICENSE APPLICATION	WJL	THE JSD	WJL	FILE 042320.DWT
5	07/14/99	LOA APPROVED	WJL	THE JSD	WJL	FILE 042320.DWT
6	08/11/99	CONSTRUCTION OF LICENSE APPROVED	WJL	CC	WJL	FILE 2320-004









**NOTE:**  
 ERIE BOULEVARD HYDROPOWER L.P. OWNS PARCEL NO. 1 IN FEES ACRES WITHIN PROJECT BOUNDARY + 61.82 ACRES FOR THIS SHEET ONLY.

**LEGEND**

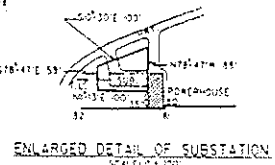
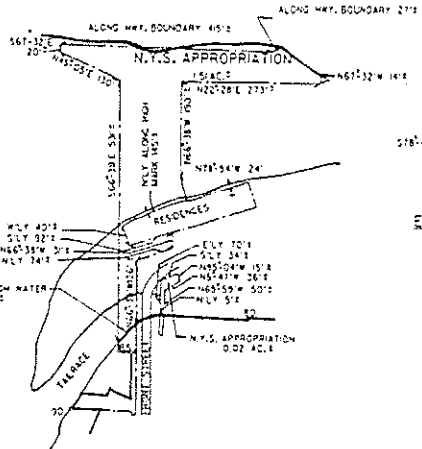
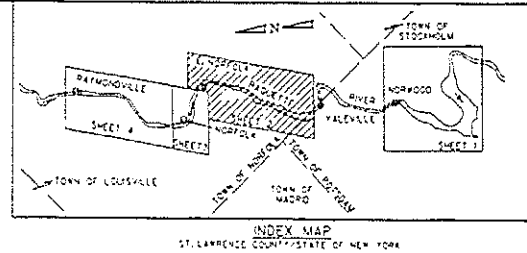
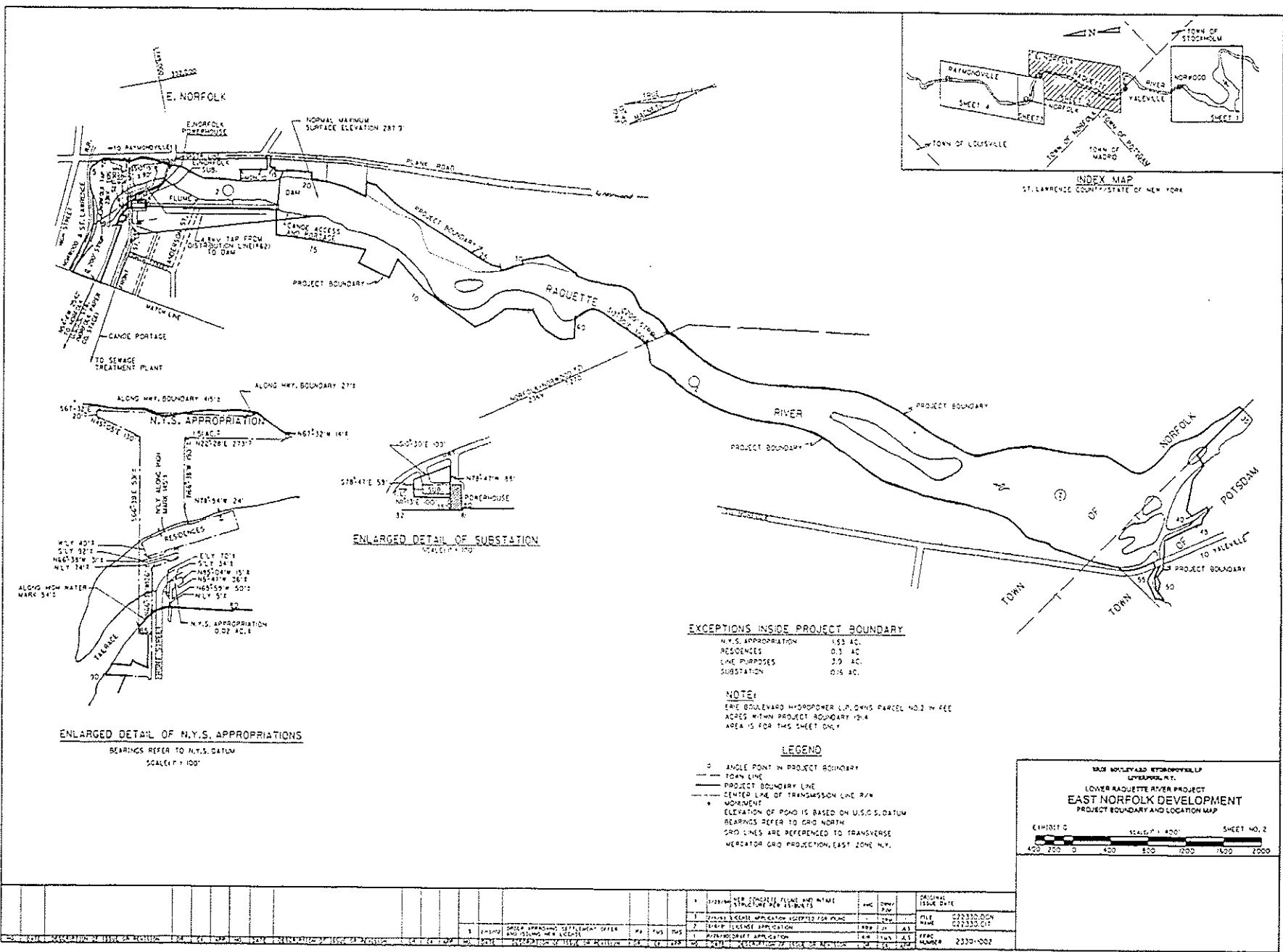
- ANGLE POINT IN PROJECT BOUNDARY
- TOWN LINE
- PROJECT BOUNDARY LINE
- CENTERLINE OF TRANSMISSION LINE R/W
- WOODMANT

ELEVATION OF POND IS BASED ON U.S.C.S. DATUM  
 BEARINGS REFER TO GRID NORTH  
 DPO LINES ARE REFERENCED TO TRANSVERSE MERCATOR  
 DPO PROJECTION, EAST ZONE NEW YORK STATE

**ERIE BOULEVARD HYDROPOWER L.P.**  
 LIVERMONT, NY.  
**LOWER RADLETTE RIVER PROJECT**  
**NORWOOD DEVELOPMENT**  
 PROJECT BOUNDARY AND LOCATION MAP

EXHIBIT C SCALE: 1" = 400' SHEET NO. 1

NO.	DATE	DESCRIPTION OF ISSUE OR ACTION	BY	FOR	STATUS	DATE	BY	FOR	STATUS	DATE	BY	FOR	STATUS
4	07-23-01	ORDER APPROVING SETTLEMENT OFFER	PA	THIS	FILE								
3	07-23-01	ORDER RECEIVING NEW LICENSE	PA	THIS	FILE								
2	07-23-01	PERMITS MAP ACCEPTED FOR PAING	PA	THIS	FILE								
1	07-23-01	LICENSE APPLICATION	PA	THIS	FILE								
1	07-23-01	DEALT APPLICATION	PA	THIS	FILE								
1	07-23-01	DEALT APPLICATION	PA	THIS	FILE								



**EXCEPTIONS INSIDE PROJECT BOUNDARY**

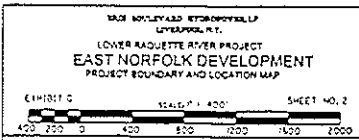
N.Y.S. APPROPRIATION	153 AC.
RESIDENCES	0.3 AC.
LINE PURPOSES	2.0 AC.
SUBSTATION	0.16 AC.

**NOTE:**  
 EAVE BOULEVARD HYDROPOWER L.L.C.'S PARCEL NO.2 IN REC ACRES WITHIN PROJECT BOUNDARY (2.4 ACRES) IS FOR THIS SHEET ONLY.

**LEGEND**

- ANGLE POINT IN PROJECT BOUNDARY
- TOWN LINE
- PROJECT BOUNDARY LINE
- CENTER LINE OF TRANSMISSION LINE RUN
- MONUMENT
- ELEVATION OF POH# IS BASED ON U.S.C.S. DATUM
- BEARINGS REFER TO GRID NORTH
- GRID LINES ARE REFERENCED TO TRANSVERSE MERCATOR GRID PROJECTION, EAST ZONE N.Y.

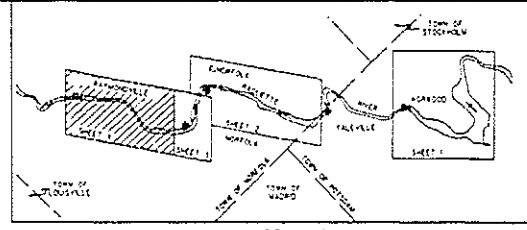
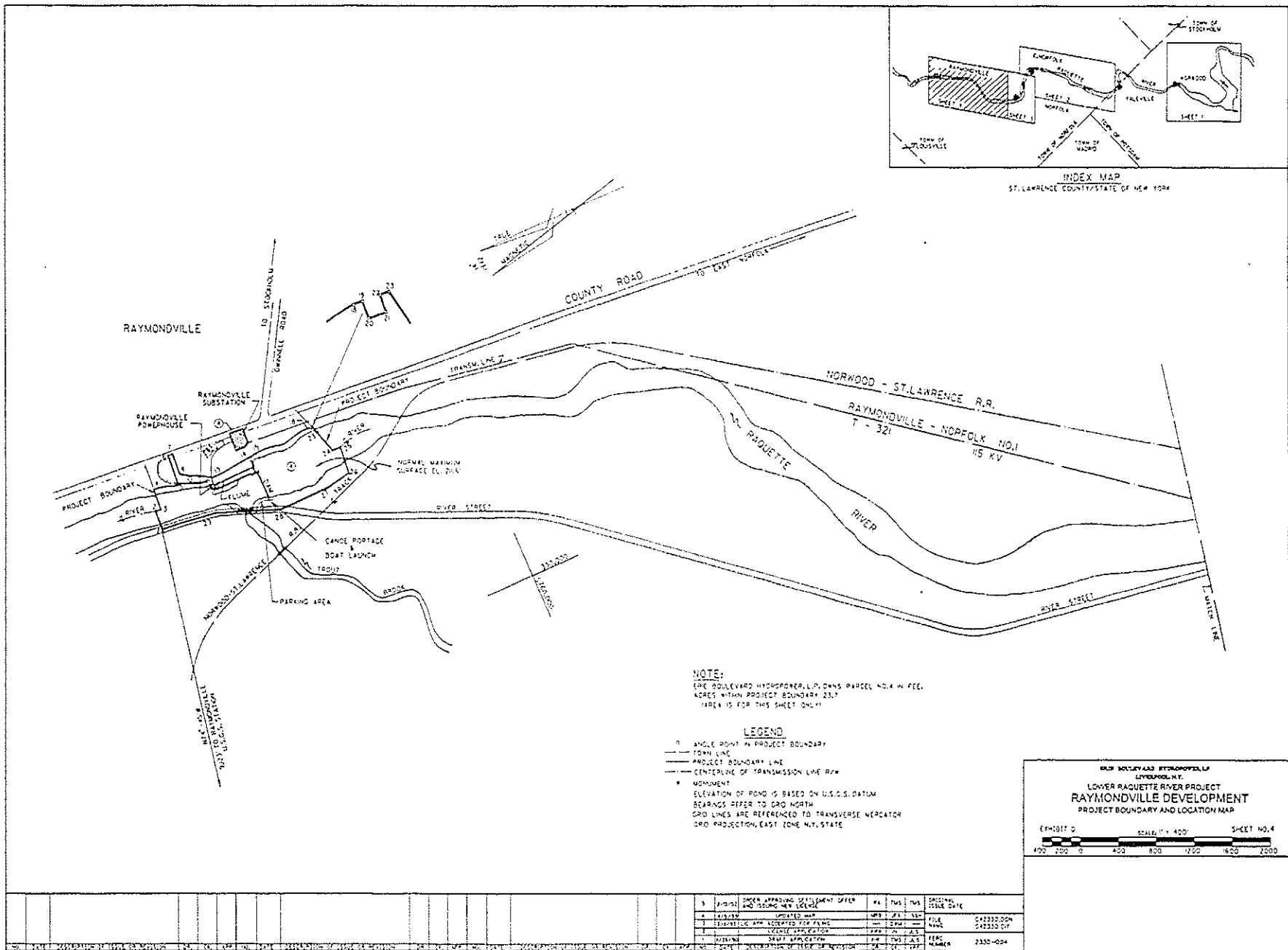
**ENLARGED DETAIL OF N.Y.S. APPROPRIATIONS**  
 BEARINGS REFER TO N.Y.S. DATUM  
 SCALE 1" = 100'



NO.	DATE	DESCRIPTION	BY	CHKD.	APP'D.	REVISION
1	12/10/02	ORDER APPROVALS/SETTLEMENT OFFER AND RECORDING LICENSES	PA	FWS	FWS	
2	12/10/02	REVISION TO ORDER APPROVALS/SETTLEMENT OFFER AND RECORDING LICENSES	PA	FWS	FWS	
3	12/10/02	REVISION TO ORDER APPROVALS/SETTLEMENT OFFER AND RECORDING LICENSES	PA	FWS	FWS	

1	ORDER APPROVALS/SETTLEMENT OFFER AND RECORDING LICENSES	PA	FWS	FWS	2002	AS	2330-002
2	REVISION TO ORDER APPROVALS/SETTLEMENT OFFER AND RECORDING LICENSES	PA	FWS	FWS	2002	AS	2330-002
3	REVISION TO ORDER APPROVALS/SETTLEMENT OFFER AND RECORDING LICENSES	PA	FWS	FWS	2002	AS	2330-002





INDEX MAP  
ST. LAWRENCE COUNTY/STATE OF NEW YORK

NOTE:  
 THE BOULEVARD HYDROPOWER, LTD. OWNS PARCEL NO. 4 IN FIG. 23.7 ACRES WITHIN PROJECT BOUNDARY 23.7 ACRES IS FOR THIS SHEET ONLY

- LEGEND**
- ANGLE POINT IN PROJECT BOUNDARY
  - TOWN LINE
  - PROJECT BOUNDARY LINE
  - CENTERLINE OF TRANSMISSION LINE R/W
  - MONUMENT
- ELEVATION OF POND IS BASED ON U.S.C.S. DATUM  
 BEARINGS REFER TO GRID NORTH  
 GRID LINES ARE REFERENCED TO TRANSVERSE MERCATOR GRID PROJECTION, EAST ZONE N.Y. STATE

BOULEVARD HYDROPOWER, LTD.  
 LYNDENHURST  
**LOWER RAQUETTE RIVER PROJECT**  
**RAYMONDVILLE DEVELOPMENT**  
 PROJECT BOUNDARY AND LOCATION MAP

EXHIBIT C SCALE: 1" = 400' SHEET NO. 4

NO.	DESCRIPTION	DATE	BY	CHKD.	APP'D.	REVISION
1	PRELIMINARY PLAN	10/15/04	J. J. ...			
2	FINAL PLAN	11/15/04	J. J. ...			
3	AS BUILT	01/15/05	J. J. ...			