

SECTION A-A (1-00195-DE-06200-0007)

LEGEND:

EXPLORATION HOLE

- EXPLORATION HOLE OR TEST PIT NUMBER
- OFFSET DISTANCE IN METRES FROM SECTION LINE (SEE NOTE 1)
- LOCATION OF EXPLORATION HOLE ALONG SECTION LINE
- OVERBURDEN / BEDROCK
- PT - POINT
- CL-ML - CLAY
- ML - MUD SURFACE
- SP - STRATIGRAPHIC INTERFACE
- SM - BEDROCK SURFACE
- CBL - COBBLES
- BLDR - BOULDER
- GREYWACKE GNEISS
- DIABASE
- GRANITE
- AMPHIBOLITE
- NR - NO RECOVERY
- LAKE, RIVER OR POND WATER LEVEL

ROD VALUE

- ROD (%)
- CL-ML - UNIFIED SOIL CLASSIFICATION SYMBOL
- CBL - COBBLES
- BLDR - BOULDER
- GREYWACKE GNEISS
- DIABASE
- GRANITE
- AMPHIBOLITE
- NR - NO RECOVERY
- LAKE, RIVER OR POND WATER LEVEL

SOIL CLASSIFICATION SYMBOLS BASED UPON THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

- PT - PEAT, MUSKEG, HIGHLY ORGANIC SOILS
- OH - ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY
- CH - INORGANIC CLAYS OF HIGH PLASTICITY
- MH - INORGANIC SILTS, MICACEOUS OR ORGANIC AT CLAYS OR SILTY SOILS, ELASTIC SILTS
- CI - INORGANIC CLAYS OF INTERMEDIATE PLASTICITY, SANDY CLAYS, SANDY SILTY CLAYS
- OL - ORGANIC SILTS AND ORGANIC SILTY CLAYS
- CL - INORGANIC CLAYS OF LOW PLASTICITY, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
- ML - INORGANIC SILTS AND VERY FINE SANDS OR CLAYEY FINE SANDS WITH SLIGHT PLASTICITY
- SC - CLAYEY SANDS, POORLY GRADED SANDS, SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
- SM - SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
- SP - POORLY GRADED SANDS, GRAVELLY SANDS, SANDS WITH LITTLE OR NO FINES
- SW - WELL GRADED SANDS, GRAVELLY SANDS, SANDS WITH LITTLE OR NO FINES
- GC - CLAYEY GRAVELS, POORLY GRADED GRAVELS, GRAVELS WITH LITTLE OR NO FINES
- GM - SILTY GRAVELS, POORLY GRADED GRAVELS, GRAVELS WITH LITTLE OR NO FINES
- GP - POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
- GW - WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
- CL-ML, GP-GC, TYPICAL BORDER LINE CLASSIFICATION, REQUIRING THE USE OF DUAL SYMBOLS

FROZEN GROUND SYMBOLS

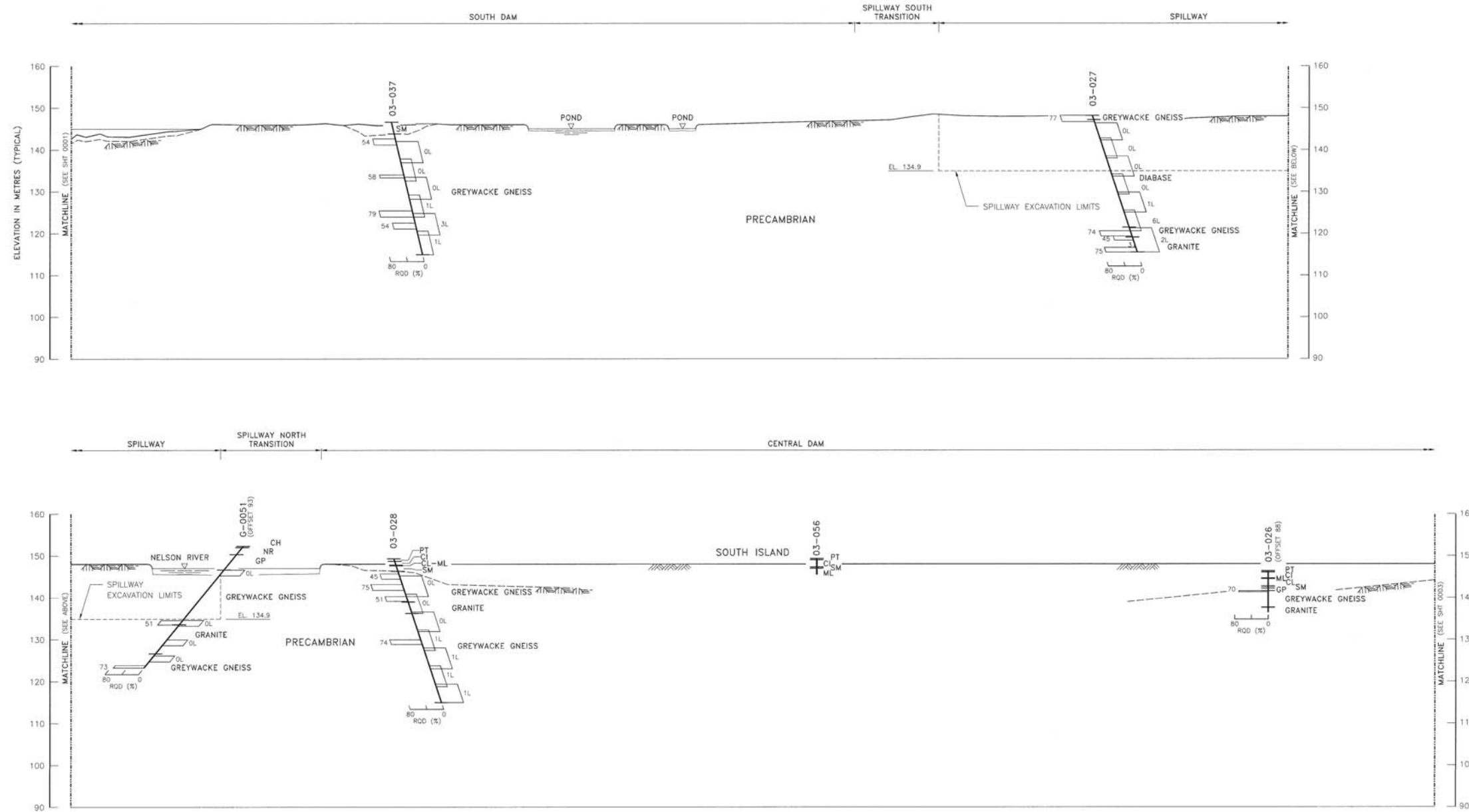
- Frozen - SEASONAL FROST
- Nf - POORLY BONDED OR FRIABLE ICE
- Nbn - WELL BONDED, NO EXCESS ICE
- Nbe - WELL BONDED, EXCESS ICE
- Vx - INDIVIDUAL ICE CRYSTALS OR INCLUSIONS
- Vc - ICE COATINGS ON PARTICLES
- Vr - RANDOM OR IRREGULARLY ORIENTED ICE FORMATIONS
- Vs - STRATIFIED OR DISTINCTLY ORIENTED ICE FORMATIONS
- Ice + - ICE WITH SOIL INCLUSIONS
- Ice - ICE WITHOUT SOIL INCLUSIONS

- NOTES:**
- OFFSET DISTANCE SHOWN IF GREATER THAN 5 METRES FROM SECTION LINE.
 - SEE DRAWING 1-00195-DE-06200-0007 FOR LOCATION OF EXPLORATIONS WITH RESPECT TO THE AXIS OF PRINCIPAL STRUCTURES.
 - WHENEVER POSSIBLE THE GROUND SURFACE PROFILES WERE ADJUSTED TO CONFORM TO THE INFORMATION FROM THE DRILL HOLES OR TEST PITS WHICH ARE WITHIN 5 METRES FROM THE SECTION LINES AND THEREFORE THEY MAY DIFFER FROM THAT SHOWN BY THE CONTOURS ON DRAWING 1-00195-DE-06200-0007.
 - ELEVATIONS ARE BASED ON CGVD 1928.

CONTINUED ON SHEET 12

<p>HATCH</p> <p>AREA COORDINATOR P. PANTEL</p> <p>DATE</p> <p>DISCIPLINE ENGINEER R. HALJAM</p> <p>DATE</p> <p>PROJECT ENGINEER A. TRUDEL</p> <p>DATE</p> <p>PROJECT MANAGER W. GENDZIE</p> <p>DATE</p>		<p>Manitoba Hydro</p> <p>ISSUED FOR PROPOSAL - RFP 016203 DO NOT USE FOR CONSTRUCTION</p> <p>2012-02-13</p> <p>ISSUED FOR INFORMATION</p> <p>2013-03-28</p>	
<p>KEYYASK GENER</p> <p>BASIS FOR DESIGNATION</p> <p>GENERAL ARRANGEMENT</p> <p>PRINCIPAL STRUCTURES</p> <p>GEOLOGICAL SECTIONS</p> <p>DRAWING NUMBER: 1-00195-DE-06200-00</p> <p>SHEET: 08</p> <p>REVISION: 0001</p> <p>DATE: 08</p>		<p>REV. DATE DESCRIPTION</p> <p>1 2012-02-13</p>	

NOTE:
FOR LEGEND AND NOTES SEE SHEET 0001.

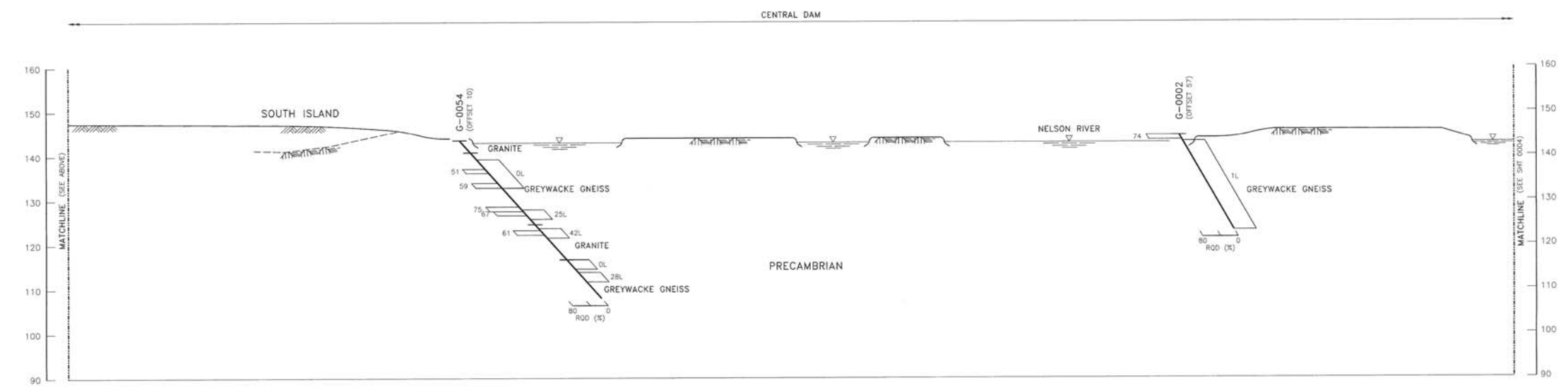
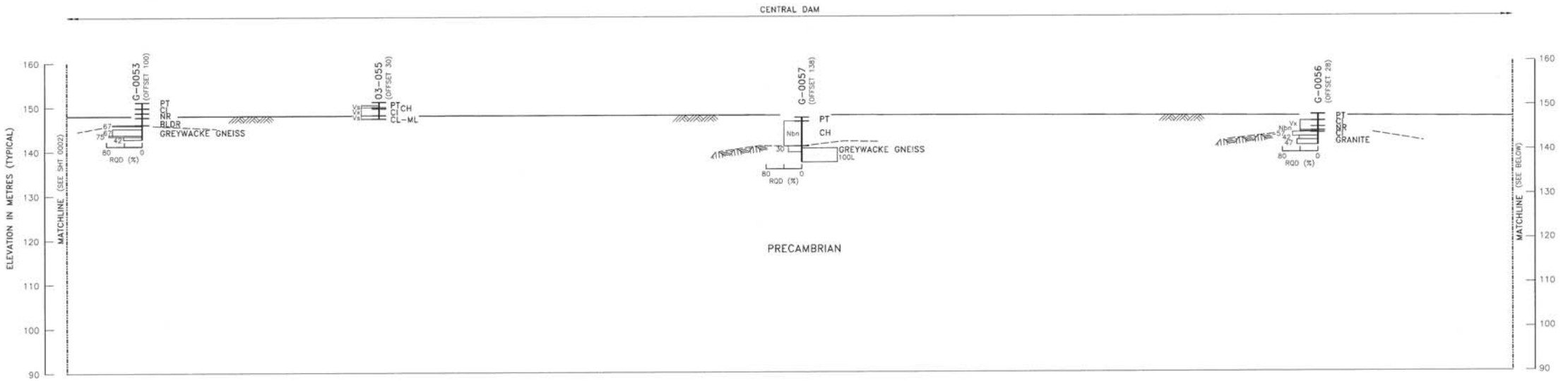


SECTION A-A (1-00195-DE-06200-0007, CONTINUED)

CONTINUED ON SHT 0003

Issued for Proposal - RFP 016203 DO NOT USE FOR CONSTRUCTION 2013-03-28					
REV.	DATE	DESCRIPTION	BY	CHKD.	APP.P. ENG.
00	2012-02-13	ISSUED FOR INFORMATION	RAR	PRP	BRD
HATCH HA DWG. NO. H341433-1300-15-042-0003		DRAWN: R.E. GASPAR DESIGNED: P. PANTEL		CHECKED: DATE: SCALE: 1:500	
AREA COOR: P. PANTEL DATE: DISCIP. ENGR: R. HALJIM DATE: PROJ. ENGR: A. TRUDEL DATE: PROJ. MGR: W. GENDZI DATE: 2		KEYEYASK GENERATING STATION BASIS FOR DESIGN GENERAL ARRANGEMENT PRINCIPAL STRUCTURES GEOLOGICAL SECTION			
AUTHENTICATION FOR CURRENT REVISION			DRAWING NUMBER: 1-00195-DE-06200-0008 SHEET: 0002 OF: 00		

NOTE:
FOR LEGEND AND NOTES SEE SHEET 0001.



SECTION A-A (1-00195-DE-06200-0007, CONTINUED)

CONTINUED ON SHT 0004

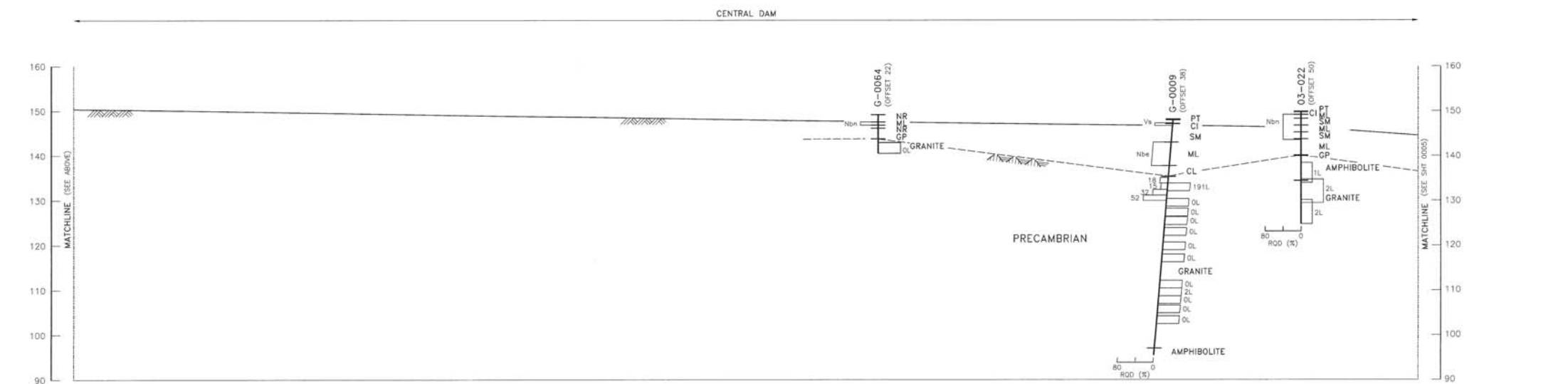
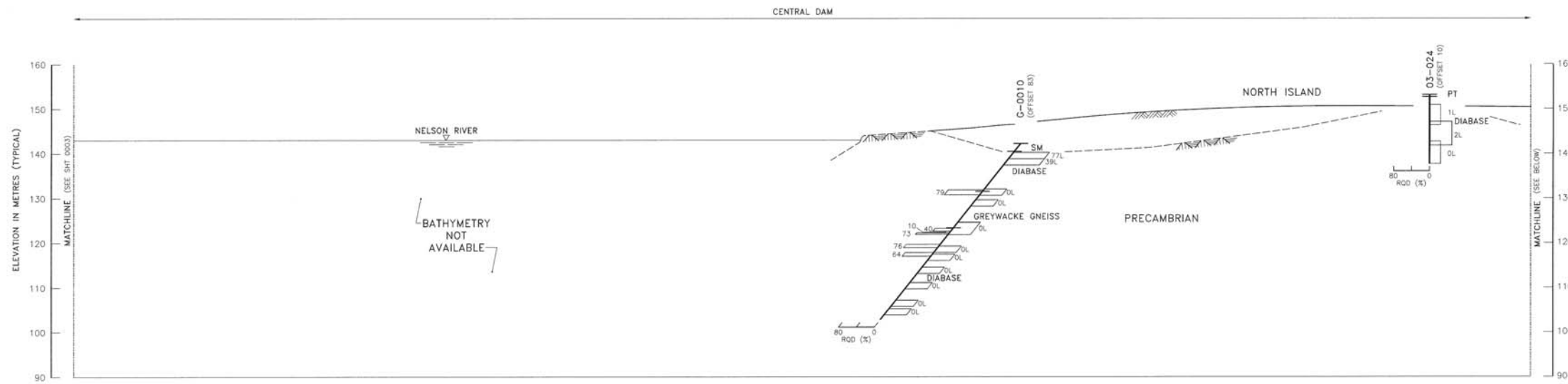
Issued for Proposal - RFP 016203			
DO NOT USE FOR CONSTRUCTION			
2013-03-28			
REV.	DATE	DESCRIPTION	BY
00	2012-02-13	ISSUED FOR INFORMATION	BAR PRP BRD

HATCH
H341433-1300-15-042-0004
AREA COORD
P. PANTEL
DATE
DISCIP ENGR
R. HALIM
DATE
PROJ ENGR
A. TRUDEL
DATE
PROJ MGR
W. GENDZIE
DATE

Manitoba Hydro
AUTHENTICATION FOR CURRENT REVISION

DRAWN: P. PANTEL	CHECKED:	SCALE: 1:400
DESIGNED: P. PANTEL	CHECKED:	DATE:
KEYYASK GENERATING STATION		
BASIS FOR DESIGN GENERAL ARRANGEMENT PRINCIPAL STRUCTURES GEOLOGICAL SECTION		
DRAWING NUMBER	SHEET	REVISION
1-00195-DE-06200-0008	0003	0C

NOTE:
FOR LEGEND AND NOTES SEE SHEET 0001.



SECTION A-A (1-00195-DE-06200-0007, CONTINUED)

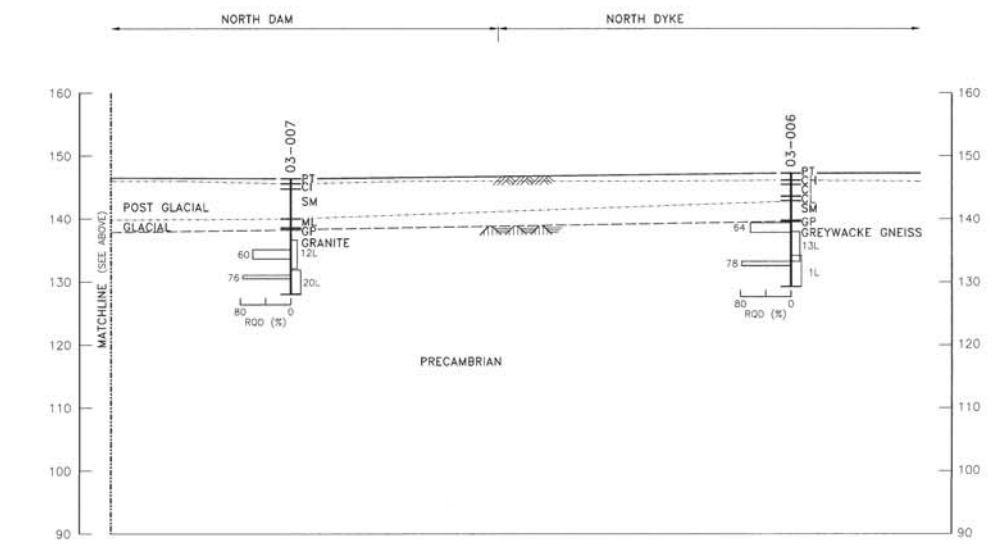
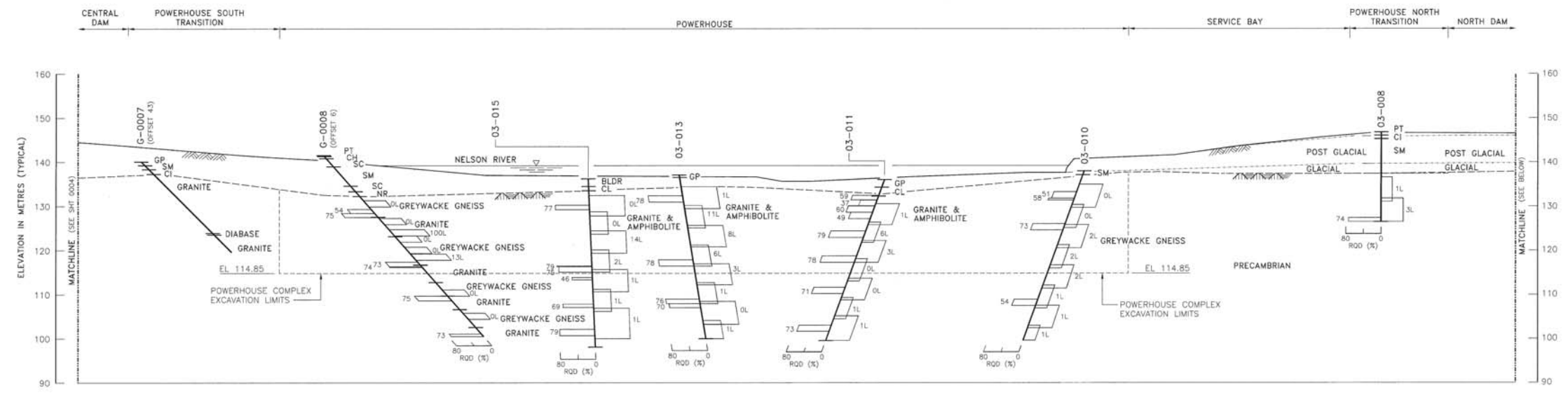
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DRAWN: R.E. GASPAR		CHECKED:	BY:	SCALE: 1:400	APP.P. ENG.
DESIGNED: P. PANTEL		CHECKED:	DATE:		
KEYYASK GENERATING STATION BASIS FOR DESIGN GENERAL ARRANGEMENT PRINCIPAL STRUCTURES GEOLOGICAL SECTION					
DRAWING NUMBER				SHEET	
1-00195-DE-06200-0008				0004	
DATE				REVISED	
2013-03-28				00	

HATCH
 HA DWG. NO.
 HS41433-1300-15-042-0005
 AREA COORD.
 P. PANTEL
 DATE
 DISCIPLINE
 R. HALIM
 DATE
 PROJ. ENGR.
 A. TRUDEAU
 DATE
 PROJ. MGR.
 W. GENDZE
 DATE

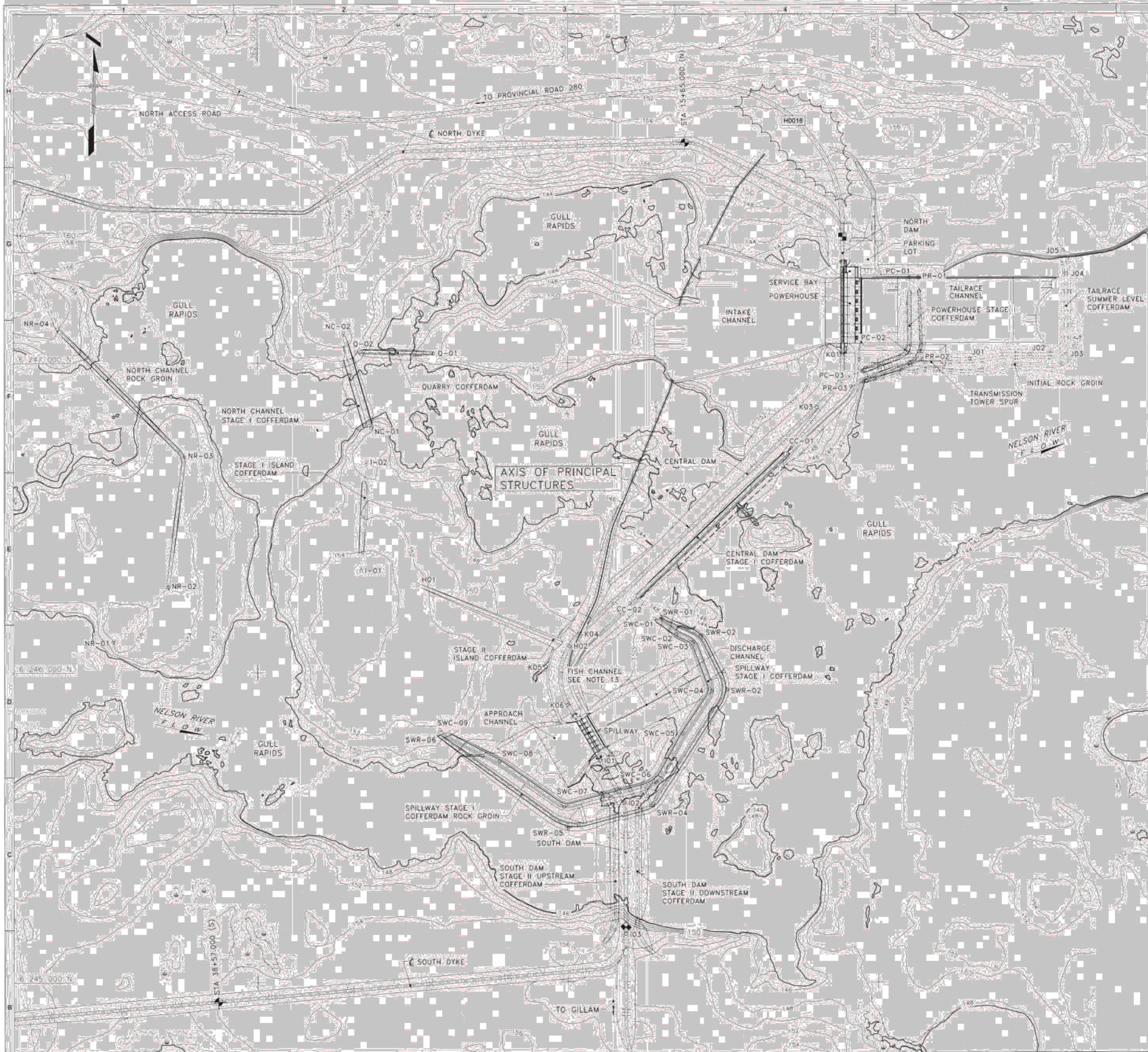
Manitoba Hydro
 AUTHENTICATION FOR
 CURRENT REVISION

NOTE:
FOR LEGEND AND NOTES SEE SHEET 0001.



SECTION A-A (1-00195-DE-06200-0007, CONTINUED)

Issued for Proposal - RFP 016203 DO NOT USE FOR CONSTRUCTION 2013-03-28					
REV.	DATE	DESCRIPTION	BY	CHKD.	APP.P. ENG.
00	2012-02-13	ISSUED FOR INFORMATION			
DRAWN: P. PANTEL		CHECKED:	SCALE: 1:450		
DESIGNED: P. PANTEL		CHECKED:	DATE:		
KEYYASK GENERATING STATION BASIS FOR DESIGN GENERAL ARRANGEMENT PRINCIPAL STRUCTURES GEOLOGICAL SECTION					
DRAWING NUMBER				SHEET	REVISION
1-00195-DE-06200-0008				0005	0C



POWERHOUSE STAGE I COFFERDAM

POINT NAME	NORTHING	EASTING
PC-01	6 247 275.999	364 100.745
PC-02	6 247 030.000	364 102.000
PC-03	6 246 954.593	363 903.080
PR-01	6 247 276.146	364 129.491
PR-02	6 247 009.476	364 142.797
PR-03	6 246 923.248	363 913.139

TAILRACE SUMMER LEVEL COFFERDAM

POINT NAME	NORTHING	EASTING
J01	6 247 013	364 295
J02	6 247 027	364 489
J03	6 247 027	364 607
J04	6 247 287	364 606
J05	6 247 362	364 596

CENTRAL DAM STAGE I COFFERDAM

POINT NAME	NORTHING	EASTING
CC-01	6 246 724.419	363 720.686
CC-02	6 246 225.841	363 201.532

CENTRAL DAM

POINT NAME	NORTHING	EASTING
K01	6 247 029	363 885
K02	6 246 936	363 885
K03	6 246 657	363 803
K04	6 246 124	363 040
K05	6 246 016	362 930
K06	6 245 895	363 001

SPILLWAY STAGE I COFFERDAM

POINT NAME	NORTHING	EASTING
SWC-01	6 246 175.49	363 280.57
SWC-02	6 246 124.99	363 350.65
SWC-03	6 246 099.13	363 405.09
SWC-04	6 245 941.10	363 463.89
SWC-05	6 245 803.81	363 371.33
SWC-06	6 245 646.57	363 285.69
SWC-07	6 245 566.15	362 988.88
SWC-08	6 245 712.41	362 780.36
SWC-09	6 245 814.56	362 586.33
SWR-01	6 246 180.63	363 301.75
SWR-02	6 246 119.71	363 429.99
SWR-03	6 245 945.94	363 515.75
SWR-04	6 245 571.08	363 275.12
SWR-05	6 245 496.87	363 001.22
SWR-06	6 245 799.63	362 583.82

SOUTH DAM

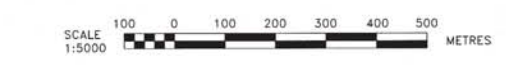
POINT NAME	NORTHING	EASTING
J01	6 245 716	363 105
J02	6 245 581	363 183
J03	6 245 157	363 187

- LEGEND:**
- SHORELINE (SEE NOTE 6)
 - 144— GROUND SURFACE CONTOUR (SEE NOTE 7)
 - STREAM
 - SWAMP
 - RAPIDS
 - ACCESS ROAD
 - COORDINATE GRID MARKER (LOCATED AT 1000 METRE INTERVALS)
 - COFFERDAM REMOVED
 - TRANSMISSION LINE
 - REFERENCE POINT (SEE NOTE 10)
 - REFERENCE POINT (SEE NOTE 11)
 - REFERENCE POINT (SEE NOTE 12)

- NOTES:**
- TOPOGRAPHY IS BASED ON MAPPING RECEIVED FROM MANITOBA HYDRO MARCH, 2004.
 - MAPPING WAS PRODUCED USING PHOTOGRAMMETRIC METHODS BASED ON 1:20 000 SCALE PHOTOGRAPHY DATED OCTOBER, 1986.
 - COORDINATE GRID SHOWN IS BASED ON THE UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 15, NORTH AMERICAN DATUM 1983.
 - COORDINATES AND ELEVATIONS ARE IN METRES.
 - ELEVATIONS ARE BASED ON CGVD 1928.
 - WATER LEVELS SHOWN ARE APPROXIMATE ONLY AND RELATE TO THE DATE OF PHOTOGRAPHY.
 - CONTOUR INTERVAL IS 2 METRES.
 - LOCATION AND PRESENTATION OF CONCRETE AND EARTHFILL STRUCTURES IS PRELIMINARY.
 - STATIONING IS BASED ON DISTANCE ALONG THE NORTH AND SOUTH BANK EARTH STRUCTURES' AXES AND CENTERLINES FOR AXIS GR-3 ALTERNATIVE ARRANGEMENT WITH FULL SUPPLY LEVEL AT EL 159.0. FOR THE NORTH BANK STATION 0+00 IS LOCATED AT COORDINATES 6 246 876.230 N AND 364 450.762 E. FOR THE SOUTH BANK STATION 0+00 IS LOCATED AT COORDINATES 6 246 476.050 N AND 364 543.280 E.
 - THE REFERENCE POINTS ARE LOCATED AT THE STATIONS WHERE THE NORTH AND SOUTH DYKE CENTERLINES FOR AXIS GR-4 INTERSECT WITH THE NORTH AND SOUTH DYKE CENTERLINES FOR AXIS GR-3 ALTERNATIVE ARRANGEMENT. FOR THE NORTH DYKE IT IS STA 15+65.000 (N) AND FOR THE SOUTH DYKE IT IS STA 38+57.000 (S).
 - THE REFERENCE POINT IS LOCATED AT THE INTERSECTION OF THE AXIS OF THE NORTH DAM AND THE CENTERLINE OF THE NORTH DYKE AND IS AT COORDINATES 6 247 407.573 N, 363 884.861 E.
 - THE REFERENCE POINT IS LOCATED AT THE INTERSECTION OF THE AXIS OF THE SOUTH DAM AND THE CENTERLINE OF THE SOUTH DYKE AND IS AT COORDINATES 6 245 178.480 N, 363 186.860 E.
 - FISH CHANNEL INVERT 138.9 m LONG AND 2 m WIDE. THIS CHANNEL IS TO CONNECT INTO THE RIVER CHANNEL DOWNSTREAM OF THE DISCHARGE CHANNEL. LOCATION AND LENGTH TO BE DETERMINED IN THE FIELD.

HOLD:
H0018 NORTH ACCESS RAMP DESIGN ON HOLD

THE PRINCIPAL STRUCTURES GENERAL ARRANGEMENT IS CONCEPTUAL AND IS SHOWN USING THE GENERAL ARRANGEMENT PLAN FROM THE PRE-DESIGN STUDIES. CIVIL INFRASTRUCTURE, INCLUDING TRANSMISSION TOWER CORRIDORS ARE OMITTED FOR CLARITY. THIS DRAWING ALSO SHOWS THE CURRENT FOOTPRINTS AND ALIGNMENTS OF THE STAGE I COFFERDAMS. THE PURPOSE OF THIS DRAWING IS TO ASSIST IN LOCATING STRUCTURES IN THE FIELD DURING SITE RECONNAISSANCE. IT IS FOR INFORMATION ONLY.



Issued for Proposal - RFP 016203
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2013-04-22

REV.	DATE	DESCRIPTION	BY	CHKD.	APP'P. ENG.
00	2012-04-19	ISSUED FOR INFORMATION	RAR	PRP	IRD

HATCH
Hatch Dwg. No. H341433-1000-00-042-0002

Manitoba Hydro

KEEYASK GENERATING STATION

BASIS FOR DESIGN
GENERAL ARRANGEMENT
PRINCIPAL STRUCTURES
GENERAL ARRANGEMENT

DRAWING NUMBER: 1-00195-DE-06200-0013 SHEET: 0001 OF 00

NORTH CHANNEL ROCK GROIN

POINT NAME	NORTHING	EASTING
NR-01	6 246 098.810	361 535.401
NR-02	6 246 276.243	361 711.520
NR-03	6 246 697.211	361 764.448
NR-04	6 247 126.276	361 339.206

NORTH CHANNEL STAGE I COFFERDAM

POINT NAME	NORTHING	EASTING
NC-01	6 246 789.725	362 367.194
NC-02	6 247 096.790	362 277.134

STAGE I ISLAND COFFERDAM

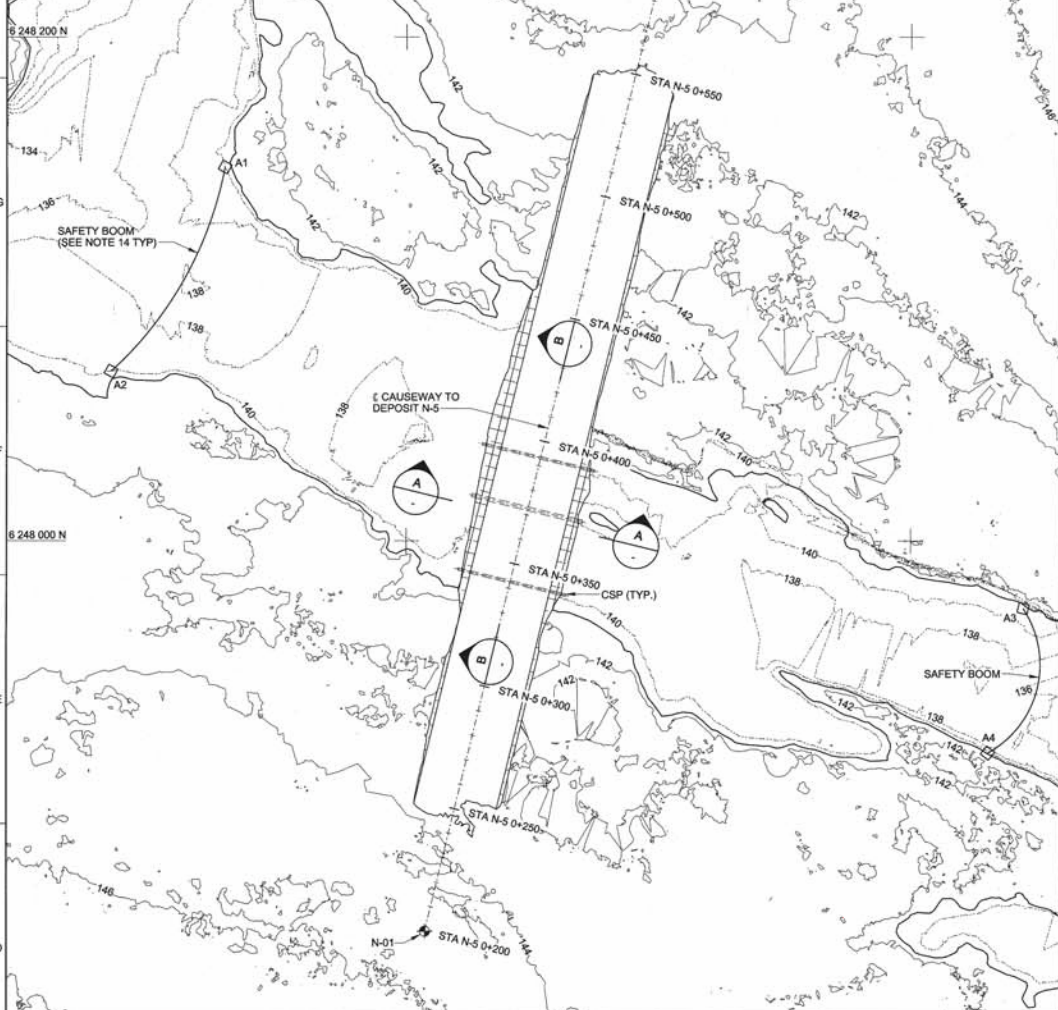
POINT NAME	NORTHING	EASTING
I-01	6 246 330.310	362 334.442
I-02	6 246 679.893	362 351.520

STAGE II ISLAND COFFERDAM

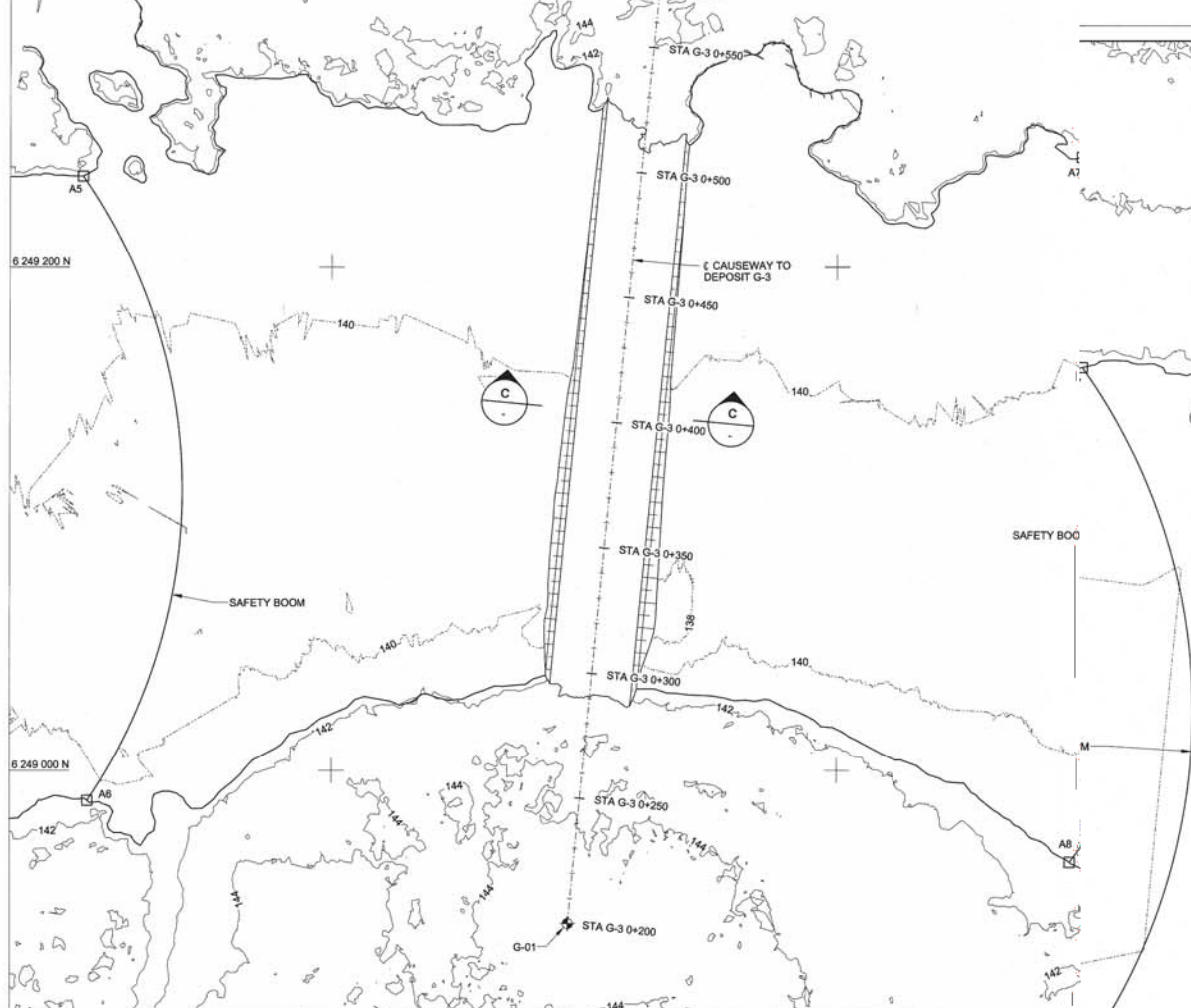
POINT NAME	NORTHING	EASTING
H01	6 246 284	362 519
H02	6 246 084	363 006

QUARRY COFFERDAM

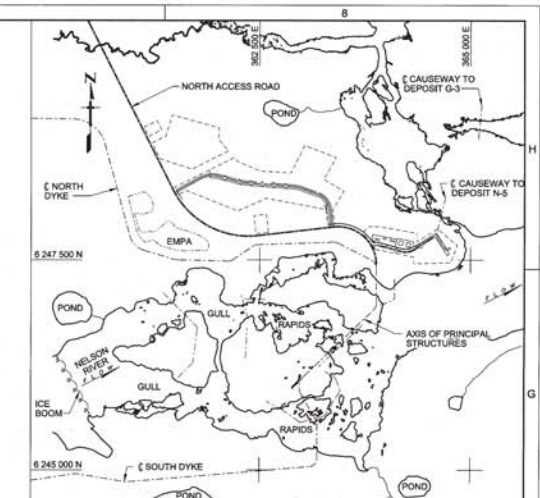
POINT NAME	NORTHING	EASTING
Q-01	6 247 029.673	362 568.046
Q-02	6 247 035.557	362 318.116



PLAN
DEPOSIT N-5 CAUSEWAY
SCALE 1:1000



PLAN
DEPOSIT G-3 CAUSEWAY
SCALE 1:1000

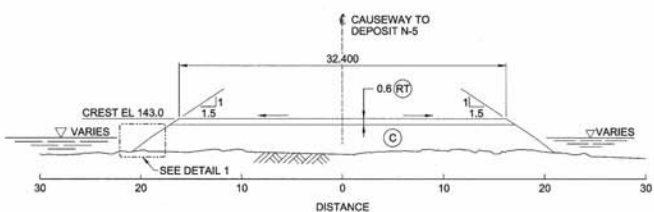


KEY PLAN

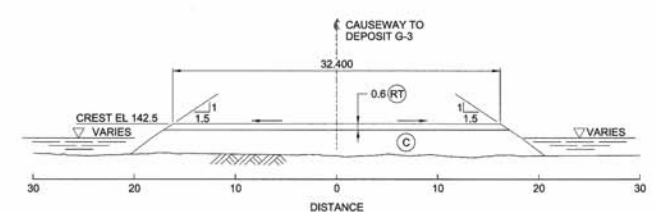
- LEGEND:**
- SHORELINE
 - GROUND SURFACE CONTOUR (2 m INTERVAL)
 - BATHYMETRY CONTOUR (2 m INTERVAL)
 - COORDINATE GRID MARKER
 - REFERENCE POINT
 - ROCKFILL
 - ROAD TOPPING
 - SLOPE DOWN
 - STA N-5 0+250
 - STA G-3 0+450
 - WATER ELEVATION
 - SAFETY BOOM WITH ANCHOR LOCATIONS
- NOTES:**
- COORDINATE GRID SHOWN IS BASED ON THE UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 15, NAD83 (CSRS).
 - ELEVATIONS ARE BASED ON GS OF C, CGVD28, 1929 ADJ.
 - COORDINATES, DIMENSIONS, DISTANCES, STATIONING, AND ELEVATIONS ARE IN METRES.
 - TOPOGRAPHY IS BASED ON 2010 LIDAR DATA PROVIDED BY MANITOBA HYDRO. PLAN SHOWS CONTOUR INTERVAL AT 2 m.
 - LOCATIONS OF SHORELINES ARE APPROXIMATE AND RELATE TO THE DATE OF PHOTOGRAPHY.
 - FILL FOR THE CAUSEWAYS THAT IS PLACED IN WATER SHALL BE ALLOWED TO FALL TO ITS NATURAL ANGLE OF REPOSE. FILL PLACED ABOVE WATER LEVEL SHALL BE PLACED AT THE FOLLOWING SLOPES, UNLESS NOTED OTHERWISE:
 - CLASS C (ROCK FILL) 1V:1.5H
 - ROCKFILL FOR THE CAUSEWAYS SHALL CONSIST OF CLASS C1 ROCKFILL PRODUCT UNLESS NOTED OTHERWISE.
 - RIPRAP SHALL CONSIST OF CLASS C1 ROCKFILL PRODUCT.
 - THE CREST OF THE CAUSEWAYS SHALL BE SLOPED SLIGHTLY SO THAT THE SURFACE RUNOFF FROM THE CREST IS DIRECTED TOWARD THE SIDES OF THE CAUSEWAYS.
 - PURCHASER'S REPRESENTATIVE WILL PROVIDE FORECASTED WATER ELEVATIONS FOR USE DURING CONSTRUCTION.
 - THE RIVERBED MATERIAL VARIES IN THE CAUSEWAY AREAS. INVESTIGATION PROGRAMS HAVE OBSERVED CLAY, SILT, SAND & GRAVEL LENSES, COBBLES, BOULDERS AND BEDROCK OUTCROPS.
 - CONTRACTOR TO DETERMINE NUMBER OF CULVERT SEGMENTS REQUIRED. THE ENGINEER WILL CONFIRM THE STATIONING AND ORIENTATION OF CULVERTS DURING CONSTRUCTION.
 - THE CREST ELEVATIONS FOR THE CAUSEWAYS WERE SELECTED BASED ON THE HYDRAULIC CONDITIONS OF THE AREAS. THE CONTRACTOR SHALL NOTE THAT UNDER EXTREME WINTER WATER LEVELS THERE IS A POSSIBILITY THAT ICE MAY BE PUSHED UP ONTO THE CAUSEWAYS AND HENCE WINTER ACCESS ACROSS THE CAUSEWAYS MAY BE COMPROMISED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY ICE ON THE CREST OF THE CAUSEWAYS, AND MAINTAINING THE CAUSEWAYS FOR PROVIDING WINTER ACCESS IF NECESSARY.
 - SAFETY BOOM INSTALLED BY OTHERS AS PER TRANSPORT CANADA APPROVAL.

CENTERLINE ALIGNMENT GEOMETRY REFERENCE POINTS

NO.	NORTHING	EASTING
N-01	6 247 845.232	364 607.355
N-02	6 248 233.714	364 702.654
G-01	6 248 939.184	365 093.519
G-02	6 249 337.333	365 131.952



TYPICAL SECTION
CULVERTS OMITTED FOR CLARITY
SCALE 1:250



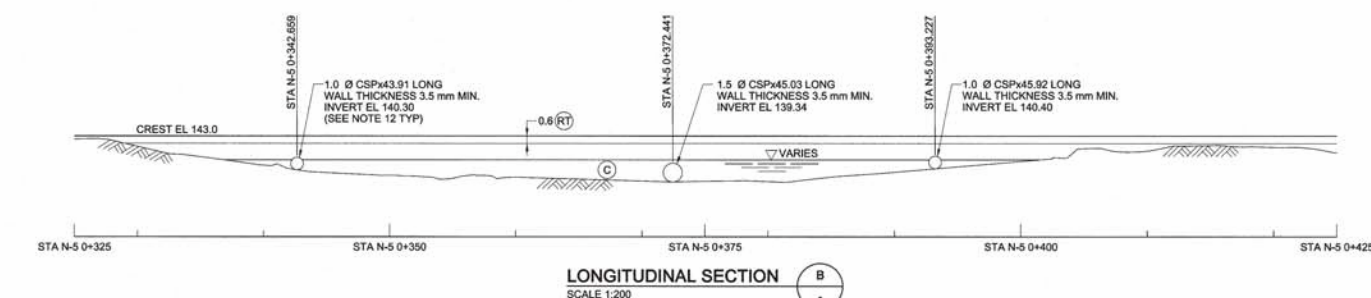
TYPICAL SECTION
SCALE 1:250

SAFETY BOOM AT LOCATION POINTS

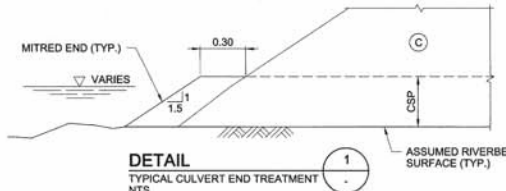
NO.	NORTHING
A1	6 248 148.432
A2	6 248 067.436
A3	6 247 973.163
A4	6 247 915.900
A5	6 249 236.479
A6	6 248 988.105
A7	6 249 244.010
A8	6 248 963.510

ANCHORS POINTS

NO.	EASTING
A1	364 528.021
A2	364 482.952
A3	364 844.668
A4	364 830.621
A5	364 901.224
A6	364 903.078
A7	365 297.170
A8	365 292.575



LONGITUDINAL SECTION
SCALE 1:200



DETAIL
TYPICAL CULVERT END TREATMENT
SCALE 1:250

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DO NOT USE FOR CONSTRUCTION
2013-04-16

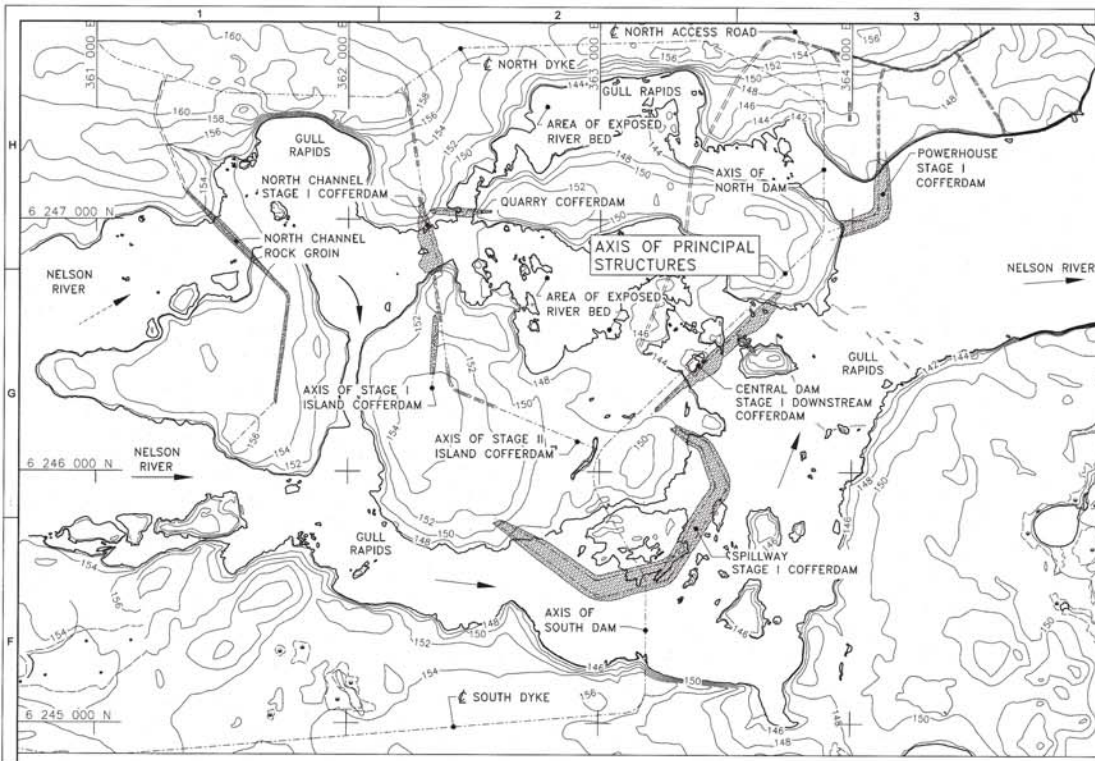
HATCH
DRAWN: R. ALVERO
DESIGNED: R. DAVOOD-BILESAR

Manitoba Hydro

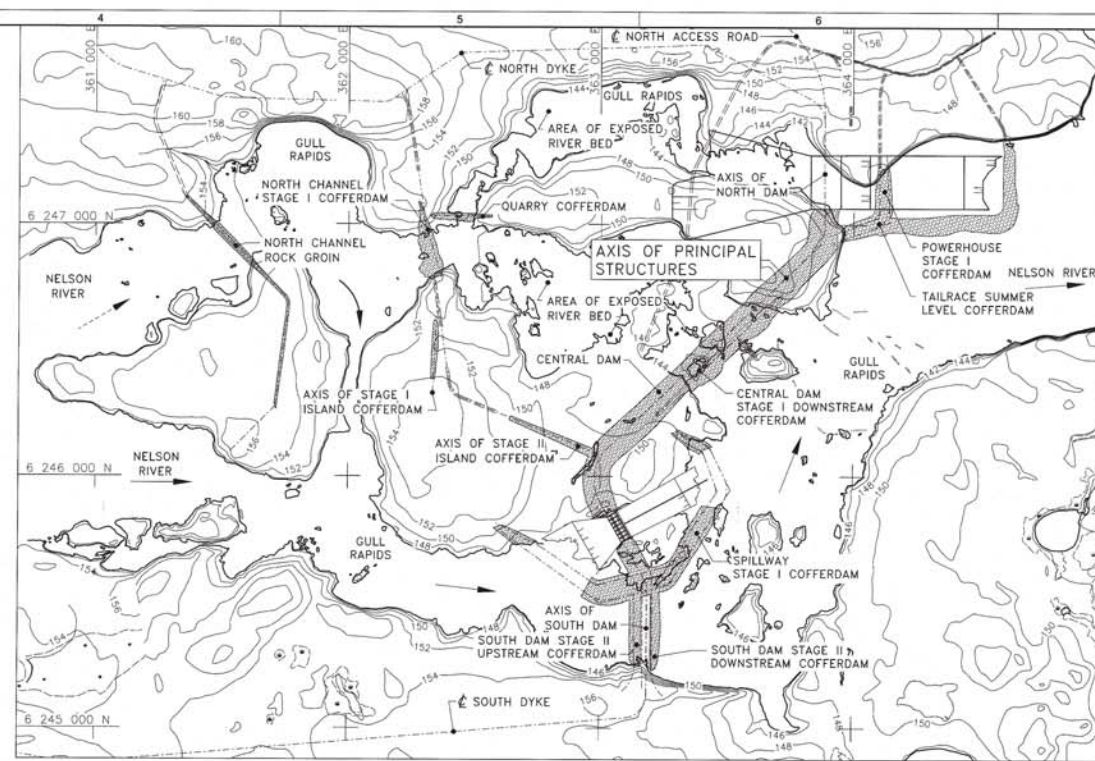
KEYEYASK GENERATING STATION

BASIS FOR DESIGN GENERAL ARRANGEMENT CAUSEWAYS PLANS, SECTIONS & DETAIL

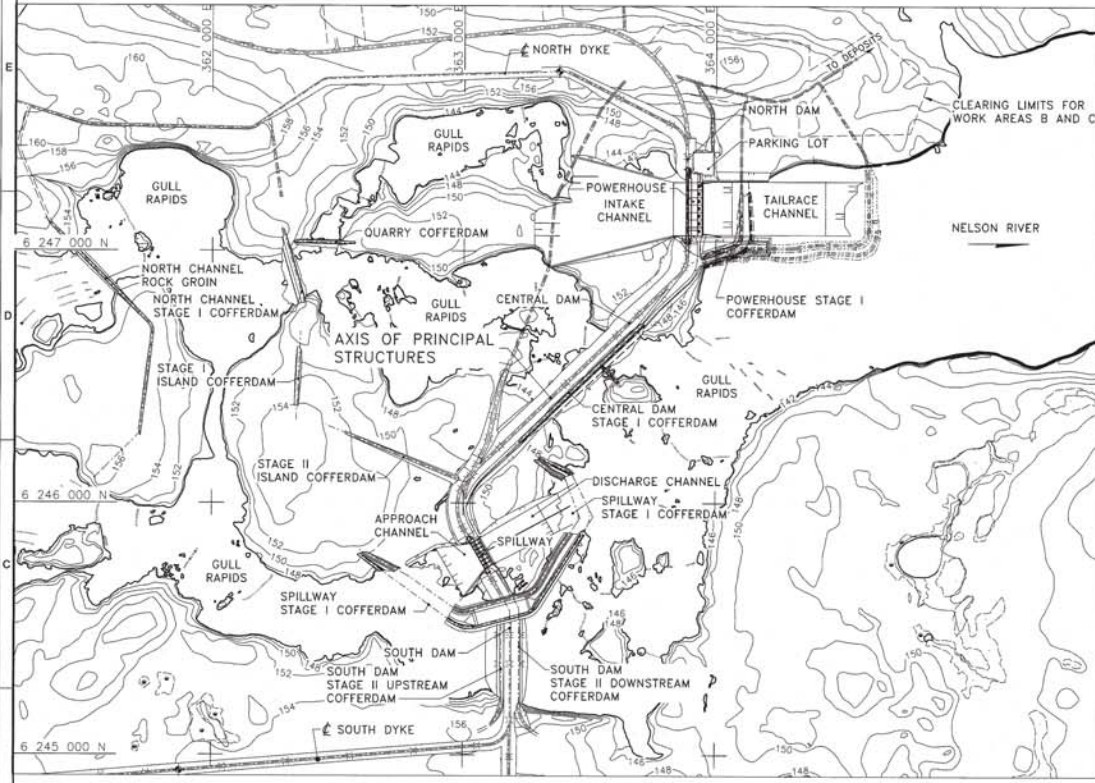
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SHEET: 0001
REVISION: C



STAGE I DIVERSION



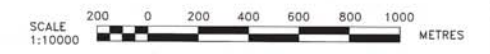
STAGE II DIVERSION



FINAL ARRANGEMENT

- LEGEND:**
- SHORELINE (SEE NOTE 6)
 - - - FORMER SHORELINE (SEE NOTES 6 AND 7)
 - - - COFFERDAM REMOVED
 - 150 GROUND SURFACE CONTOUR
 - DIRECTION OF WATER FLOW DURING STAGE I & II DIVERSIONS (SEE NOTE 8)
 - DIRECTION OF RESTRICTED WATER FLOW DURING STAGE I & II DIVERSIONS (SEE NOTE 8)
 - DIRECTION OF WATER FLOW AFTER ALL STRUCTURES ARE BUILT
 - ▨ ROCK GROIN AND COFFERDAMS IN PLACE DURING STAGE I & II DIVERSIONS
 - ⊕ COORDINATE GRID MARKER (LOCATED AT 1000 METRE INTERVAL)
 - - - - - TEMPORARY CONSTRUCTION ACCESS ROAD

- NOTES:**
1. TOPOGRAPHY IS BASED ON MAPPING RECEIVED FROM MANITOBA HYDRO MARCH, 2004.
 2. MAPPING WAS PRODUCED USING PHOTOGRAMMETRIC METHODS BASED ON 1:20 000 SCALE PHOTOGRAPHY DATED OCTOBER, 1986.
 3. COORDINATE GRID SHOWN IS BASED ON THE UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 15, NORTH AMERICAN DATUM 1983.
 4. ELEVATIONS ARE BASED ON CGVD 1928.
 5. COORDINATES AND ELEVATIONS ARE IN METRES.
 6. WATER LEVELS SHOWN ARE APPROXIMATE ONLY AND RELATE TO THE DATE OF PHOTOGRAPHY.
 7. FORMER SHORELINE DRY DUE TO RIVER MANAGEMENT.
 8. FLOW OF WATER WITH ALL COFFERDAMS AND ROCK GROIN IN PLACE.
 9. THE LAYOUT AND THE DESIGN SHOWN ARE CONCEPTUAL AND ARE BASED ON THE PRE-DESIGN STUDIES. IT IS PRESENTED FOR PROPOSAL 016203 ONLY. THE LAYOUT AND THE DESIGN FOR KEEYASK GENERATING STATION WILL BE FINALIZED DURING DETAIL DESIGN.



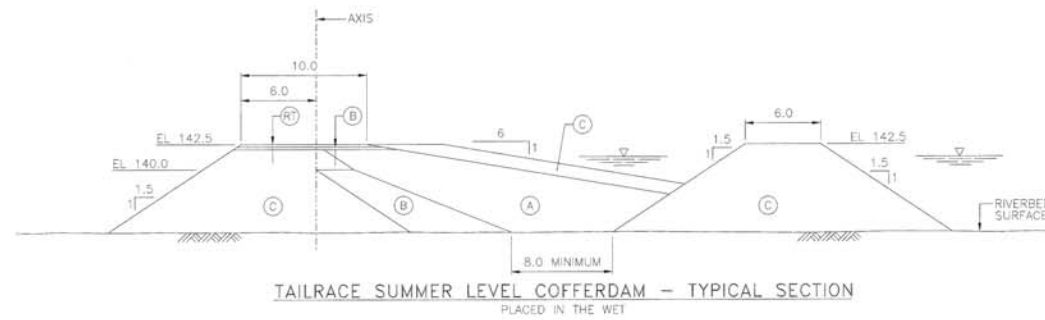
Issued for Proposal – RFP 016203 DO NOT USE FOR CONSTRUCTION 2013-03-28				
REV.	DATE	DESCRIPTION	BY	APP. P. ENG.
00	2012.02.13	ISSUED FOR INFORMATION	RAJ	PRP
DRAWN		CHECKED	SCALE	
P. FLEURY		P. PANTEL	1:10000	
DESIGNED		CHECKED	DATE	
P. PANTEL				
KEEYASK GENERATING STATION BASIS FOR DESIGN GENERAL ARRANGEMENT CONSTRUCTION DIVERSION AND STAGING				
DRAWING NUMBER		SHEET	REVISION	
1-00195-DE-06200-0014		0001	OC	

LEGEND:

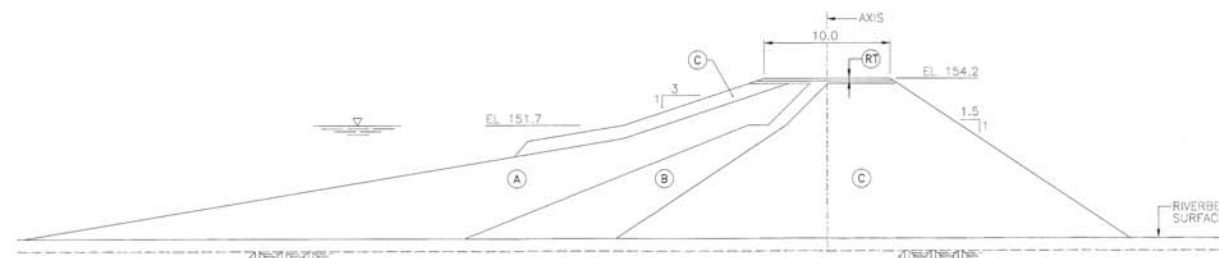
- (A) IMPERVIOUS FILL
- (B) GRANULAR TRANSITION FILL
- (C) ROCKFILL (SEE NOTE 3)
- (RT) ROAD TOPPING
- ▽ WATER LEVEL

NOTES:

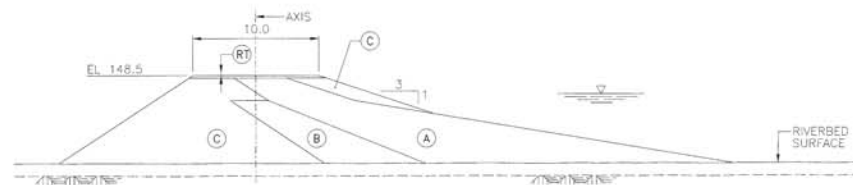
1. DIMENSIONS AND ELEVATIONS ARE IN METRES.
2. ELEVATIONS ARE BASED ON CGVD 1928.
3. VARIOUS SIZES AND GRADATIONS OF ROCKFILL (CLASSES C1, C2, C3 AND C4) WILL BE UTILIZED. PRECISE LOCATIONS OF UTILIZATION WILL BE BASED ON FLOW CONDITIONS.
4. STAGE I COFFERDAMS FOR RIVER DIVERSION ARE SHOWN ON SEPARATE DRAWINGS. SEE REFERENCES.



TAILRACE SUMMER LEVEL COFFERDAM - TYPICAL SECTION
PLACED IN THE WET



SOUTH DAM UPSTREAM STAGE II COFFERDAM



SOUTH DAM DOWNSTREAM STAGE II COFFERDAM

Issued for Proposal - RFP 016203
DO NOT USE FOR CONSTRUCTION
2013-03-28

REV.	DATE	DESCRIPTION	BY	CHKD.	APP'P. ENG.

DRAWN: P. FLEURY	CHECKED: 	SCALE: 1:200
DESIGNED: P. PANTEL	CHECKED: 	DATE:

KEYYASK GENERATING STATION

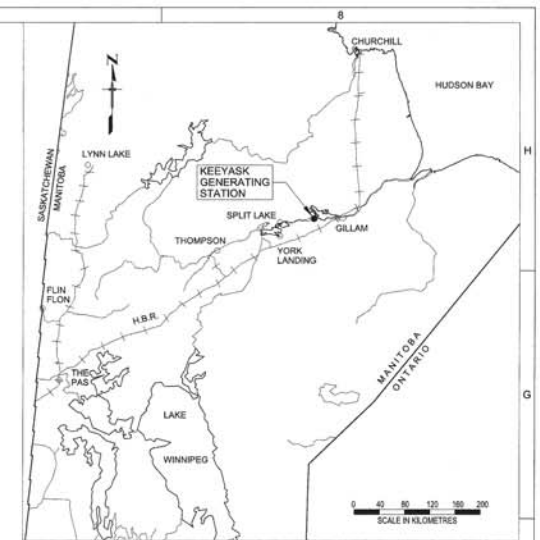
**BASIS FOR DESIGN
GENERAL ARRANGEMENT
COFFERDAM SECTIONS**

DRAWING NUMBER	SHEET	REVISION
1-00195-DE-06200-0015	0001	C

HATCH	
HA DWG. NO. H341433-2000-10-042-0001	
AREA COOR. P. PANTEL	DATE
DISCIP. ENGR R. HALIM	DATE
PROJ. ENGR A. TRUDEAU	DATE
PROJ. MGR. W. GENDZI	DATE

DRAWING NO.	DRAWING TITLE
1-00195-DE-21800-0008	CENTRAL DAM STAGE I COFFERDAM PLAN, SECTIONS & DETAILS
1-00195-DE-21900-0007	POWERHOUSE STAGE I COFFERDAM PLANS, SECTION & DETAIL
1-00195-DE-21800-0009	STAGE I ISLAND COFFERDAM PLAN, SECTIONS & DETAILS
1-00195-DE-21800-0004	NORTH CHANNEL ROCK GROUT PLAN & SECTIONS
1-00195-DE-21800-0003	NORTH CHANNEL STAGE I COFFERDAM PLAN & SECTIONS
1-00195-DE-21800-0002	QUARRY COFFERDAM PLAN & SECTIONS

REFERENCE DRAWINGS



KEY PLAN

- LEGEND:**
- SHORELINE
 - GROUND SURFACE CONTOUR
 - CLEARING LIMITS
 - COORDINATE GRID MARKER

- NOTES:**
1. COORDINATE GRID SHOWN IS BASED ON THE UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 15, NAD83 (CSRS).
 2. COORDINATES AND ELEVATIONS ARE IN METRES.
 3. ELEVATIONS ARE BASED ON GS OF C, CGVD28, 1929 ADJ.
 4. INFRASTRUCTURE SHOWN ON THE NORTH BANK OF THE NELSON RIVER WAS OBTAINED FROM DRAWING 1-00195-DE-06200-0004 0001, REV. 0C, PROVIDED BY MANITOBA HYDRO SEPTEMBER 18, 2012.
 5. TOPOGRAPHY SHOWN IS BASED ON 2010 LIDAR DATA AS PROVIDED BY MANITOBA HYDRO. CONTOUR INTERVAL IS 2 m.



DRAWING NO.	DRAWING TITLE
1-00195-DE-06200-0002	BASIS FOR DESIGN GENERAL ARRANGEMENT CAUSEWAY'S PLANS & SECTIONS
1-00195-DE-06200-0004	EXCAVATED MATERIAL PLACEMENT AREA (EMPA) PLAN, SECTIONS & DETAILS
1-00195-DE-19100-0001	PROJECT GENERAL ARRANGEMENT PLAN
1-00195-DE-21800-0008	CENTRAL DAM STAGE I COFFERDAM PLAN, SECTIONS & DETAILS
1-00195-DE-21800-0007	STAGE I POWERHOUSE COFFERDAM PLAN, SECTIONS & DETAILS
1-00195-DE-21800-0006	STAGE I SPILLWAY COFFERDAM PLAN, SECTIONS & DETAILS
1-00195-DE-21800-0005	STAGE I ISLAND COFFERDAM PLAN, SECTIONS & DETAILS
1-00195-DE-21800-0004	NORTH CHANNEL, ROCK GROIN PLAN & SECTIONS
1-00195-DE-21800-0003	NORTH CHANNEL, STAGE I COFFERDAM PLAN & SECTIONS
1-00195-DE-21800-0002	QUARRY COFFERDAM PLAN, SECTIONS

HATCH

HA DWG. NO. H341433-1000-00-014-0002

AREA COORD. P. PANTEL

DATE

DISCIP. ENGR R. HALIM

DATE

PROJ. ENGR A. TRUDEAU

DATE

PROJ. MGR. W. GENOZ

DATE 20

REV.	DATE	DESCRIPTION	BY	CHKD.	APP./P. ENG.

DRAWN: P. FLEURY	CHECKED: P. PANTEL	DATE	SCALE: 1:7500
DESIGNED: P. PANTEL	CHECKED: P. PANTEL	DATE	

KEYEYASK GENERATING STATION

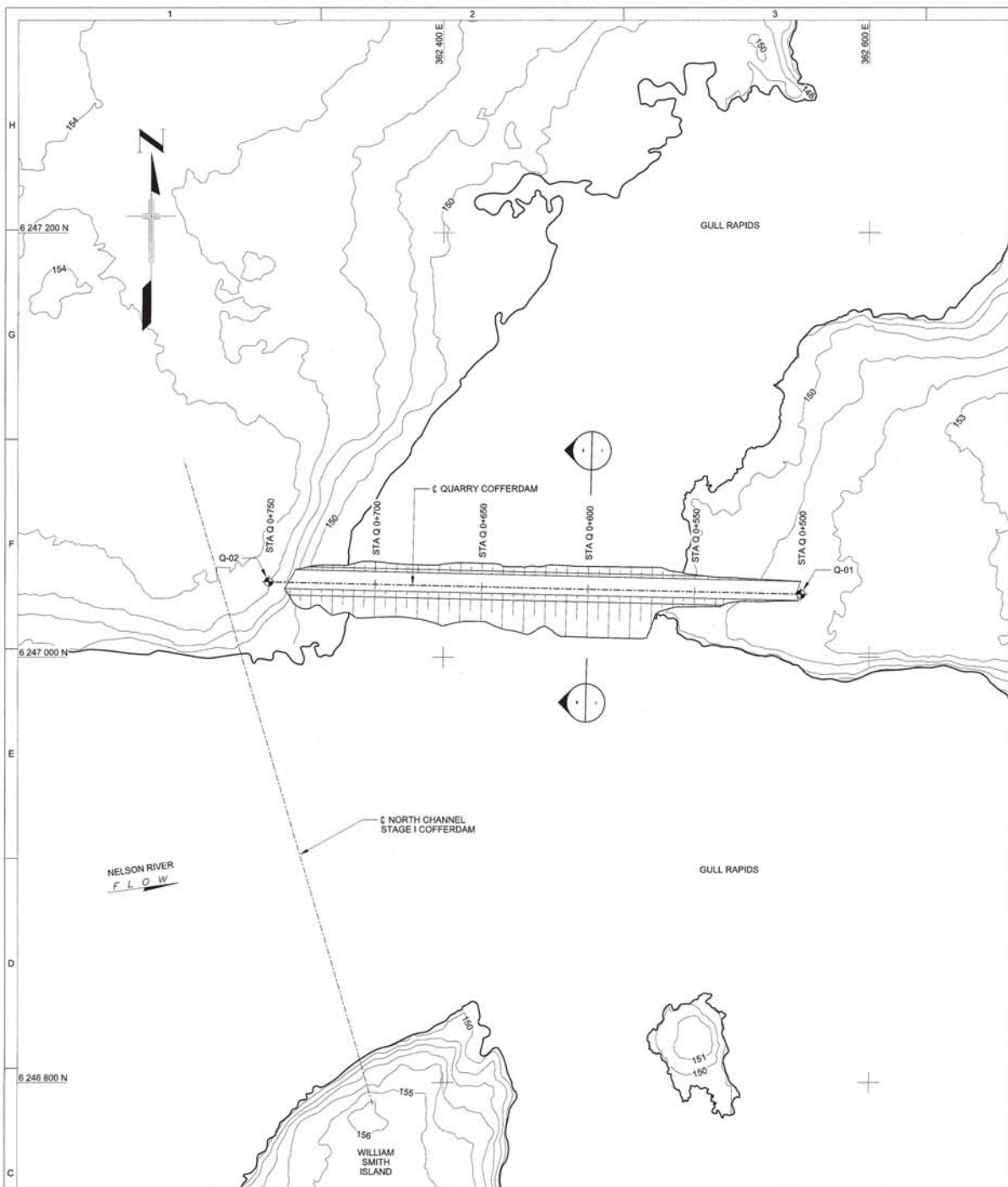
STAGE I COFFERDAMS

STAGE I DIVERSION PLAN

DRAWING NUMBER: 1-00195-DE-11430-0001 0001

SHEET: E

REVISION: 20



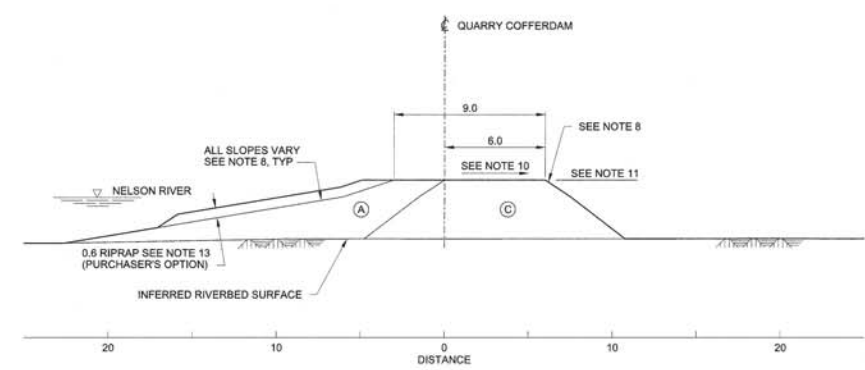
PLAN

CENTERLINE ALIGNMENT GEOMETRY REFERENCE POINTS		
NO.	NORTHING	EASTING
Q-01	6 247 029.673	362 568.046
Q-02	6 247 035.557	362 318.116

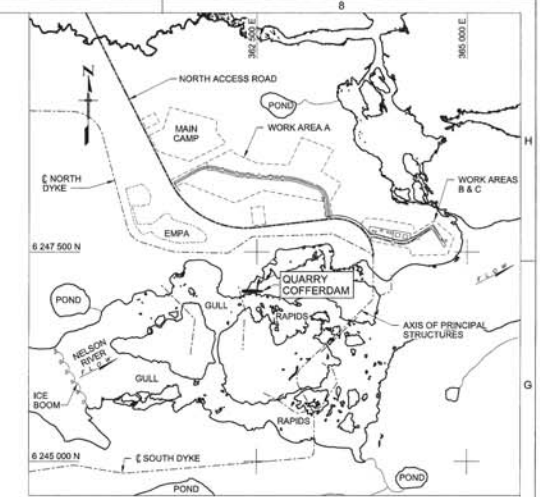
ROCKFILL PLACEMENT		
FROM	TO	ROCKFILL PRODUCT
STA Q 0+747	STA Q 0+500	CLASS C1

THE CONTRACTOR SHALL ASSESS THE LOCAL FLOW CONDITIONS SITUATION AND SHALL HAVE AVAILABLE FOR USE, ADDITIONAL MATERIAL OF SUITABLE SIZE AND QUANTITY AS MAY BE NECESSARY TO EFFECT CLOSURE OF THE RIVER.

THE STATIONING OF THE PLACEMENT OF THE ROCKFILL PRODUCT IS PRELIMINARY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSESS THE LOCAL FLOW CONDITIONS AND TO ADJUST THE STATIONING FOR THE ROCKFILL PRODUCT DEPENDING UPON RIVER FLOWS AT TIME OF CONSTRUCTION, AS ACCEPTED BY THE PURCHASER'S REPRESENTATIVE.



TYPICAL SECTION
SCALE 1:150



KEY PLAN

- LEGEND:**
- SHORELINE
 - GROUND SURFACE CONTOUR (EL 154)
 - COORDINATE GRID MARKER
 - REFERENCE POINT
 - STA Q 0+550 STATIONING ALONG QUARRY COFFERDAM CENTERLINE
 - WATER LEVEL
 - SLOPE DOWN
 - IMPERVIOUS FILL
 - ROCKFILL

- NOTES:**
- COORDINATE GRID SHOWN IS BASED ON THE UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 15, NORTH AMERICAN DATUM 1983.
 - ELEVATIONS ARE BASED ON GS OF C, CGVD28, 1929 ADJ.
 - COORDINATES, DIMENSIONS, DISTANCES, STATIONING, AND ELEVATIONS ARE IN METRES.
 - TOPOGRAPHY IS BASED ON 2010 LIDAR DATA PROVIDED BY MANITOBA HYDRO. CONTOUR INTERVAL IS 1 m.
 - LOCATIONS OF SHORELINES ARE APPROXIMATE AND RELATE TO THE DATE OF PHOTOGRAPHY.
 - CLEAR ALONG ALIGNMENT. CLEAR A 30 m WIDE CORRIDOR AT ABUTMENTS CENTERED ALONG ALIGNMENT.
 - THE AREAS OF THE COFFERDAM FOUNDATION WHICH LIE ABOVE WATER ELEVATION AND ARE ACCESSIBLE AT THE TIME OF COFFERDAM CONSTRUCTION SHALL BE STRIPPED AND PREPARED FOR FILL PLACEMENT AS PER THE TECHNICAL SPECIFICATIONS.
 - FILL FOR THE COFFERDAM THAT IS PLACED IN WATER SHALL BE ALLOWED TO FALL TO ITS NATURAL ANGLE OF REPOSE. FILL PLACED ABOVE WATER ELEVATION SHALL BE PLACED AT THE FOLLOWING SLOPES, UNLESS NOTED OTHERWISE:
 - CLASS A (IMPERVIOUS FILL) 1V:3H
 - CLASS C (ROCK FILL) 1V:1.5H
 - ROCKFILL FOR THE COFFERDAM THAT IS PLACED IN WATER SHALL BE DETERMINED AS OUTLINED IN THE ROCKFILL PLACEMENT TABLE AND TECHNICAL SPECIFICATIONS. ROCKFILL PLACED ABOVE THE WATER SHALL CONSIST OF CLASS C1 ROCKFILL PRODUCT UNLESS NOTED OTHERWISE.
 - THE CREST OF THE COFFERDAM SHALL BE SLOPED SLIGHTLY SO THAT THE SURFACE RUNOFF FROM THE CREST IS DIRECTED TOWARD THE DOWNSTREAM SIDE OF THE COFFERDAM.
 - CONSTRUCT UP TO EL 151.4 OR UP TO 1 m ABOVE THE FORECASTED WATER ELEVATION AT TIME OF CONSTRUCTION WHICHEVER IS GREATER. THE LENGTH OF THE COFFERDAM SHALL BE EXTENDED AS REQUIRED, AND AS DIRECTED BY THE PURCHASER'S REPRESENTATIVE.
 - PURCHASER'S REPRESENTATIVE WILL PROVIDE FORECASTED WATER ELEVATIONS.
 - PURCHASER'S OPTION: RIPRAP SHALL CONSIST OF CLASS C1 ROCKFILL PRODUCT. RIPRAP SHALL BE PLACED DOWN TO 1 m BELOW THE FORECASTED WATER ELEVATION, OR AS DIRECTED BY THE PURCHASER'S REPRESENTATIVE.



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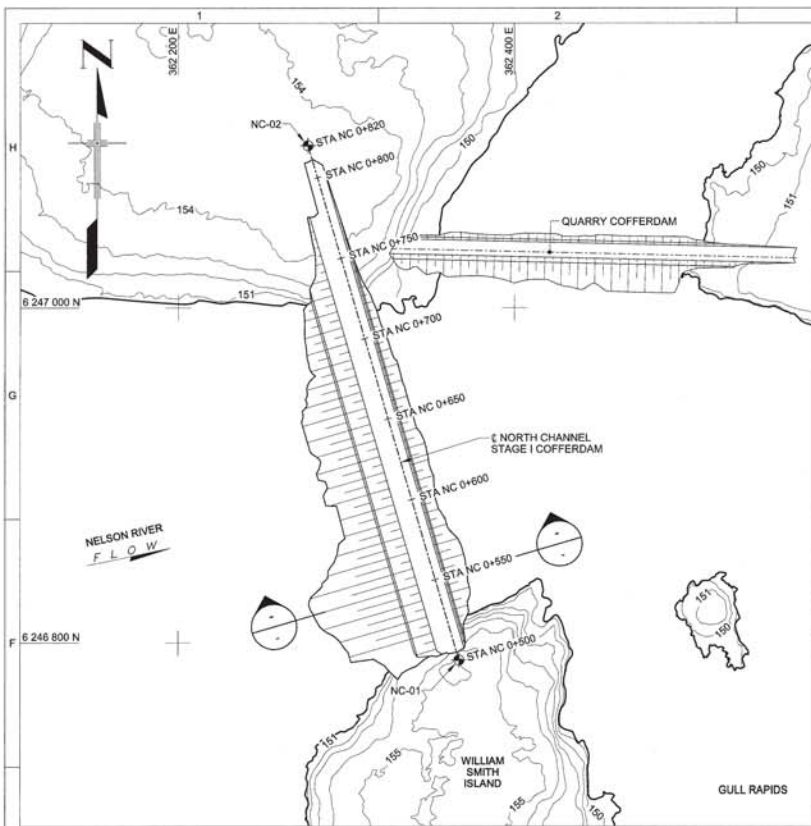
HA DWG. NO.	H341433-2100-10-035-0001
AREA COORD.	P. PANTEL
DATE	
DESIGN ENGR.	R. HALIM
DATE	
PROJ. ENGR.	A. TRUDEAU
DATE	
PROJ. MGR.	W. GENOZZE
DATE	

REV.	DATE	DESCRIPTION	BY	CHKD.	APP./P. ENG.

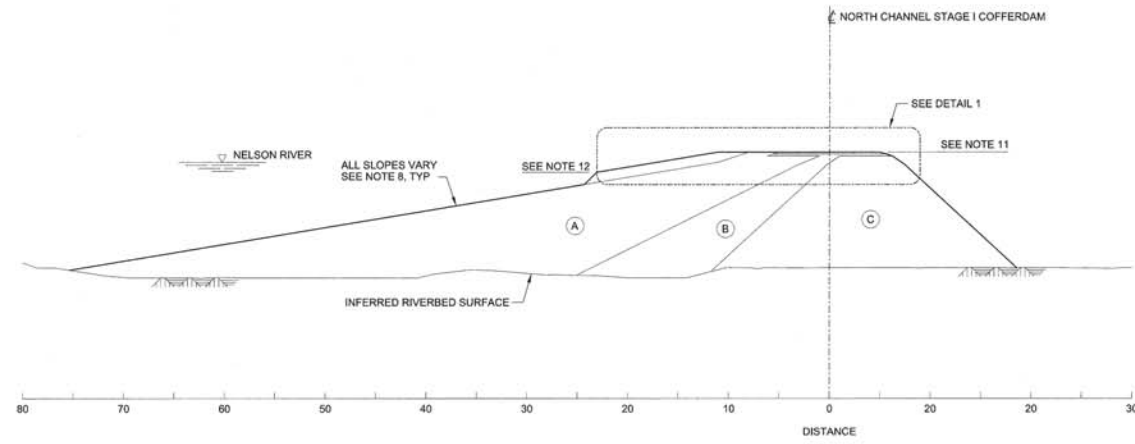
DRAWN: R. ALVERO
 DESIGNED: P. PANTEL
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KEYASK GENERATING STATION
STAGE I COFFERDAMS
QUARRY COFFERDAM
PLAN & SECTION

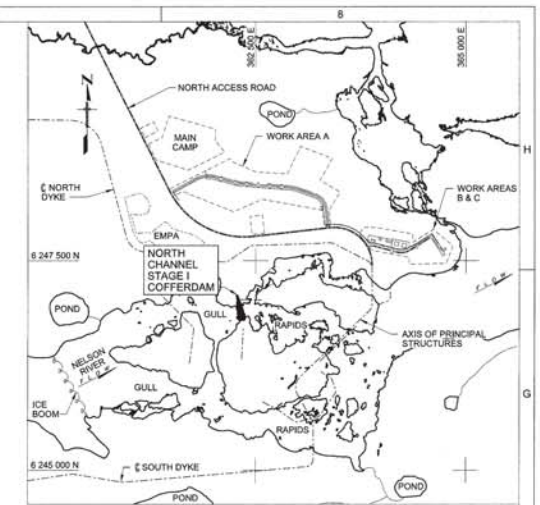
DRAWING NUMBER: 1-00195-DE-21600-0002
 SHEET: 0001
 REVISION: D



PLAN



TYPICAL SECTION
SCALE 1:400



KEY PLAN

- LEGEND:**
- SHORELINE
 - GROUND SURFACE CONTOUR (EL 151)
 - COORDINATE GRID MARKER
 - REFERENCE POINT
 - STA NC 0+600
 - WATER LEVEL
 - SLOPE DOWN
 - IMPERVIOUS FILL
 - GRANULAR TRANSITION FILL
 - ROCKFILL
 - ROAD TOPPING

- NOTES:**
1. COORDINATE GRID SHOWN IS BASED ON THE UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 15, NORTH AMERICAN DATUM 1983.
 2. ELEVATIONS ARE BASED ON GS OF C, CGVD28, 1929 AD.
 3. COORDINATES, DIMENSIONS, DISTANCES, STATIONING, AND ELEVATIONS ARE IN METRES.
 4. TOPOGRAPHY IS BASED ON 2010 LIDAR DATA PROVIDED BY MANITOBA HYDRO. CONTOUR INTERVAL IS 1 m.
 5. LOCATIONS OF SHORELINES ARE APPROXIMATE AND RELATE TO THE DATE OF PHOTOGRAPHY.
 6. CLEAR ALONG ALIGNMENT. CLEAR A 40 m WIDE CORRIDOR AT ABUTMENTS CENTERED ALONG ALIGNMENT.
 7. THE AREAS OF THE COFFERDAM FOUNDATION WHICH LIE ABOVE WATER ELEVATION AND ARE ACCESSIBLE AT THE TIME OF COFFERDAM CONSTRUCTION SHALL BE STRIPPED AND PREPARED FOR FILL PLACEMENT AS PER THE TECHNICAL SPECIFICATIONS.
 8. FILL FOR THE COFFERDAM THAT IS PLACED IN WATER SHALL BE ALLOWED TO FALL TO ITS NATURAL ANGLE OF REPOSE. FILL PLACED ABOVE WATER ELEVATION SHALL BE PLACED AT THE FOLLOWING SLOPES, UNLESS NOTED OTHERWISE:
 - CLASS A (IMPERVIOUS FILL) 1V:2H
 - CLASS B (TRANSITION FILL) 1V:2H
 - CLASS C (ROCK FILL) 1V:1.5H
 9. ROCKFILL FOR THE COFFERDAM THAT IS PLACED IN WATER SHALL BE DETERMINED AS OUTLINED IN THE ROCKFILL PLACEMENT TABLE AND TECHNICAL SPECIFICATIONS. ROCKFILL PLACED ABOVE THE WATER SHALL CONSIST OF CLASS C1 ROCKFILL PRODUCT UNLESS NOTED OTHERWISE.
 10. THE CREST OF THE COFFERDAM SHALL BE SLOPED SLIGHTLY SO THAT THE SURFACE RUNOFF FROM THE CREST IS DIRECTED TOWARD THE DOWNSTREAM SIDE OF THE COFFERDAM.
 11. CONSTRUCT UP TO EL. 154.5 OR UP TO 1 m ABOVE THE FORECASTED WATER ELEVATION AT TIME OF CONSTRUCTION WHICHEVER IS GREATER. THE LENGTH OF THE COFFERDAM SHALL BE EXTENDED AS REQUIRED, AND AS DIRECTED BY THE PURCHASER'S REPRESENTATIVE.
 12. RIPRAP SHALL CONSIST OF CLASS C1 ROCKFILL PRODUCT. RIPRAP SHALL BE PLACED DOWN TO 1 m BELOW THE FORECASTED WATER LEVEL, OR AS DIRECTED BY THE PURCHASER'S REPRESENTATIVE.
 13. PURCHASER'S REPRESENTATIVE WILL PROVIDE FORECASTED WATER ELEVATIONS.

CENTERLINE ALIGNMENT GEOMETRY REFERENCE POINTS

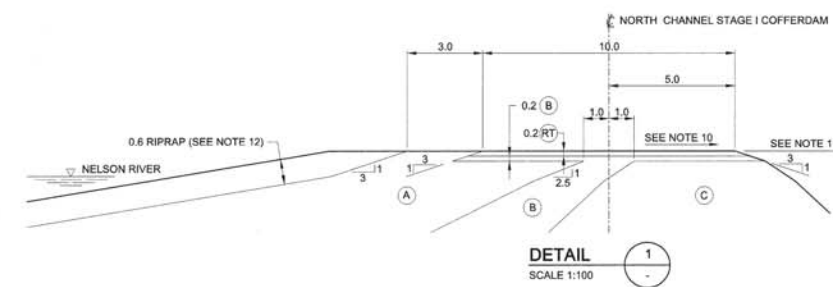
NO.	NORTHING	EASTING
NC-01	6 246 789.725	362 387.194
NC-02	6 247 096.790	362 277.134

ROCKFILL PLACEMENT

FROM	TO	ROCKFILL PRODUCT
STA NC 0+800	STA NC 0+600	CLASS C1
STA NC 0+600	STA NC 0+530	CLASS C2
STA NC 0+530	STA NC 0+500	CLASS C1

THE CONTRACTOR SHALL ASSESS THE LOCAL FLOW CONDITIONS AND SHALL HAVE AVAILABLE FOR USE, ADDITIONAL MATERIAL OF SUITABLE SIZE AND QUANTITY AS MAY BE NECESSARY TO EFFECT CLOSURE OF THE RIVER.

THE STATIONING OF THE PLACEMENT OF THE ROCKFILL PRODUCT IS PRELIMINARY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSESS THE LOCAL FLOW CONDITIONS AND TO ADJUST THE STATIONING FOR THE ROCKFILL PRODUCT DEPENDING UPON RIVER FLOWS AT TIME OF CONSTRUCTION, AS ACCEPTED BY THE PURCHASER'S REPRESENTATIVE.



DETAIL
SCALE 1:100



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2013-03-15

REV.	DATE	DESCRIPTION	BY	CHKD.	APP.P. ENG.

DRAWN: R. ALVERO
 DESIGNED: P. PANTEL
 CHECKED: []
 SCALE: 1:1500
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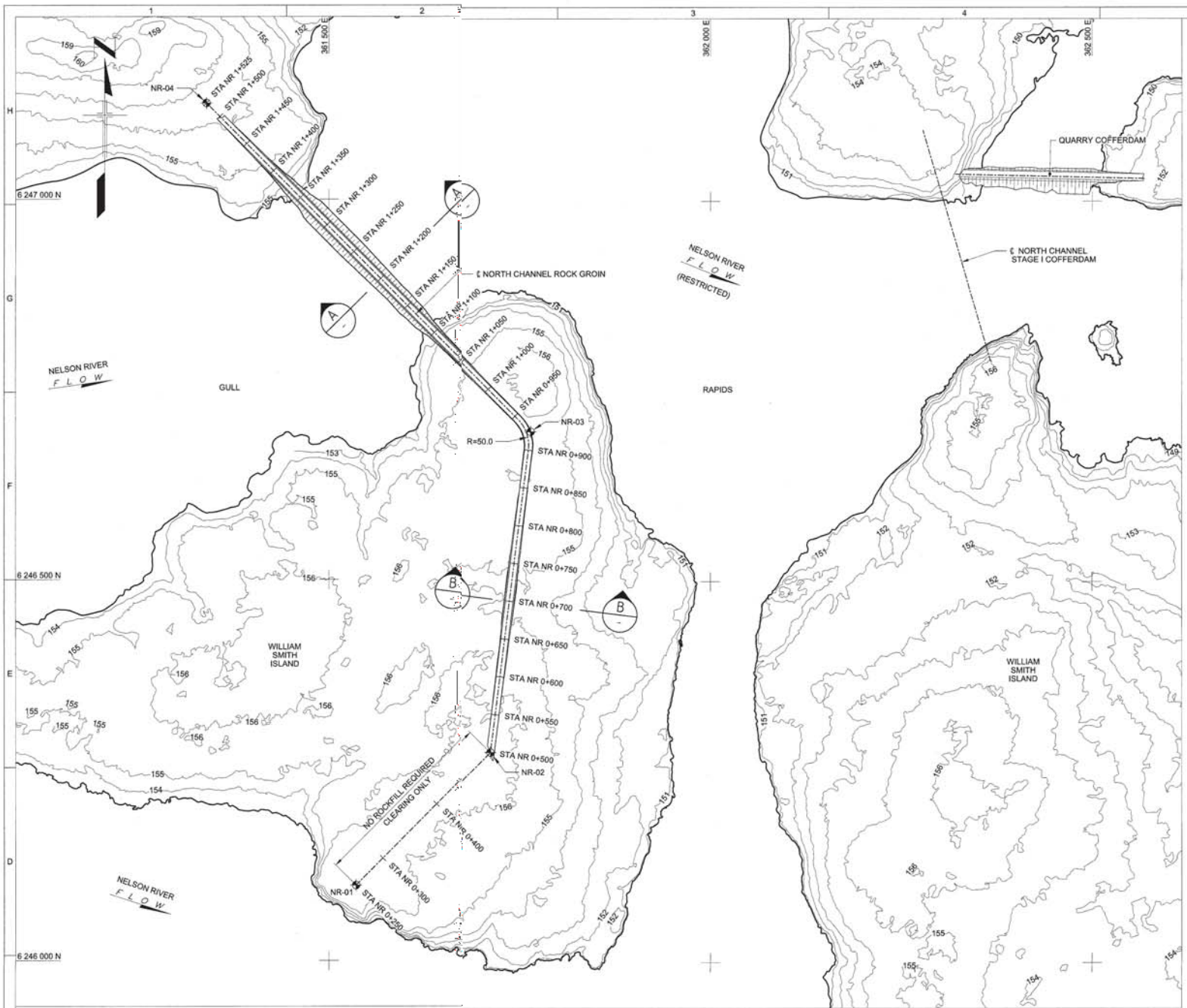
KEYASK GENERATING STATION
STAGE I COFFERDAMS
NORTH CHANNEL
STAGE I COFFERDAM
PLAN, & SECTIONS

DRAWING NUMBER: 1-00195-DE-21600-0003
 SHEET: 0001
 REVISION: D

HATCH	
HA DWG. NO.	H341433-2150-10-035-0001
AREA COORD.	P. PANTEL
DATE	
DISCIP. ENGR.	R. HALIM
DATE	
PROJ. ENGR.	A. TRUDEL
DATE	
PROJ. MGR.	W. GENDZE
DATE	

1-00195-DE-11430-0001	STAGE I DIVERSION PLAN	DRAWING TITLE

REFERENCE DRAWINGS



PLAN

CENTERLINE ALIGNMENT GEOMETRY REFERENCE POINTS

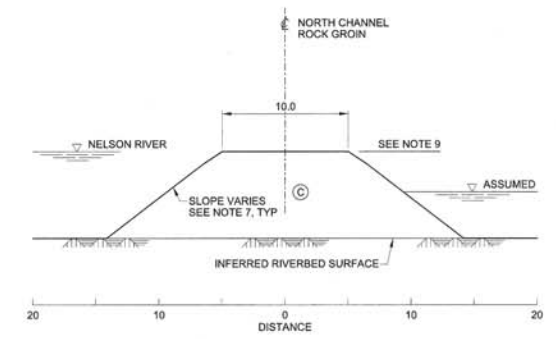
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NR-02	6 246 276.243	361 711.520
NR-03	6 246 697.211	361 764.449
NR-04	6 247 126.276	361 339.206

ROCKFILL PLACEMENT

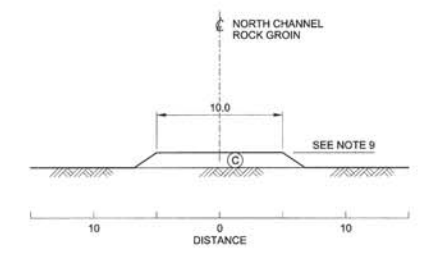
FROM	TO	ROCKFILL PRODUCT
STA NR 1+501	STA NR 1+350	CLASS C1
STA NR 1+350	STA NR 1+050	CLASS C2
STA NR 1+050	STA NR 0+500	CLASS C1

THE CONTRACTOR SHALL ASSESS THE LOCAL FLOW CONDITIONS AND SHALL HAVE AVAILABLE FOR USE, ADDITIONAL MATERIAL OF SUITABLE SIZE AND QUANTITY AS MAY BE NECESSARY TO EFFECT CLOSURE OF THE RIVER.

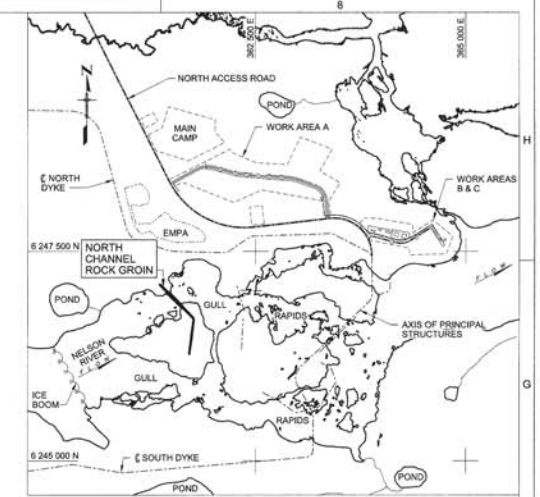
THE STATIONING OF THE PLACEMENT OF THE ROCKFILL PRODUCT IS PRELIMINARY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSESS THE LOCAL FLOW CONDITIONS AND TO ADJUST THE STATIONING FOR THE ROCKFILL PRODUCT DEPENDING UPON RIVER FLOWS AT TIME OF CONSTRUCTION, AS ACCEPTED BY THE PURCHASER'S REPRESENTATIVE.



SECTION A
STA NR 1+200
SCALE 1:200



SECTION B
STA NR 0+700
SCALE 1:200



KEY PLAN

LEGEND:

- SHORELINE
- GROUND SURFACE CONTOUR (EL 153)
- COORDINATE GRID MARKER
- REFERENCE POINT
- STATIONING ALONG NORTH CHANNEL ROCK GROIN CENTERLINE
- WATER LEVEL
- ROCKFILL

NOTES:

1. COORDINATE GRID SHOWN IS BASED ON THE UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 15, NORTH AMERICAN DATUM 1983.
2. ELEVATIONS ARE BASED ON GS OF C, CGVD28, 1929 ADJ.
3. COORDINATES, DIMENSIONING, DISTANCES, STATIONING AND ELEVATIONS ARE IN METRES.
4. TOPOGRAPHY IS BASED ON 2010 LIDAR DATA PROVIDED BY MANITOBA HYDRO. CONTOUR INTERVAL IS 1 m.
5. LOCATIONS OF SHORELINES ARE APPROXIMATE AND RELATE TO THE DATE OF PHOTOGRAPHY
6. CLEAR ALONG ALIGNMENT ONLY, NO STRIPPING OR GRUBBING. CLEAR A 30 m WIDE CORRIDOR CENTERED ALONG ALIGNMENT.
7. FILL FOR THE COFFERDAM THAT IS PLACED IN WATER SHALL BE ALLOWED TO FALL TO ITS ANGLE OF REPOSE. CLASS C (ROCKFILL) PLACED ABOVE WATER ELEVATION SHALL BE PLACED AT 1V:1.5H, UNLESS NOTED OTHERWISE.
8. ROCKFILL FOR THE COFFERDAM THAT IS PLACED IN WATER SHALL BE DETERMINED AS OUTLINED IN THE ROCKFILL PLACEMENT TABLE AND TECHNICAL SPECIFICATIONS. ROCKFILL PLACED ABOVE THE WATER SHALL CONSIST OF CLASS C1 ROCKFILL PRODUCT UNLESS NOTED OTHERWISE.
9. CONSTRUCT TO EL 156.2 OR UP TO 1 m ABOVE THE FORECASTED WATER ELEVATION AT TIME OF CONSTRUCTION WHICHEVER IS GREATER. IF CONSTRUCTING TO A CREST EL GREATER THAN 156.2 m, NARROW THE CREST WIDTH ACCORDINGLY FOLLOWING THE SLOPES INDICATED IN NOTE 7. IN ADDITION THE LENGTH OF THE ROCK GROIN SHALL BE EXTENDED AS REQUIRED, AND AS DIRECTED BY THE PURCHASER'S REPRESENTATIVE.
10. PURCHASER'S REPRESENTATIVE WILL PROVIDE FORECASTED WATER ELEVATIONS.



HATCH

HA DWG. NO.
H341433-2200-10-035-0001

AREA COORD.
P. PANTEL
DATE

DISCIP. ENGR
R. HALIM
DATE

PROJ. ENGR
A. TRUDEL
DATE

PROJ. MGR.
W. GENZIE
DATE

REV.	DATE	DESCRIPTION	BY	CHKD.	APP.P.	ENG.

Issued for Proposal - RFP 016203
DO NOT USE FOR CONSTRUCTION
2013-03-15

REV.	DATE	DESCRIPTION	BY	CHKD.	APP.P.	ENG.

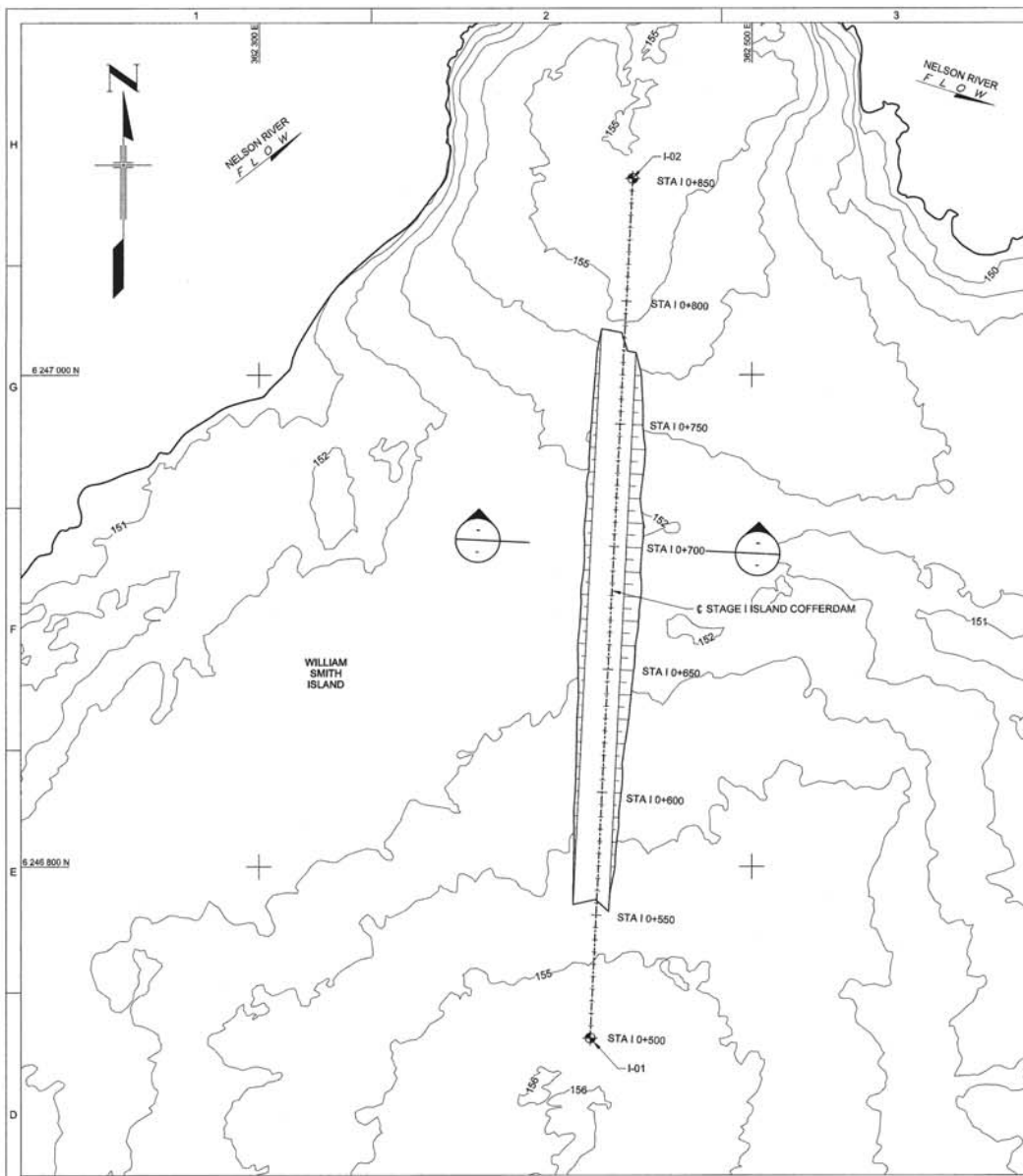
DRAWN: R. ALVERO
DESIGNED: P. PANTEL
CHECKED: CHECKED: DATE: DATE:

MANITOBA Hydro

KEYYASK GENERATING STATION

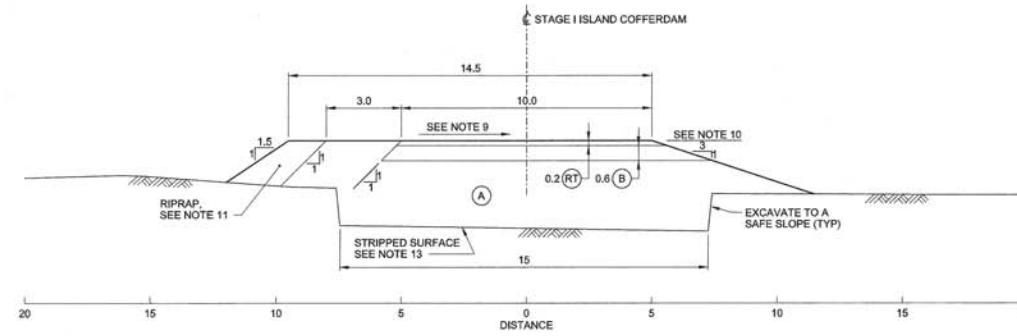
STAGE I COFFERDAMS
NORTH CHANNEL ROCK GROIN
PLAN & SECTIONS

DRAWING NUMBER: 1-00195-DE-21600-0004 0001
SHEET: D
REVISION:

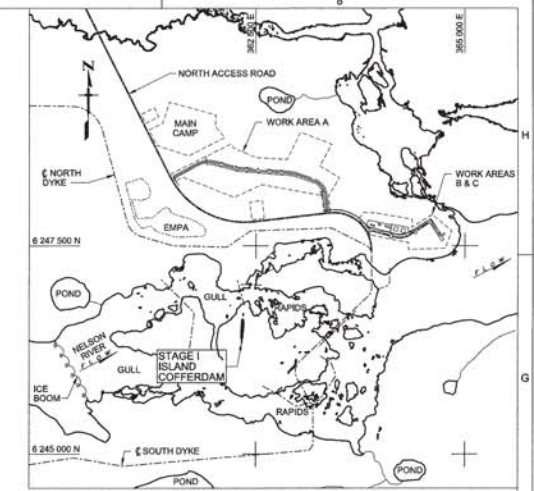


PLAN

CENTERLINE ALIGNMENT GEOMETRY REFERENCE POINTS		
NO.	NORTHING	EASTING
I-01	6 245 330.310	362 334.442
I-02	6 245 679.893	362 351.520



TYPICAL SECTION
STA 10+700
SCALE 1:100



KEY PLAN

- LEGEND:**
- SHORELINE
 - GROUND SURFACE CONTOUR (EL 155)
 - COORDINATE GRID MARKER
 - REFERENCE POINT
 - STATIONING ALONG STAGE I ISLAND COFFERDAM CENTERLINE
 - WATER LEVEL
 - SLOPE DOWN
 - IMPERVIOUS FILL
 - GRANULAR TRANSITION FILL
 - ROAD TOPPING

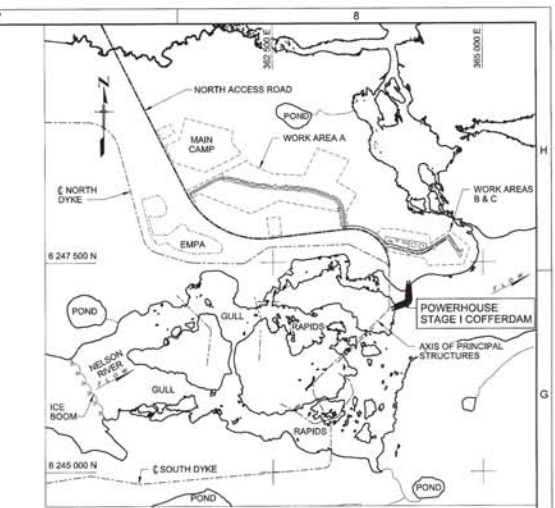
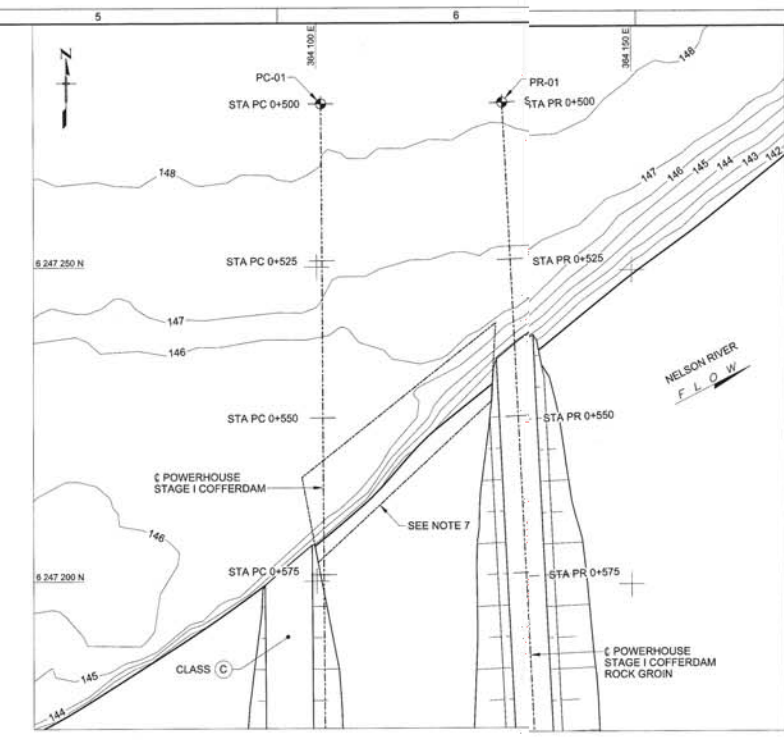
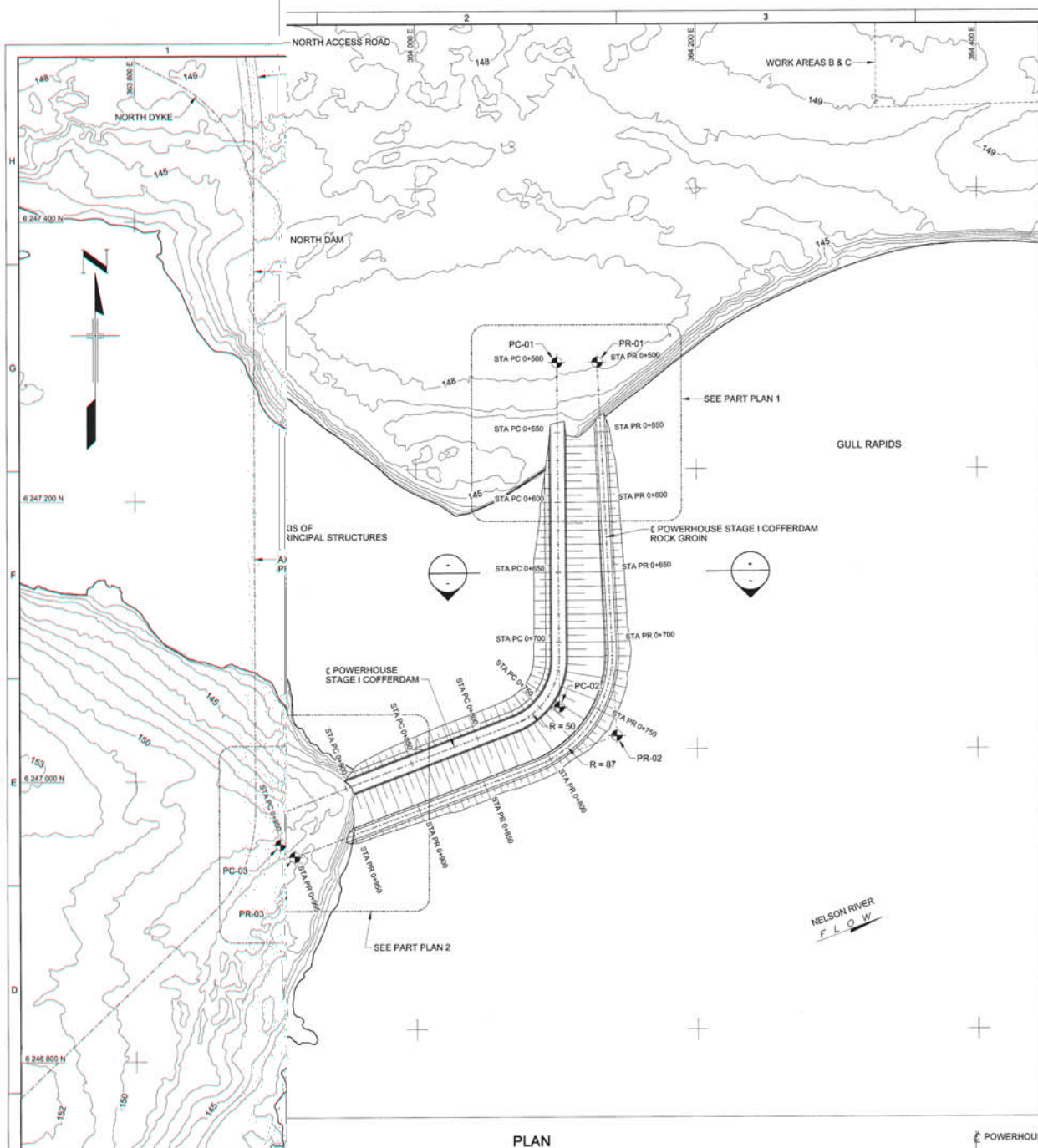
- NOTES:**
1. COORDINATE GRID SHOWN IS BASED ON THE UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 15, NORTH AMERICAN DATUM 1983.
 2. ELEVATIONS ARE BASED ON GS OF C, CGVD25.
 3. COORDINATES, DIMENSIONS, DISTANCES, STATIONING AND ELEVATIONS ARE IN METRES.
 4. TOPOGRAPHY IS BASED ON 2010 LIDAR DATA PROVIDED BY MANITOBA HYDRO. CONTOUR INTERVAL IS 1 m.
 5. LOCATIONS OF SHORELINES ARE APPROXIMATE AND RELATE TO THE DATE OF PHOTOGRAPHY.
 6. CLEAR ALONG ALIGNMENT. CLEAR 40 m WIDE CORRIDOR CENTERED ALONG ALIGNMENT.
 7. THE AREA OF THE COFFERDAM FOUNDATION WHICH LIE ABOVE WATER ELEVATION AND ARE ACCESSIBLE AT THE TIME OF COFFERDAM CONSTRUCTION SHALL BE STRIPPED AND PREPARED FOR FILL PLACEMENT AS PER THE TECHNICAL SPECIFICATIONS.
 8. FILL FOR THE COFFERDAM THAT IS PLACED IN WATER SHALL BE ALLOWED TO FALL TO ITS NATURAL ANGLE OF REPOSE. FILL PLACED ABOVE WATER ELEVATION SHALL BE PLACED AT THE FOLLOWING SLOPES, UNLESS NOTED OTHERWISE:
 - CLASS A (IMPERVIOUS FILL) 1V:2H
 - CLASS B (TRANSITION FILL) 1V:2H
 - CLASS C (ROCKFILL) 1V:1.5H
 9. THE CREST OF THE COFFERDAM SHALL BE SLOPED SLIGHTLY SO THAT THE SURFACE RUNOFF FROM THE CREST IS DIRECTED TOWARD THE DOWNSTREAM SIDE OF THE COFFERDAM.
 10. CONSTRUCT UP TO EL 154.5 OR UP TO 1 m ABOVE THE FORECASTED WATER ELEVATION AT TIME OF CONSTRUCTION WHICHEVER IS GREATER. THE LENGTH OF THE COFFERDAM SHALL BE EXTENDED AS REQUIRED, AND AS DIRECTED BY THE PURCHASER'S REPRESENTATIVE.
 11. RIPRAP SHALL CONSIST OF CLASS C1 ROCKFILL PRODUCT.
 12. PURCHASER'S REPRESENTATIVE WILL PROVIDE FORECASTED WATER ELEVATIONS.
 13. EXCAVATE TRENCH DOWN TO MINERAL SOIL OR UP TO 1.5 m IN DEPTH WHICHEVER IS SHALLOWER, OR AS DIRECTED BY PURCHASER'S REPRESENTATIVE.



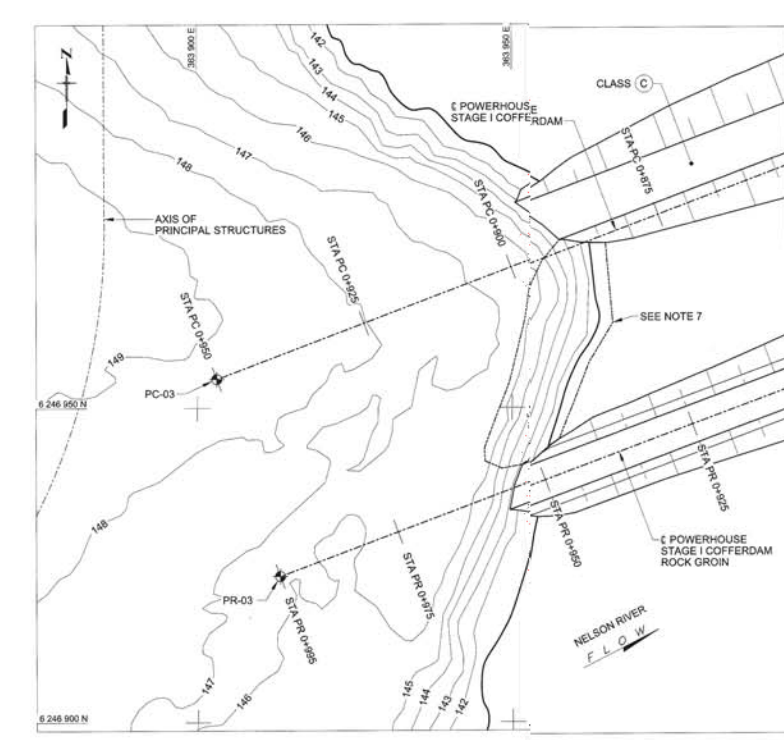
Issued for Proposal - RFP 016203
DO NOT USE FOR CONSTRUCTION
2013-03-15

HATCH	
HA DWG. NO. H341433-2250-10-035-0001	AREA COORD. P. PANTEL DATE
DISCIP. ENGR R. HALIM DATE	PROJ. ENGR A. TRUDEAU DATE
PROJ. MGR. W. GENDZE DATE 24	
1-00195-DE-11430-0001 DRAWING NO.	STAGE I DIVERSION PLAN DRAWING TITLE
REFERENCE DRAWINGS	

REV.	DATE	DESCRIPTION	BY	CHKD.	APP.P. ENGR.
DRAWN: R. ALVERO		CHECKED:	SCALE: 1:1000		
DESIGNED: P. PANTEL		CHECKED:	DATE:		
AUTHENTICATION FOR CURRENT REVISION					
KEYEYASK GENERATING STATION					
STAGE I ISLAND COFFERDAMS					
PLAN, SECTIONS & DETAILS					
DRAWING NUMBER				SHEET	REVISION
1-00195-DE-21600-0005 0001				D	

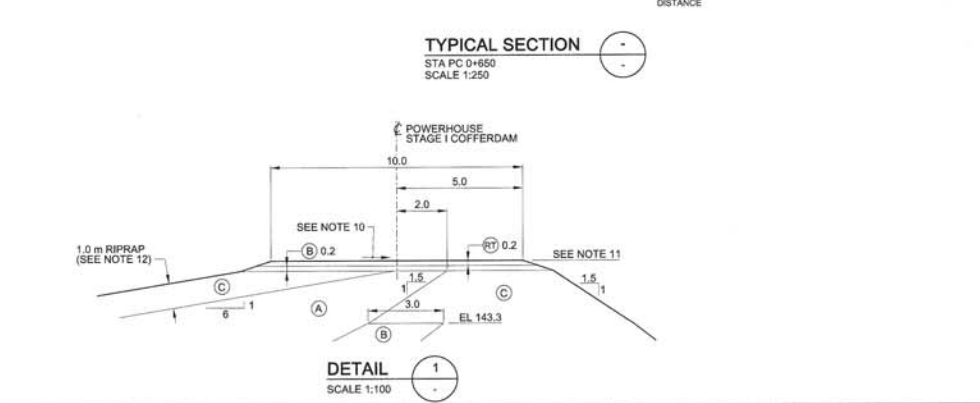
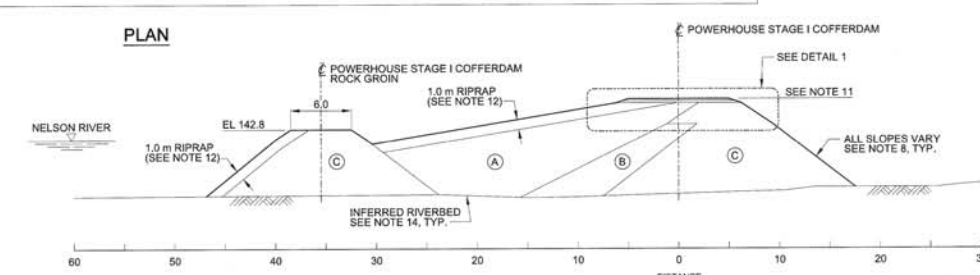


- LEGEND:**
- SHORELINE
 - 145 GROUND SURFACE CONTOUR (EL 145)
 - + COORDINATE GRID MARKER
 - REFERENCE POINT
 - STA PC 0+600 STATIONING ALONG POWERHOUSE STAGE I COFFERDAM CENTERLINE
 - STA PR 0+600 STATIONING ALONG POWERHOUSE STAGE I COFFERDAM ROCK GROIN CENTERLINE
 - WATER LEVEL
 - SLOPE DOWN
 - (A) IMPERVIOUS FILL
 - (B) GRANULAR TRANSITION FILL
 - (C) ROCKFILL
 - (RT) ROAD TOPPING
- NOTES:**
1. COORDINATE GRID SHOWN IS BASED ON THE UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 15, NAD83 (CSRS).
 2. ELEVATIONS ARE BASED ON GS OF C, CGVD28, 1929 ADJ.
 3. COORDINATES, DIMENSIONS, DISTANCES, STATIONING, AND ELEVATIONS ARE IN METRES.
 4. TOPOGRAPHY IS BASED ON 2010 LIDAR DATA PROVIDED BY MANITOBA HYDRO. CONTOUR INTERVAL IS 1 m.
 5. LOCATIONS OF SHORELINES ARE APPROXIMATE AND RELATE TO THE DATE OF PHOTOGRAPHY.
 6. CLEAR ALONG ALIGNMENT. CLEAR A 70 m WIDE CORRIDOR AT ABUTMENTS, 20 m DOWNSTREAM AND 50 m UPSTREAM OF THE CENTERLINE OF THE POWERHOUSE STAGE I COFFERDAM.
 7. THE FOOTPRINTS OF THE COFFERDAM FOUNDATION WHICH LIE ABOVE WATER ELEVATION AND ARE ACCESSIBLE AT THE TIME OF COFFERDAM CONSTRUCTION SHALL BE STRIPPED AND PREPARED FOR FILL PLACEMENT AS PER THE TECHNICAL SPECIFICATIONS.
 8. FILL FOR THE COFFERDAM THAT IS PLACED IN WATER SHALL BE ALLOWED TO FALL TO ITS NATURAL ANGLE OF REPOSE. FILL PLACED ABOVE WATER ELEVATION SHALL BE PLACED AT THE FOLLOWING SLOPES, UNLESS NOTED OTHERWISE:
 - CLASS A (IMPERVIOUS FILL) 1V:2H
 - CLASS B (TRANSITION FILL) 1V:2H
 - CLASS C (ROCKFILL) 1V:1.5H
 9. ROCKFILL FOR THE COFFERDAM THAT IS PLACED IN WATER SHALL BE DETERMINED AS OUTLINED IN THE ROCKFILL PLACEMENT TABLE AND TECHNICAL SPECIFICATIONS. ROCKFILL PLACED ABOVE THE WATER SHALL CONSIST OF CLASS C1 ROCKFILL PRODUCT UNLESS NOTED OTHERWISE.
 10. THE CREST OF THE POWERHOUSE STAGE I COFFERDAM SHALL BE SLOPED SLIGHTLY SO THAT THE SURFACE RUNOFF FROM THE CREST IS DIRECTED TOWARD THE DOWNSTREAM SIDE OF THE COFFERDAM.
 11. CONSTRUCT UP TO EL 145.8 OR UP TO 1 m ABOVE THE FORECASTED WATER ELEVATION AT TIME OF CONSTRUCTION WHICHEVER IS GREATER.
 12. RIPRAP SHALL CONSIST OF CLASS C2 ROCKFILL PRODUCT.
 13. THE ENGINEER WILL PROVIDE FORECASTED WATER ELEVATIONS.
 14. THE RIVERBED MATERIAL VARIES IN THE COFFERDAM AREA. INVESTIGATION PROGRAMS HAVE OBSERVED CLAY, SILT, SAND & GRAVEL LENSES, COBBLES BOULDERS AND BEDROCK OUTCROPS.



GEOMETRY POINTS

CENTERLINE ALIGNMENT REFERENCE POINT		EASTING
NO.	NORTHING	364 100.745
PC-01	6 247 275.999	364 102.000
PC-02	6 247 030.000	363 903.080
PC-03	6 246 954.593	364 129.491
PR-01	6 247 278.146	364 142.797
PR-02	6 247 009.476	363 913.139
PR-03	6 246 923.248	



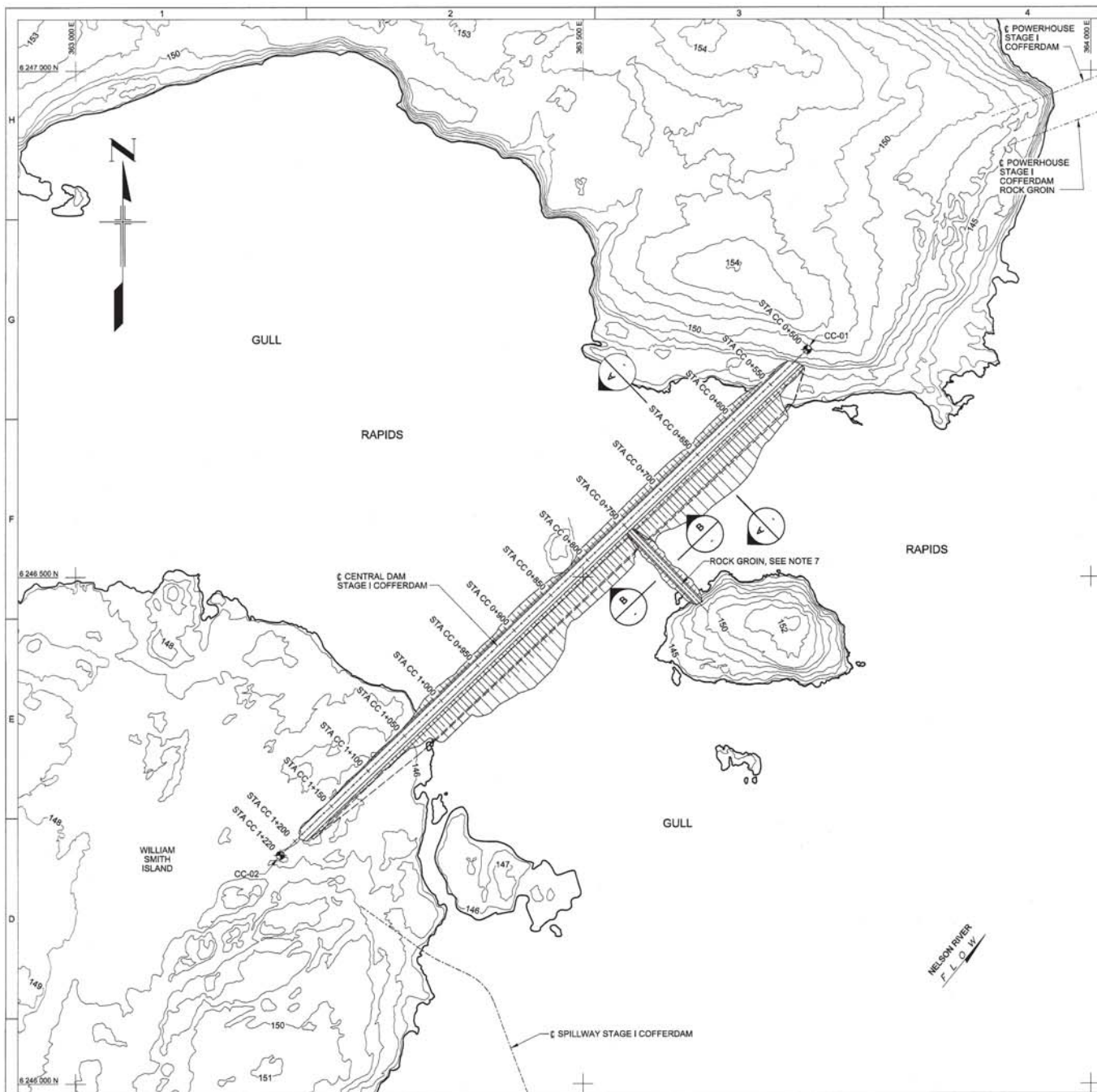
ROCKFILL PLACEMENT

FROM	TO	ROCKFILL PRODUCT
STA PC 0+560	STA PC 0+900	CLASS C1
STA PR 0+540	STA PR 0+956	CLASS C1

THE CONTRACTOR SHALL ASSESS THE FLOW OF THE RIVER. CONDITIONS AND SHALL HAVE AVAILABLE ADDITIONAL MATERIAL OF SUITABLE SIZE THE ROCKFILL AS MAY BE NECESSARY TO EFFECT CLOSURE OF THE RIVER. THE STATIONING OF THE PLACEMENT OF ROCKFILL PRODUCT IS PRELIMINARY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSESS THE LOCAL AND TO ADJUST THE STATIONING FOR THE DEPENDING UPON RIVER FLOWS AT TIME AS ACCEPTED BY THE ENGINEER.

HATCH		AREA COORD. P. PANTEL
H341433-2350-10-035-0001		DATE
DISCIP ENGR R. HALIM		DATE
PROJ. ENGR. A. TRUDEL		DATE
PROJ. MGR. W. GENDE		DATE: 2-01-1

<p style="text-align: center;">Issued for Proposal - RFP 016203 DO NOT USE FOR CONSTRUCTION</p> <p style="text-align: right;">2013-04-18</p>					
REV.	DATE	DESCRIPTION	BY	CHKD.	APP. P. ENG.
DRAWN: R. ALVERO		CHECKED: P. PANTEL	SCALE: 1:1500		
DESIGNED: P. PANTEL		CHECKED: P. PANTEL	DATE:		
KEYEYASK GENERATING STATION					
STAGE I COFFERDAMS					
POWERHOUSE					
STAGE I COFFERDAM					
PLANS, SECTION & DETAIL					
DRAWING NUMBER		SHEET		REVISION	
1-00195-DE-21600-0007		0001		E	



PLAN

CENTERLINE ALIGNMENT GEOMETRY REFERENCE POINTS

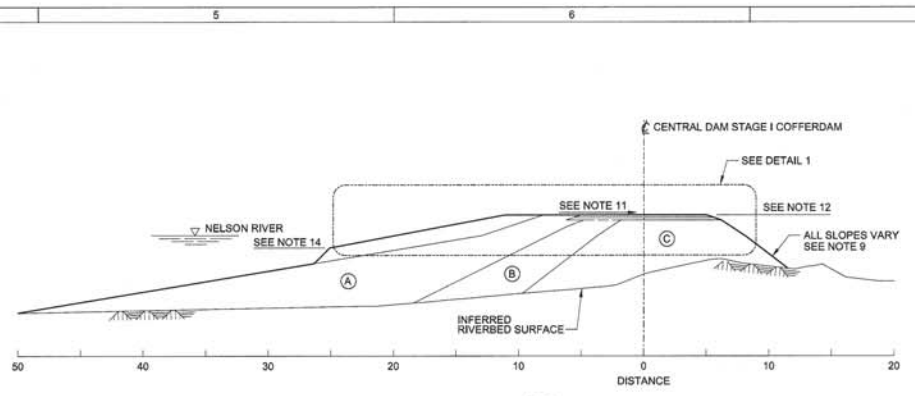
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CC-02	8 246 225.541	363 201.532

ROCKFILL PLACEMENT

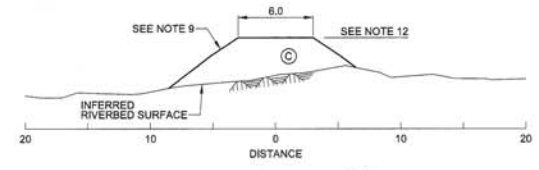
FROM	TO	ROCKFILL PRODUCT
STA CC 0+500	STA CC 1+213	CLASS C1
ROCK GROIN (SEE NOTE 7)		CLASS C1

THE CONTRACTOR SHALL ASSESS THE LOCAL FLOW CONDITIONS AND SHALL HAVE AVAILABLE FOR USE, ADDITIONAL MATERIAL OF SUITABLE SIZE AND QUANTITY AS MAY BE NECESSARY TO EFFECT CLOSURE OF THE RIVER.

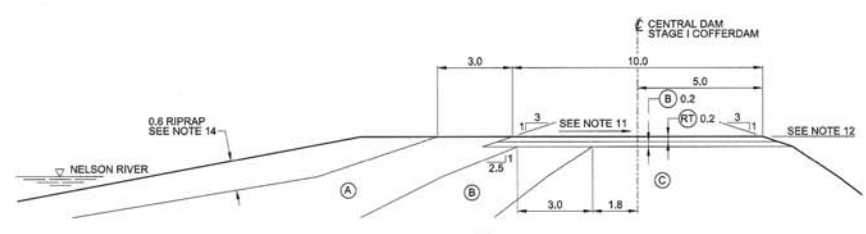
THE STATIONING OF THE PLACEMENT OF THE ROCKFILL PRODUCT IS PRELIMINARY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSESS THE LOCAL FLOW CONDITIONS AND TO ADJUST THE STATIONING FOR THE ROCKFILL PRODUCT DEPENDING UPON RIVER FLOWS AT TIME OF CONSTRUCTION, AS ACCEPTED BY THE PURCHASER'S REPRESENTATIVE.



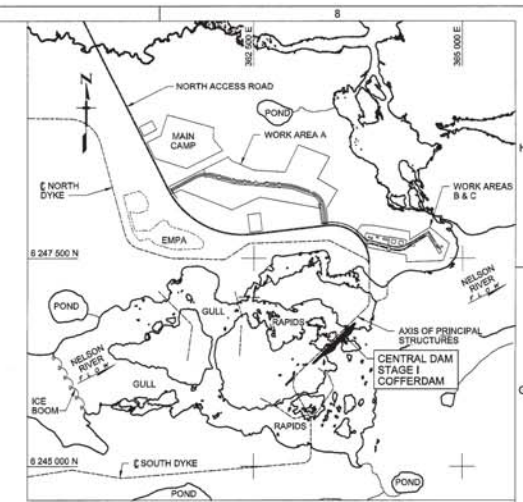
TYPICAL SECTION A
STA CC 0+550
SCALE 1:200



TYPICAL SECTION B
ROCK GROIN
SCALE 1:200



DETAIL 1
SCALE 1:100



KEY PLAN

- LEGEND:**
- SHORELINE
 - GROUND SURFACE CONTOUR (EL 150)
 - COORDINATE GRID MARKER
 - REFERENCE POINT
 - STA CC 0+800
 - WATER LEVEL
 - SLOPE DOWN
 - IMPERVIOUS FILL
 - GRANULAR TRANSITION FILL
 - ROCKFILL
 - ROAD TOPPING

- NOTES:**
1. COORDINATE GRID SHOWN IS BASED ON THE UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 15, NORTH AMERICAN DATUM 1983.
 2. ELEVATIONS ARE BASED ON GS OF C. CGVD28, 1929 ADJ.
 3. COORDINATES, DIMENSIONS, DISTANCES, STATIONING, AND ELEVATIONS ARE IN METRES.
 4. TOPOGRAPHY IS BASED ON 2010 LIDAR DATA PROVIDED BY MANITOBA HYDRO. CONTOUR INTERVAL IS 1 m.
 5. LOCATIONS OF SHORELINES ARE APPROXIMATE AND RELATE TO THE DATE OF PHOTOGRAPHY.
 6. CLEAR ALONG ALIGNMENT. CLEAR A 30 m WIDE CORRIDOR AT ABUTMENTS CENTERED ALONG ALIGNMENT.
 7. ROCK GROIN CENTERLINE ALIGNMENT IS PERPENDICULAR TO THE STAGE I CENTRAL DAM COFFERDAM CENTERLINE ALIGNMENT AT STA CC 0+750.
 8. THE AREAS OF THE COFFERDAM FOUNDATION WHICH LIE ABOVE WATER ELEVATION AND ARE ACCESSIBLE AT THE TIME OF COFFERDAM CONSTRUCTION SHALL BE STRIPPED AND PREPARED FOR FILL PLACEMENT AS PER THE TECHNICAL SPECIFICATIONS.
 9. FILL FOR THE COFFERDAM THAT IS PLACED IN WATER SHALL BE ALLOWED TO FALL TO ITS NATURAL ANGLE OF REPOSE. FILL PLACED ABOVE WATER ELEVATIONS SHALL BE PLACED AT THE FOLLOWING SLOPES, UNLESS NOTED OTHERWISE:
- CLASS A (IMPERVIOUS FILL) 1V:3H
- CLASS B (TRANSITION FILL) 1V:2H
- CLASS C (ROCKFILL) 1V:1.5H (SEE NOTE 10)
 10. ROCKFILL FOR THE COFFERDAM THAT IS PLACED IN WATER SHALL BE DETERMINED AS OUTLINED IN THE ROCKFILL PLACEMENT TABLE AND TECHNICAL SPECIFICATIONS. ROCKFILL PLACED ABOVE THE WATER SHALL CONSIST OF CLASS C1 ROCKFILL PRODUCT UNLESS NOTED OTHERWISE.
 11. THE CREST OF THE COFFERDAM SHALL BE SLOPED SLIGHTLY SO THAT THE SURFACE RUNOFF FROM THE CREST IS DIRECTED TOWARD THE DOWNSTREAM SIDE OF THE COFFERDAM.
 12. CONSTRUCT UP TO EL 147.3 OR UP TO 1 m ABOVE THE FORECASTED WATER ELEVATION AT TIME OF CONSTRUCTION WHICHEVER IS GREATER. THE LENGTH OF THE COFFERDAM SHALL BE EXTENDED AS REQUIRED, AND AS DIRECTED BY THE PURCHASER'S REPRESENTATIVE.
 13. PURCHASER'S REPRESENTATIVE WILL PROVIDE FORECASTED WATER ELEVATIONS.
 14. RIPRAP SHALL CONSIST OF CLASS C1 ROCKFILL PRODUCT. RIPRAP SHALL BE PLACED DOWN TO 1 m BELOW THE FORECASTED WATER LEVEL, OR AS DIRECTED BY THE PURCHASER'S REPRESENTATIVE.



Issued for Proposal - RFP 016203
DO NOT USE FOR CONSTRUCTION
2013-03-15

REV.	DATE	DESCRIPTION	BY	CHKD.	APP./P. ENG.

DRAWN: R. ALVERO
 DESIGNED: P. PANTEL
 CHECKED: []
 DATE: []

Manitoba Hydro

KEYEYASK GENERATING STATION

STAGE I COFFERDAM

CENTRAL DAM STAGE I COFFERDAM

PLAN, SECTIONS & DETAILS

DRAWING NUMBER: 1-00195-DE-21600-0008
SHEET: 0001
REVISION: D

HATCH

HATCH NO.: H341433-2400-10-035-0001

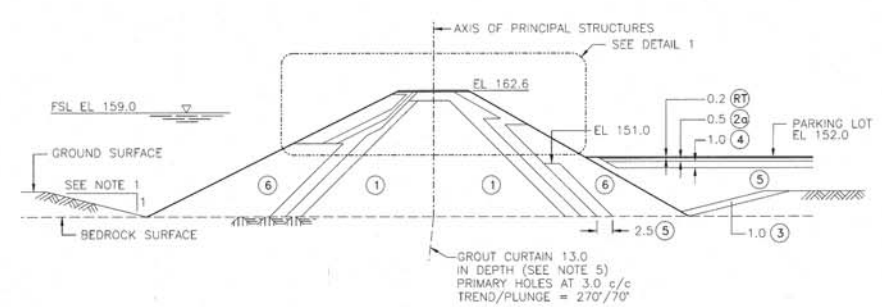
AREA COORD: P. PANTEL
DATE: []

DISCIP. ENGR: R. HALIM
DATE: []

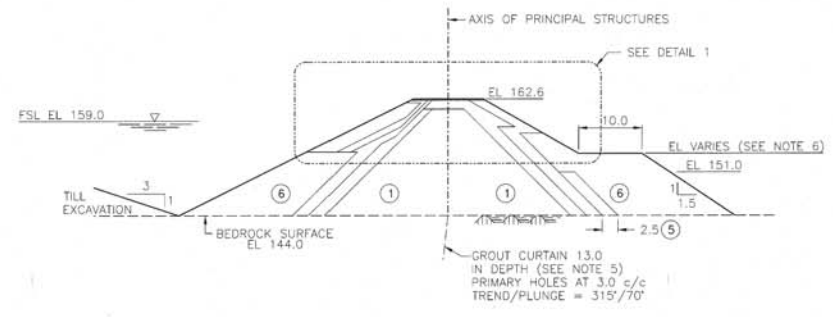
PROJ. ENGR: A. TRUDEL
DATE: []

PROJ. MGR: W. GENDZE
DATE: []

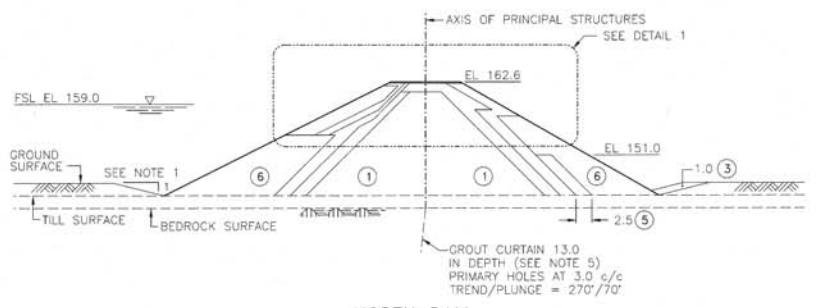
1-00195-DE-21600-0001 STAGE I DIVERSION PLAN DRAWING TITLE
DRAWING NO. REFERENCE DRAWINGS



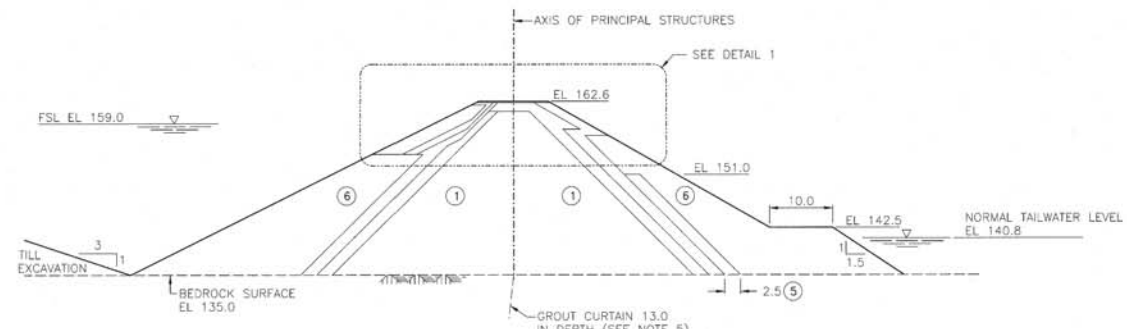
**NORTH DAM
MAIN SECTION
SCALE A**



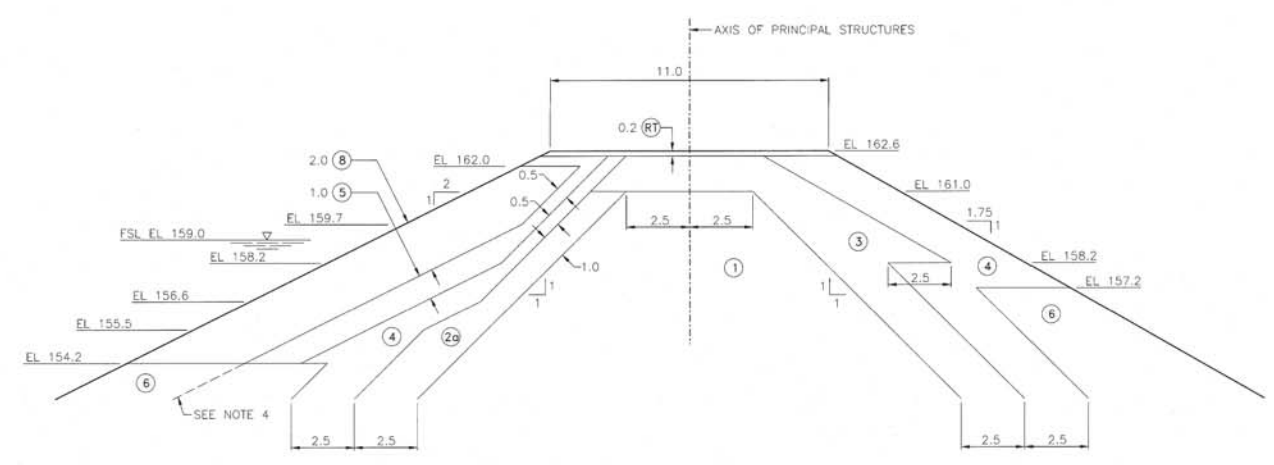
**CENTRAL DAM
NEAR SPILLWAY
SCALE A**



**NORTH DAM
NORTH BANK SECTION
SCALE A**



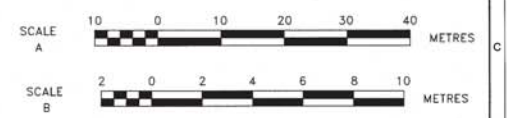
**CENTRAL DAM
NEAR POWERHOUSE
SCALE A**



**DETAIL 1
SCALE B**

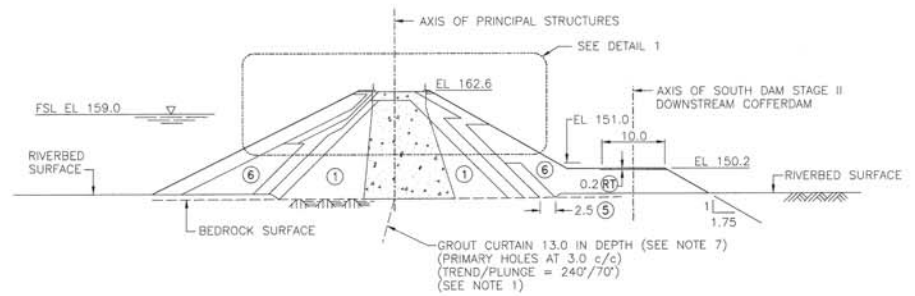
- LEGEND:**
- ① IMPERVIOUS FILL
 - ② PERVIOUS GRANULAR FILL
 - ③ FINE FILTER
 - ④ TRANSITION - CRUSHED ROCK/COARSE FILTER
 - ⑤ RIPRAP BEDDING/FINE ROCKFILL
 - ⑥ ROCKFILL
 - ⑧ RIPRAP
 - RT ROAD TOPPING
 - ▽ WATER LEVEL
 - FSL NORMAL FULL SUPPLY LEVEL

- NOTES:**
1. WHEN POSTGLACIAL CLAYS ARE 3 METRES THICK OR LESS USE 1 VERTICAL TO 3.5 HORIZONTAL AND, WHEN POSTGLACIAL CLAYS ARE GREATER THAN 3 METRES THICK USE 1 VERTICAL TO 4 HORIZONTAL.
 2. ELEVATIONS AND DIMENSIONS ARE IN METRES.
 3. ELEVATIONS ARE BASED ON CGVD 1928.
 4. CLASS ⑧ PLACED ALONG FULL LENGTH OF UPSTREAM SLOPE AT CONCRETE STRUCTURES TIE-INS.
 5. DEPTH MEANS THE VERTICAL DEPTH, IT IS NOT THE LENGTH ALONG THE AXIS OF THE BOREHOLE.
 6. DOWNSTREAM TOE BERM TO BE USED FOR ACCESS TO SPILLWAY BRIDGE DECK.

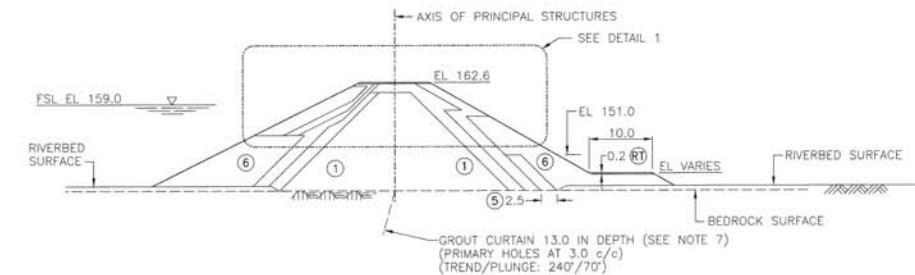


Issued for Proposal - RFP 016203 DO NOT USE FOR CONSTRUCTION 2013-03-28				
REV.	DATE	DESCRIPTION	BY	APP.P. ENG.
00	2012-02-13	ISSUED FOR INFORMATION	RAR	PRP
			CKD.	APP.P. ENG.
DRAWN: R.C. ALVERO		CHECKED: DATE:		SCALE: 1:400
DESIGNED: P. PANTEL		CHECKED: DATE:		DATE:
KEYASK GENERATING STATION				
BASIS FOR DESIGN GENERAL ARRANGEMENT NORTH AND CENTRAL DAM SECTIONS				
DRAWING NUMBER 1-00195-DE-06200-0043			SHEET 0001	REVISION 0C

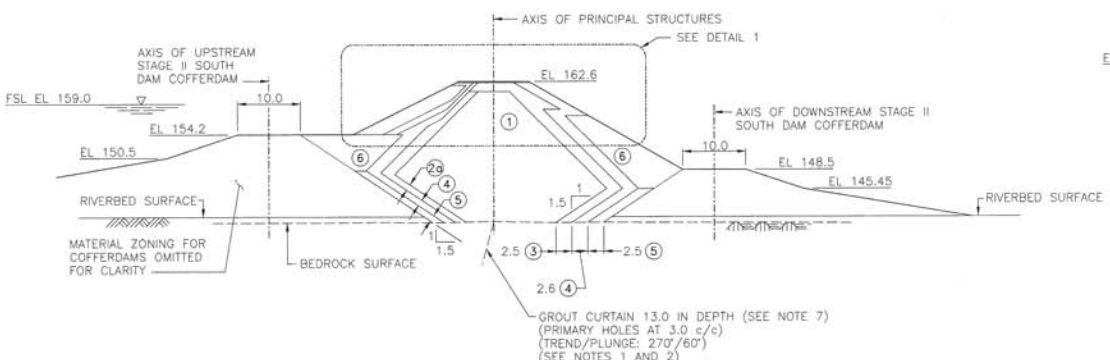
HATCH
 HATCH NO. H341433-3000-10-042-0001
 AREA COORD.
P. PANTEL
 DATE
 DISCIPL. ENGR.
R. HALIM
 DATE
 PROJ. ENGR.
A. TRUDEAU
 DATE
 PROJ. MGR.
W. GENDZE
 DATE



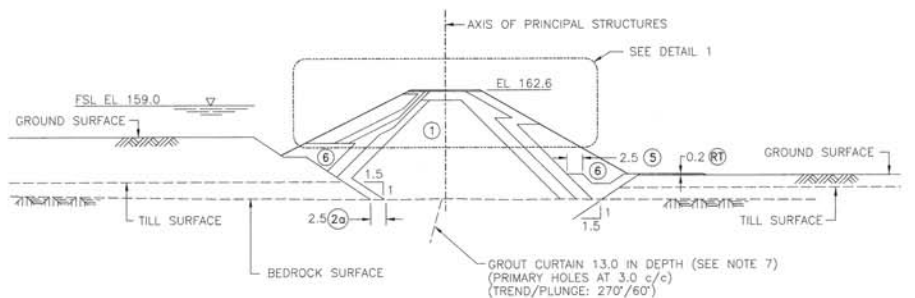
AT SPILLWAY TRANSITION STRUCTURE
SCALE A



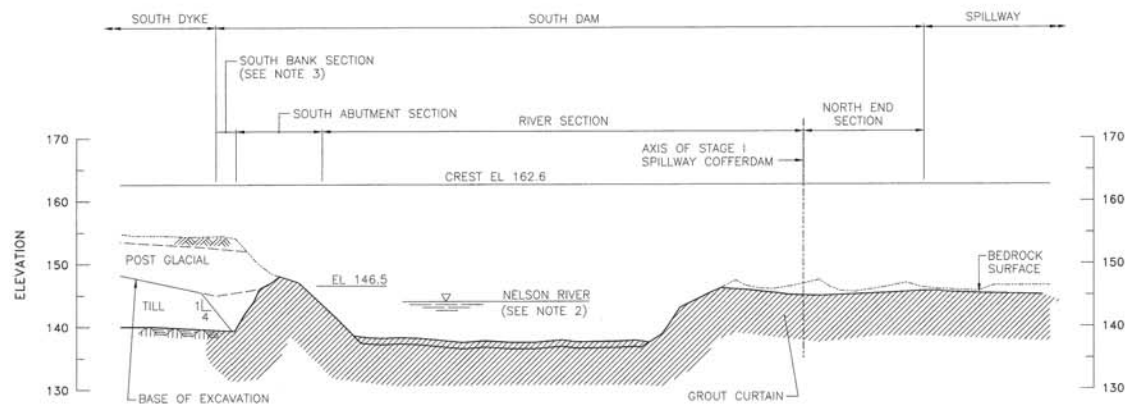
NORTH END SECTION
BETWEEN SPILLWAY STRUCTURE
AND STAGE I SPILLWAY COFFERDAM
SCALE A



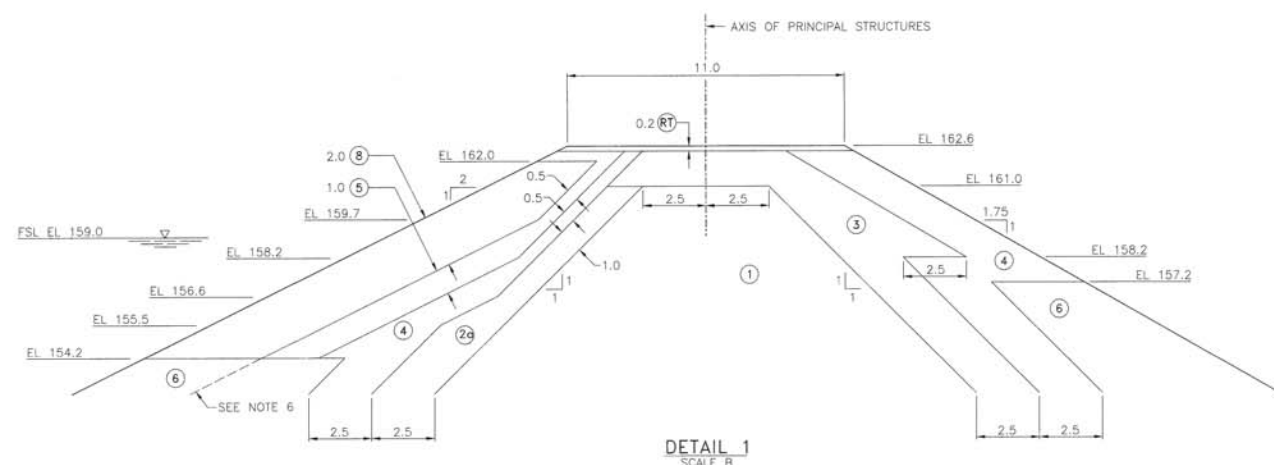
RIVER SECTION
SCALE A



AT SOUTH ABUTMENT AND SOUTH BANK
SCALE A



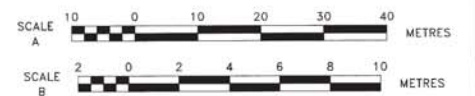
PROFILE ALONG AXIS
N.T.S.



DETAIL 1
SCALE B

- LEGEND:**
- ① IMPERVIOUS FILL
 - ② GRANULAR FILL
 - ③ FILTER
 - ④ TRANSITION FILL
 - ⑤ RIPRAP BEDDING
 - ⑥ ROCKFILL
 - ⑧ RIPRAP
 - RT ROAD TOPPING
 - ▽ WATER LEVEL
 - FSL NORMAL FULL SUPPLY LEVEL

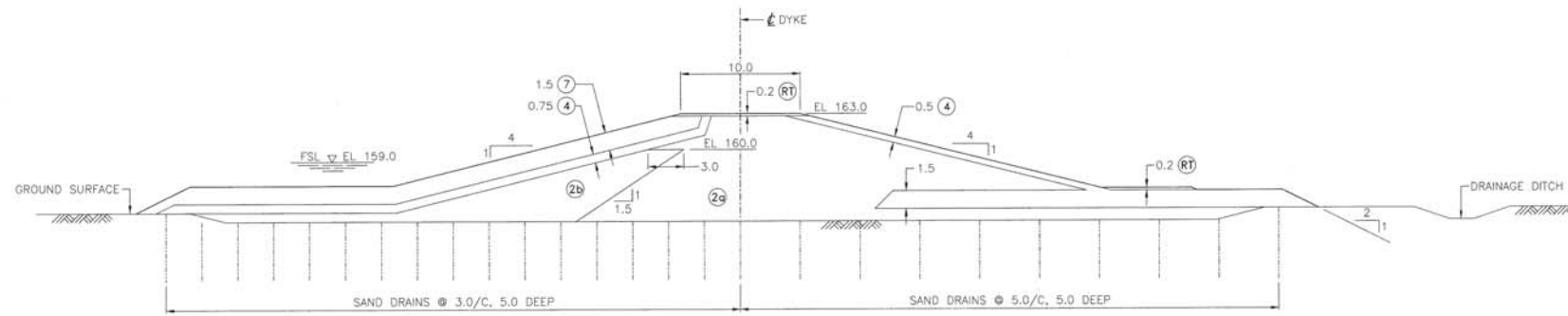
- NOTES:**
1. AFTER DEWATERING OF THE STAGE II COFFERDAMS, THE BEDROCK FOUNDATION SHALL BE REVIEWED AND THE TREND/PLUNGE SHALL BE ADJUSTED ACCORDINGLY FOR THE GROUTING PROGRAM.
 2. INFORMATION ON THE BEDROCK AND OVERBURDEN IN THE RIVERBED IS VERY LIMITED. THE RIVERBED HAS BEEN ASSUMED TO BE BEDROCK CONTROLLED WITH LITTLE OR NO OVERBURDEN.
 3. SOUTH BANK SECTION SHALL BE FOUND ON TILL.
 4. ELEVATIONS AND DIMENSIONS ARE IN METRES.
 5. ELEVATIONS ARE BASED ON CGVD 1928.
 6. CLASS ⑧ PLACED ALONG FULL LENGTH OF UPSTREAM SLOPE AT CONCRETE STRUCTURES TIE-INS.
 7. DEPTH MEANS THE VERTICAL DEPTH. IT IS NOT THE LENGTH ALONG THE AXIS OF THE BOREHOLE.



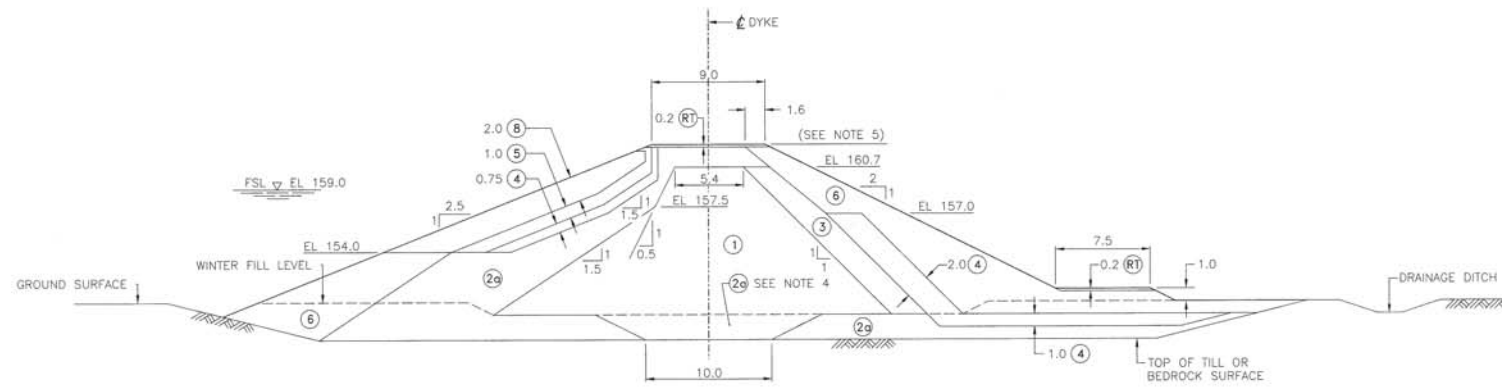
Issued for Proposal – RFP 016203 DO NOT USE FOR CONSTRUCTION 2013-03-28					
REV.	DATE	DESCRIPTION	BY	CHKD.	APP. P. ENG.
00	2012 02 13	ISSUED FOR INFORMATION			

HATCH
 HATCH NO. HS41433-3000-10-042-0002
 AREA COORD. P. PANTEL
 DATE
 DISCIPL. ENGR. R. HALIM
 DATE
 PROJ. ENGR. A. TRUDEL
 DATE
 PROJ. MGR. W. GENDZIE
 DATE

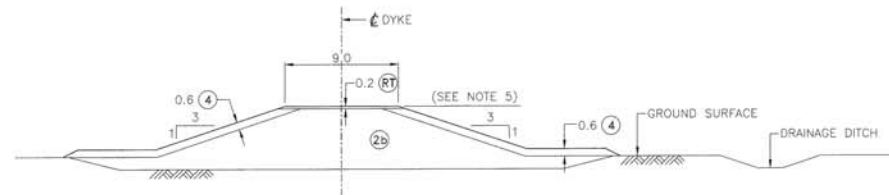
Manitoba Hydro		DRAWN: R.C. ALVERO DESIGNED: P. PANTEL AUTHENTICATION FOR CURRENT REVISION	CHECKED: 1:400 DATE: SCALE: 1:400 DATE:
KEYYASK GENERATING STATION BASIS FOR DESIGN GENERAL ARRANGEMENT SOUTH DAM SECTIONS AND PROFILE			
DRAWING NUMBER		SHEET REVISION	
1-00195-DE-06200-0044		0001 0C	



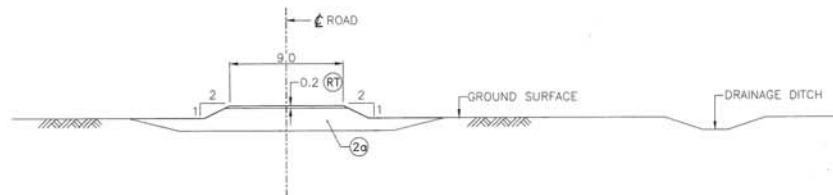
GRANULAR DYKE



ZONED IMPERVIOUS CORE DYKE



FREEBOARD DYKE



ROAD SECTION

LEGEND:

- ① IMPERVIOUS FILL
- ②g PERVIOUS GRANULAR FILL
- ②b SEMI-PERVIOUS GRANULAR FILL
- ③ FILTER
- ④ TRANSITION - CRUSHED ROCK
- ⑤ RIPRAP BEDDING
- ⑥ ROCKFILL
- ⑦ RIPRAP (SEE NOTE 1)
- ⑧ RIPRAP
- RT ROAD TOPPING
- W WATER LEVEL

NOTES:

1. FOR NORTH DYKE FROM STATION 35+00 TO STATION 121+63, USE 1.5 METRE THICK RIPRAP CLASS ⑦ AND 0.75 METRE THICK RIPRAP BEDDING.
2. DIMENSIONS AND ELEVATIONS ARE IN METRES.
3. ELEVATIONS ARE BASED ON CGVD 1928.
4. CLASS ②g WINTER FILL SHALL BE EXCAVATED FROM THIS AREA AND REPLACED WITH CLASS ① DURING SUMMER CONSTRUCTION.
5. CREST ELEVATIONS FOR THE ZONED IMPERVIOUS CORE DYKE OF THE NORTH DYKE SHALL BE EL 162.2 FROM THE NORTH DAM TO STA 15+65 AND THEN EL 161.8 TO THE END OF THE NORTH DYKE. CREST ELEVATIONS FOR THE ZONED IMPERVIOUS CORE AND FREEBOARD DYKES OF THE SOUTH DYKE SHALL BE EL 162.0 FROM THE SOUTH DAM TO STA 68+90 AND THEN EL 162.2 TO THE END OF THE SOUTH DYKE.
6. CREST ELEVATION TRANSITION GRADE IS SET AT A 4%.

Issued for Proposal - RFP 016203			
DO NOT USE FOR CONSTRUCTION			
2013-03-28			
REV.	DATE	DESCRIPTION	BY
00	2012-02-13	ISSUED FOR INFORMATION	RAR
			PRP
			BRD

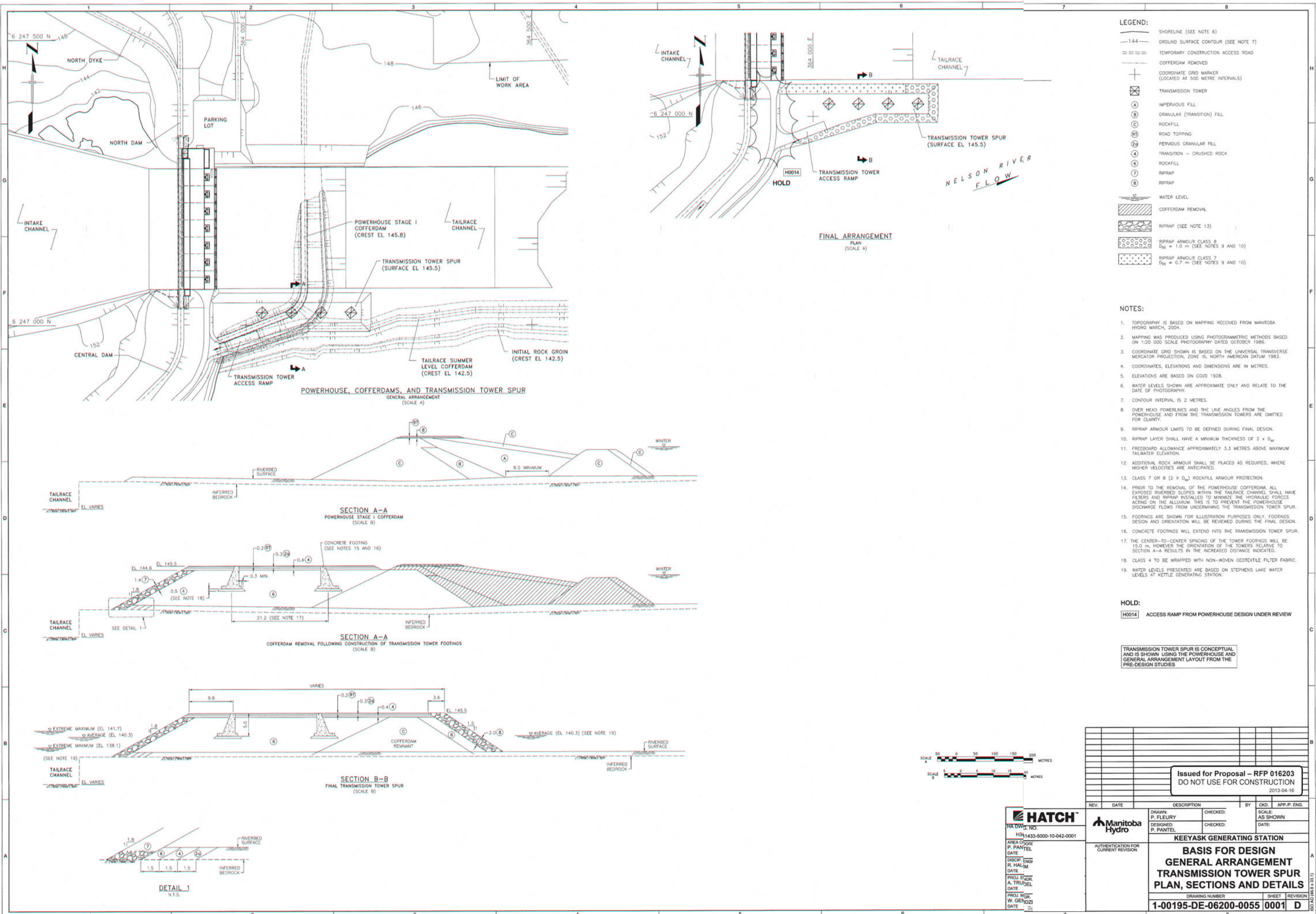
HATCH
 HATCH INC.
 3300 14th Avenue S.W.
 Calgary, Alberta T2C 1S1
 CANADA
 TEL: 403.242.0000
 FAX: 403.242.0001
 WWW.HATCH.COM

Manitoba Hydro
 AUTHENTICATION FOR CURRENT REVISION

KEYYASK GENERATING STATION
BASIS FOR DESIGN
GENERAL ARRANGEMENT
NORTH AND SOUTH DYKES
AND ROAD SECTIONS

DRAWN: R. C. ALVERO	CHECKED: P. PANTEL	SCALE: 1:200	DATE: 2013-03-28
DESIGNED: P. PANTEL	CHECKED:		
AREA COORD. P. PANTEL	DATE:		
DISCIP. ENGR R. HALIM	DATE:		
PROJ. ENGR A. TRUDEL	DATE:		
PROJ. MGR W. GENDZE	DATE:		

DRAWING NUMBER	SHEET	REVISION
1-0095-DE-06200-0045	0001	OC



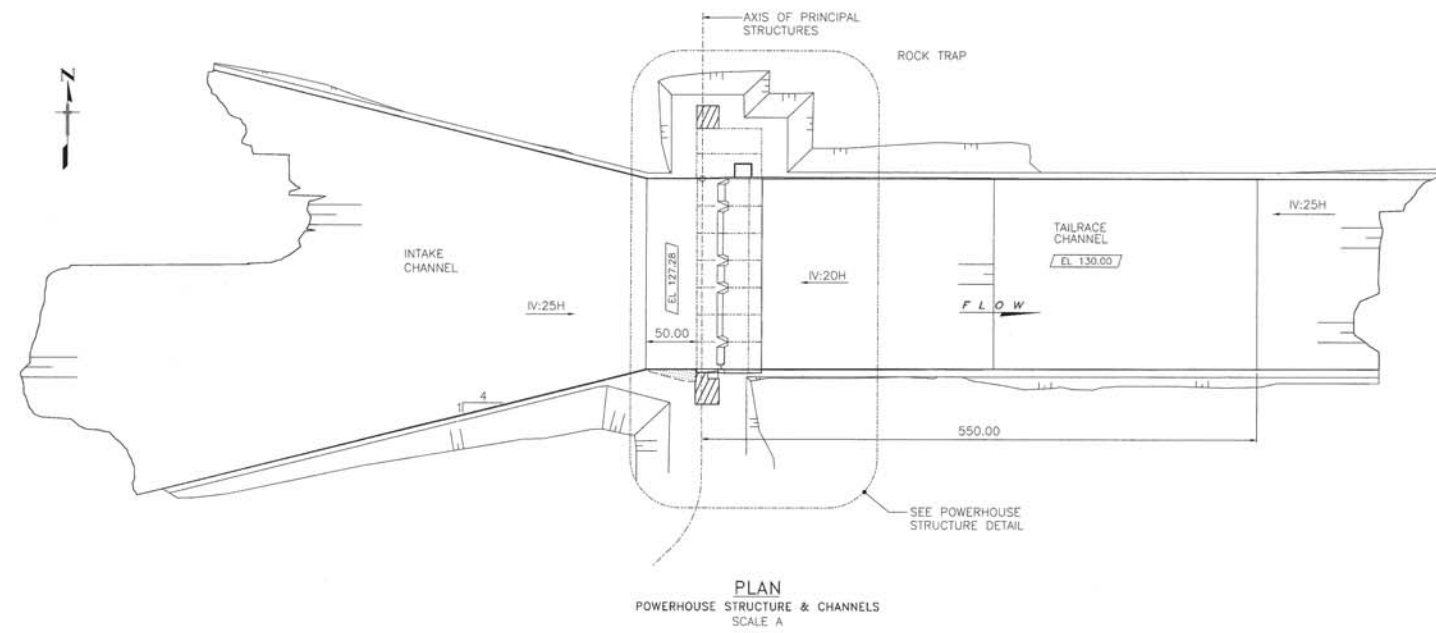
- LEGEND:**
- SHORELINE (SEE NOTE 6)
 - 144 GROUND SURFACE CONTOUR (SEE NOTE 7)
 - TEMPORARY CONSTRUCTION ACCESS ROAD
 - COFFERDAM REMOVED
 - + COORDINATE GRID MARKER (LOCATED AT 500 METRE INTERVALS)
 - ⊗ TRANSMISSION TOWER
 - (A) IMPERVIOUS FILL
 - (B) GRANULAR (TRANSITION) FILL
 - (C) ROCKFILL
 - (RT) ROAD TOPPING
 - (2a) PERVIOUS GRANULAR FILL
 - (4) TRANSITION - CRUSHED ROCK
 - (6) ROCKFILL
 - (7) RRRRAP
 - (8) RRRRAP
 - ~ WATER LEVEL
 - COFFERDAM REMOVAL
 - RRRRAP (SEE NOTE 13)
 - RRRRAP ARMOUR CLASS 8 D₅₀ = 1.0 m (SEE NOTES 9 AND 10)
 - RRRRAP ARMOUR CLASS 7 D₅₀ = 0.7 m (SEE NOTES 9 AND 10)

- NOTES:**
1. TOPOGRAPHY IS BASED ON MAPPING RECEIVED FROM MANITOBA HYDRO MARCH, 2004.
 2. MAPPING WAS PRODUCED USING PHOTOGRAMMETRIC METHODS BASED ON 1:20 000 SCALE PHOTOGRAPHY DATED OCTOBER 1986.
 3. COORDINATE GRID SHOWN IS BASED ON THE UNIVERSAL TRANSVERSE MERCATOR PROJECTION, ZONE 15, NORTH AMERICAN DATUM 1983.
 4. COORDINATES, ELEVATIONS AND DIMENSIONS ARE IN METRES.
 5. ELEVATIONS ARE BASED ON CGVD 1928.
 6. WATER LEVELS SHOWN ARE APPROXIMATE ONLY AND RELATE TO THE DATE OF PHOTOGRAPHY.
 7. CONTOUR INTERVAL IS 2 METRES.
 8. OVER HEAD POWERLINES AND THE LINE ANGLES FROM THE POWERHOUSE AND FROM THE TRANSMISSION TOWERS ARE OMITTED FOR CLARITY.
 9. RRRRAP ARMOUR LIMITS TO BE DEFINED DURING FINAL DESIGN.
 10. RRRRAP LAYER SHALL HAVE A MINIMUM THICKNESS OF 2 x D₅₀.
 11. FREEBOARD ALLOWANCE APPROXIMATELY 3.3 METRES ABOVE MAXIMUM TAILWATER ELEVATION.
 12. ADDITIONAL ROCK ARMOUR SHALL BE PLACED AS REQUIRED, WHERE HIGHER VELOCITIES ARE ANTICIPATED.
 13. CLASS 7 OR 8 (2 x D₅₀) ROCKFILL ARMOUR PROTECTION.
 14. PRIOR TO THE REMOVAL OF THE POWERHOUSE COFFERDAM, ALL EXPOSED RIVERBED SLOPES WITHIN THE TAILRACE CHANNEL SHALL HAVE FILTERS AND RRRRAP INSTALLED TO MINIMIZE THE HYDRAULIC FORCES ACTING ON THE ALLUVIUM. THIS IS TO PREVENT THE POWERHOUSE DISCHARGE FLOWS FROM UNDERMINING THE TRANSMISSION TOWER SPUR.
 15. FOOTINGS ARE SHOWN FOR ILLUSTRATION PURPOSES ONLY. FOOTINGS DESIGN AND ORIENTATION WILL BE REVIEWED DURING THE FINAL DESIGN.
 16. CONCRETE FOOTINGS WILL EXTEND INTO THE TRANSMISSION TOWER SPUR.
 17. THE CENTER-TO-CENTER SPACING OF THE TOWER FOOTINGS WILL BE 15.0 m, HOWEVER THE ORIENTATION OF THE TOWERS RELATIVE TO SECTION A-A RESULTS IN THE INCREASED DISTANCE INDICATED.
 18. CLASS 4 TO BE WRAPPED WITH NON-WOVEN GEOTEXTILE FILTER FABRIC.
 19. WATER LEVELS PRESENTED ARE BASED ON STEPHENS LAKE WATER LEVELS AT KETTLE GENERATING STATION.

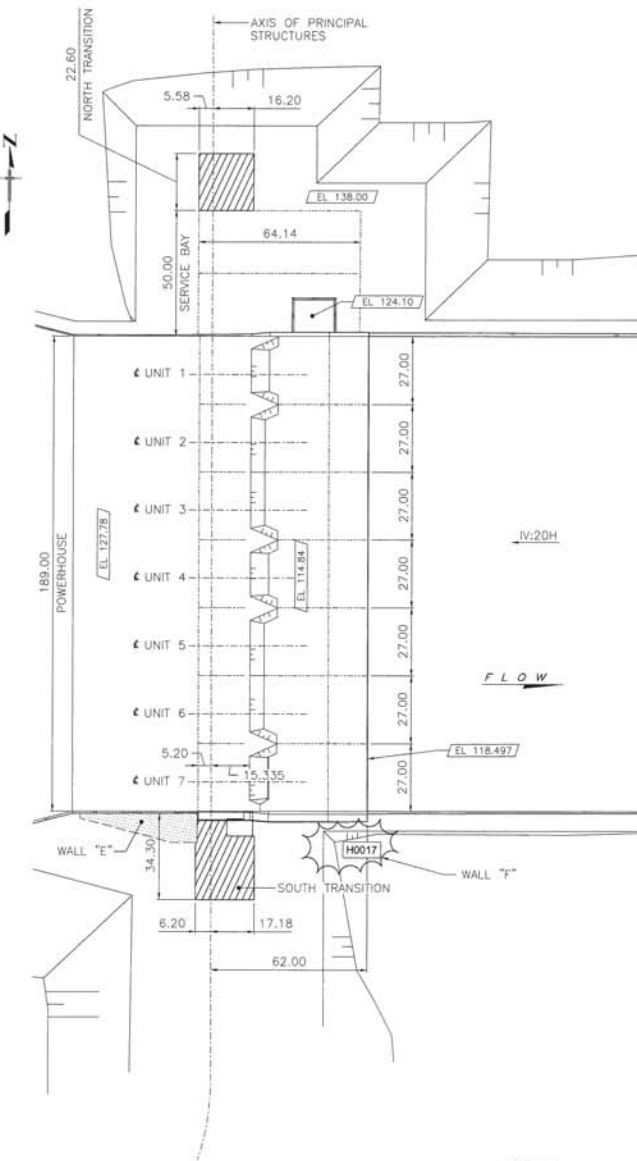
HOLD:
 H0014 ACCESS RAMP FROM POWERHOUSE DESIGN UNDER REVIEW

TRANSMISSION TOWER SPUR IS CONCEPTUAL AND IS SHOWN USING THE POWERHOUSE AND GENERAL ARRANGEMENT LAYOUT FROM THE PRE-DESIGN STUDIES

<p>Issued for Proposal - RFP 016203 DO NOT USE FOR CONSTRUCTION 2013-04-16</p>																									
<table border="1"> <thead> <tr> <th>REV.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>CHKD.</th> <th>APP.P. ENG.</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REV.	DATE	DESCRIPTION	BY	CHKD.	APP.P. ENG.							<table border="1"> <tr> <td> <p>HATCH HATCH NO. H341433-5000-10-042-0001</p> </td> <td> <p>Manitoba Hydro</p> </td> </tr> <tr> <td> <p>AREA COOR. P. PANTEL DATE</p> </td> <td> <p>SCALE: AS SHOWN DATE</p> </td> </tr> <tr> <td> <p>DISCIP. ENGR. R. HALIM DATE</p> </td> <td> <p>AUTHENTICATION FOR CURRENT REVISION</p> </td> </tr> <tr> <td> <p>PROJ. ENGR. A. TRUDEL DATE</p> </td> <td> <p>KEYASK GENERATING STATION</p> </td> </tr> <tr> <td> <p>PROJ. MGR. W. GENOZI DATE</p> </td> <td> <p>BASIS FOR DESIGN GENERAL ARRANGEMENT TRANSMISSION TOWER SPUR PLAN, SECTIONS AND DETAILS</p> </td> </tr> <tr> <td> <p>DRAWING NUMBER 1-00195-DE-06200-0055</p> </td> <td> <p>SHEET REVISION 0001 D</p> </td> </tr> </table>	<p>HATCH HATCH NO. H341433-5000-10-042-0001</p>	<p>Manitoba Hydro</p>	<p>AREA COOR. P. PANTEL DATE</p>	<p>SCALE: AS SHOWN DATE</p>	<p>DISCIP. ENGR. R. HALIM DATE</p>	<p>AUTHENTICATION FOR CURRENT REVISION</p>	<p>PROJ. ENGR. A. TRUDEL DATE</p>	<p>KEYASK GENERATING STATION</p>	<p>PROJ. MGR. W. GENOZI DATE</p>	<p>BASIS FOR DESIGN GENERAL ARRANGEMENT TRANSMISSION TOWER SPUR PLAN, SECTIONS AND DETAILS</p>	<p>DRAWING NUMBER 1-00195-DE-06200-0055</p>	<p>SHEET REVISION 0001 D</p>
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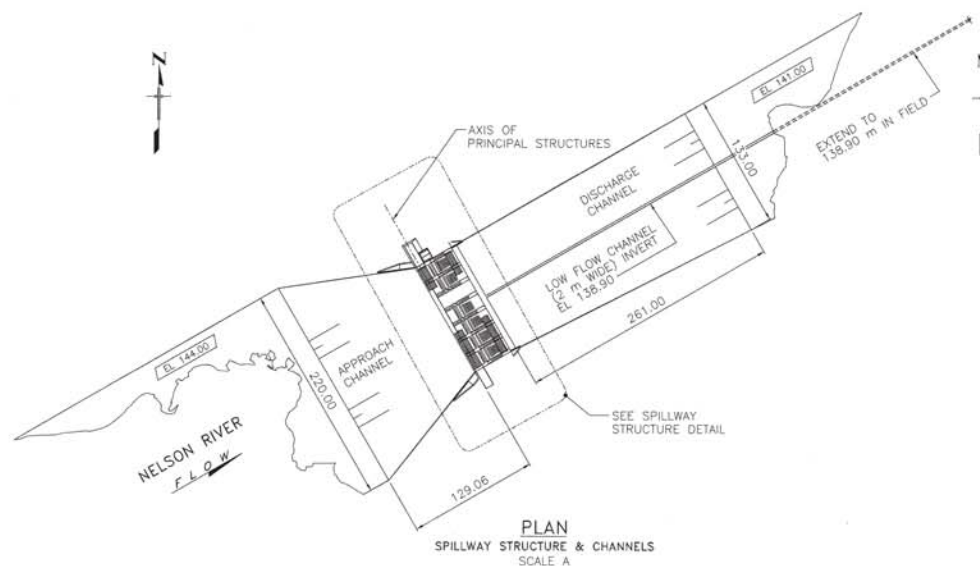
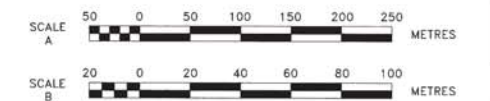
PLAN
POWERHOUSE STRUCTURE & CHANNELS
SCALE A



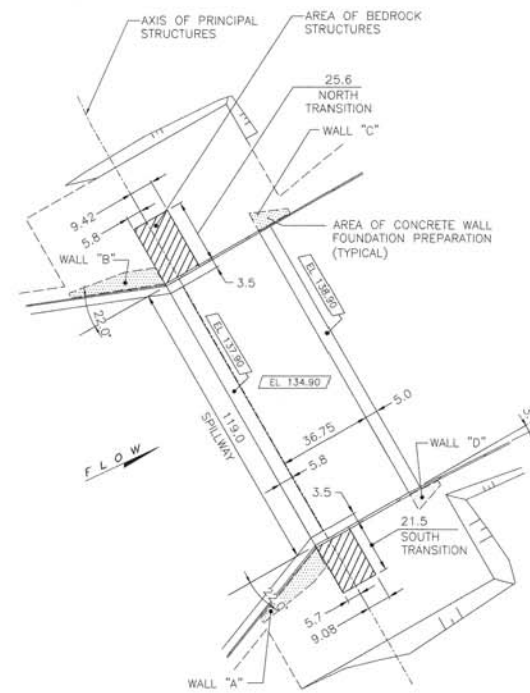
PLAN
POWERHOUSE STRUCTURE DETAIL
SCALE B

- NOTES:
- ELEVATIONS AND DIMENSIONS ARE IN METRES.
 - ELEVATIONS ARE BASED ON CANADIAN GEODETIC VERTICAL DATUM 1928.

HOLD:
H0017 WALL F TO BE DETERMINED



PLAN
SPILLWAY STRUCTURE & CHANNELS
SCALE A

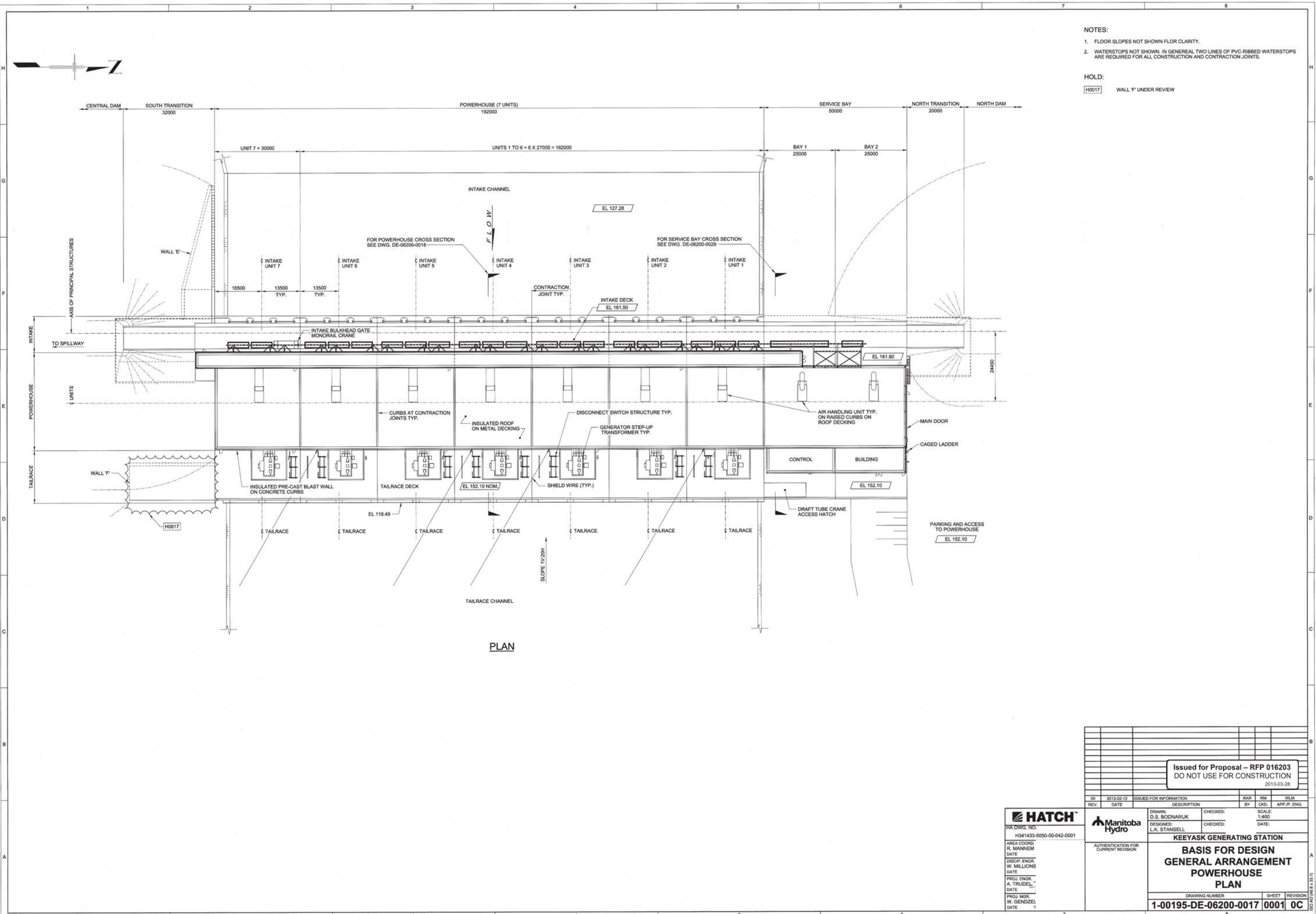


PLAN
SPILLWAY STRUCTURE DETAIL
SCALE B

Issued for Proposal – RFP 016203 DO NOT USE FOR CONSTRUCTION 2013-03-28					
REV.	DATE	DESCRIPTION	BY	CHKD.	APP./P. ENG.
00	2012 02 13	ISSUED FOR INFORMATION	BAR	PRP	IRD
DRAWN:		CHECKED:		SCALE:	
R. C. ALVERO		P. PANTEL		1:2500	
DESIGNED:		CHECKED:		DATE:	
P. PANTEL		A. TRUDELC			
KEYEASK GENERATING STATION BASIS FOR DESIGN GENERAL ARRANGMENT CONCRETE STRUCTURES EXCAVATION					
DRAWING NUMBER		SHEET		REVISION	
1-00195-DE-06200-0016		0001		0C	

HATCH
 HATCH INC.
 H341433-1000-10-042-0001
 AREA COORD.
 P. PANTEL
 DATE
 DISCIP. ENGR
 R. HALIM
 DATE
 PROJ. ENGR
 A. TRUDELC
 DATE
 PROJ. MGR.
 W. GENZIE
 DATE

Manitoba Hydro
 AUTHENTICATION FOR
 CURRENT REVISION



NOTES:
 1. FLOOR SLOPES NOT SHOWN FOR CLARITY.
 2. WATERSTOPS NOT SHOWN. IN GENERAL TWO LINES OF PVC-RIBBED WATERSTOPS ARE REQUIRED FOR ALL CONSTRUCTION AND CONTRACTION JOINTS.

HOLD:
 [H0017] WALL 'F' UNDER REVIEW

PLAN

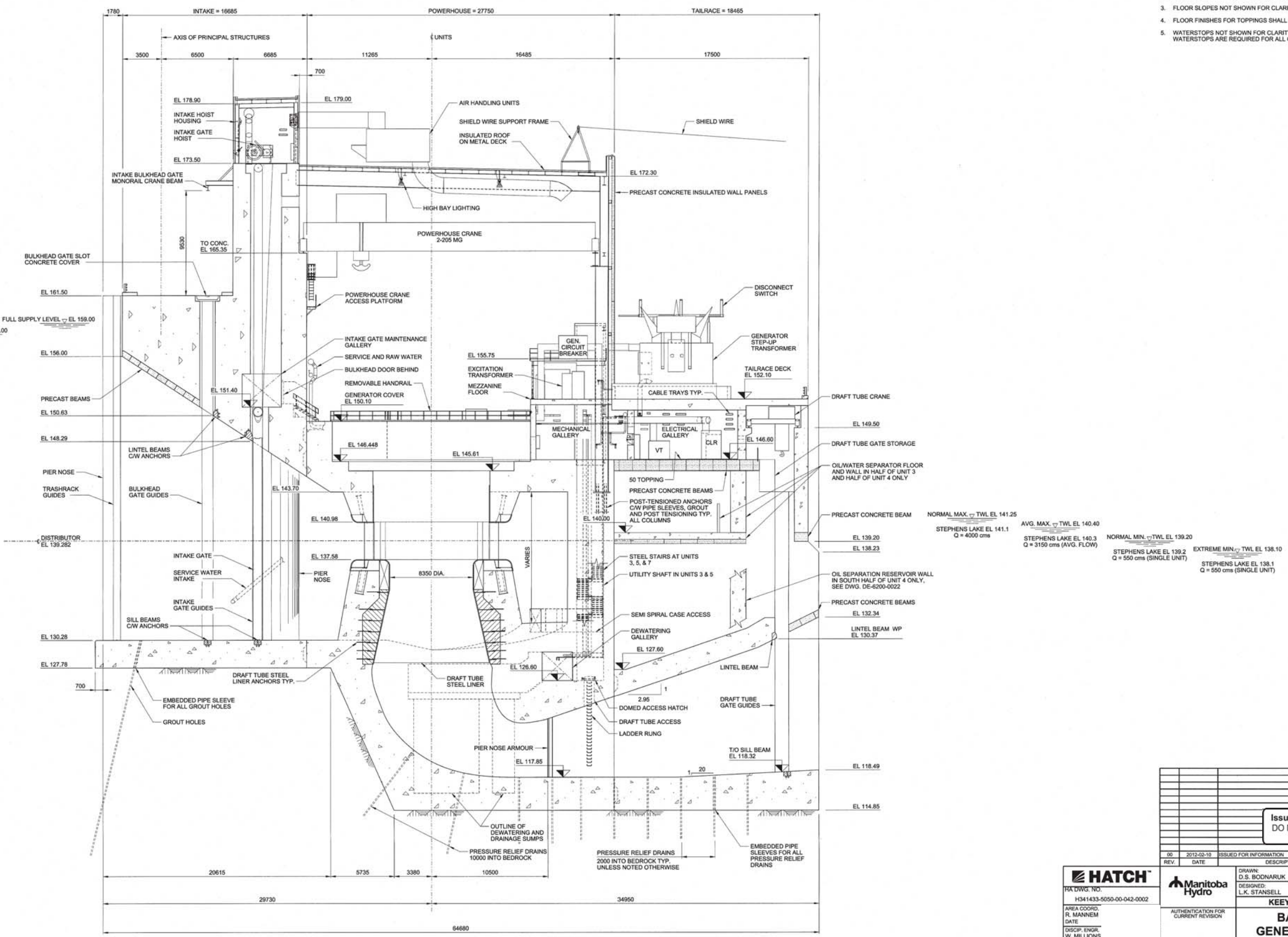
Issued for Proposal – RFP 016203 DO NOT USE FOR CONSTRUCTION 2013-03-28			
00	2013-02-12	ISSUED FOR INFORMATION	RAR RM WLM
REV.	DATE	DESCRIPTION	BY CKD. APP./P. ENG.
DRAWN: D.S. BOONARUK		CHECKED: SCALE: 1:400	
DESIGNED: L.K. STANSELL		CHECKED: DATE:	
KEYASK GENERATING STATION BASIS FOR DESIGN GENERAL ARRANGEMENT POWERHOUSE PLAN			
DRAWING NUMBER		SHEET	REVISION
1-00195-DE-06200-0017		0001	OC

HATCH
 HA DWG. NO. H341433-5050-00-042-0001
 AREA COORD. R. MANNEM
 DATE
 DISCIP. ENGR. W. MILLIONS
 DATE
 PROJ. ENGR. A. TRUDEL
 DATE
 PROJ. MGR. W. GENDZEL
 DATE

Manitoba Hydro
 AUTHENTICATION FOR CURRENT REVISION

LEGEND:
 CLR CURRENT LIMITING REACTOR
 VT REVENUE METERING CUBICLE

- NOTES:**
1. DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS ARE IN METERS.
 2. EMBEDDED PIPES NOT SHOWN ON THE DRAWING FOR CLARITY.
 3. FLOOR SLOPES NOT SHOWN FOR CLARITY.
 4. FLOOR FINISHES FOR TOPPING SHALL BE U3-TROWELLED TYPE FINISHING.
 5. WATERSTOPS NOT SHOWN FOR CLARITY. IN GENERAL TWO LINES OF PVC-RIBBED WATERSTOPS ARE REQUIRED FOR ALL CONSTRUCTION AND CONTRACTION JOINTS.



NORMAL MAX. TWL EL 141.25
 STEPHENS LAKE EL 141.1
 Q = 4000 cms

AVG. MAX. TWL EL 140.40
 STEPHENS LAKE EL 140.3
 Q = 3150 cms (AVG. FLOW)

NORMAL MIN. TWL EL 139.20
 STEPHENS LAKE EL 139.2
 Q = 550 cms (SINGLE UNIT)

EXTREME MIN. TWL EL 138.10
 STEPHENS LAKE EL 138.1
 Q = 550 cms (SINGLE UNIT)

CROSS SECTION
 SEE DWG. DE-06200-0017

Issued for Proposal - RFP 016203
 DO NOT USE FOR CONSTRUCTION
 2013-04-10

REV.	DATE	DESCRIPTION	BY	CHKD.	APP.P.	WLM
00	2012-02-10	ISSUED FOR INFORMATION				

HATCH
 HATCH NO. H341433-5050-00-042-0002
 AREA COORD. R. MANNEM
 DATE
 DISCIPL. ENGR. W. MILLIONS
 DATE
 PROJ. ENGR. A. TRUDEL
 DATE
 PROJ. MGR. W. GENDZEL
 DATE

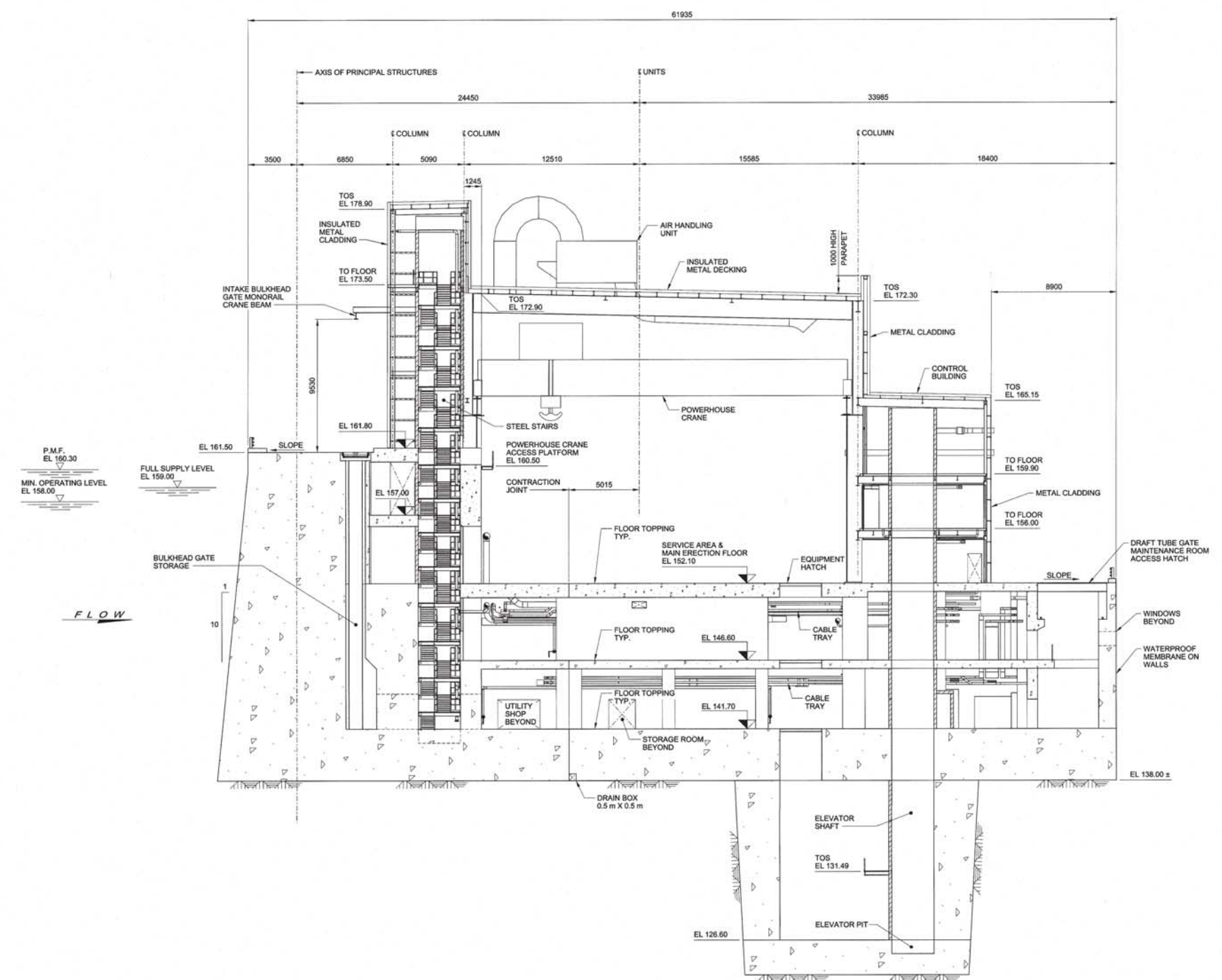
Manitoba Hydro

KEYEASK GENERATING STATION

BASIS FOR DESIGN
GENERAL ARRANGEMENT
POWERHOUSE CROSS SECTION
AT CENTERLINE OF UNITS

DRAWING NUMBER: 1-00195-DE-06200-0018
 SHEET: 0001
 REVISION: 0C

- NOTES:**
1. THE ROOM LAYOUT SHOWN IS PRELIMINARY. FINAL LAYOUT AND EGRESS REQUIREMENTS ARE TO BE DEVELOPED DURING FINAL DESIGN IN ACCORDANCE WITH NBCC REQUIREMENTS.
 2. EMBEDDED PIPES NOT SHOWN ON THE DRAWING FOR CLARITY.
 3. FLOOR SLOPES NOT SHOWN FOR CLARITY.
 4. FLOOR FINISHES FOR TOPPING SHALL BE U3-TROWELLED TYPE FINISHING.
 5. WATERSTOPS NOT SHOWN FOR CLARITY. IN GENERAL TWO LINES OF PVC-RIBBED WATERSTOPS ARE REQUIRED FOR ALL CONSTRUCTION AND CONTRACTION JOINTS.



CROSS SECTION
SEE DWG. DE-06200-0017

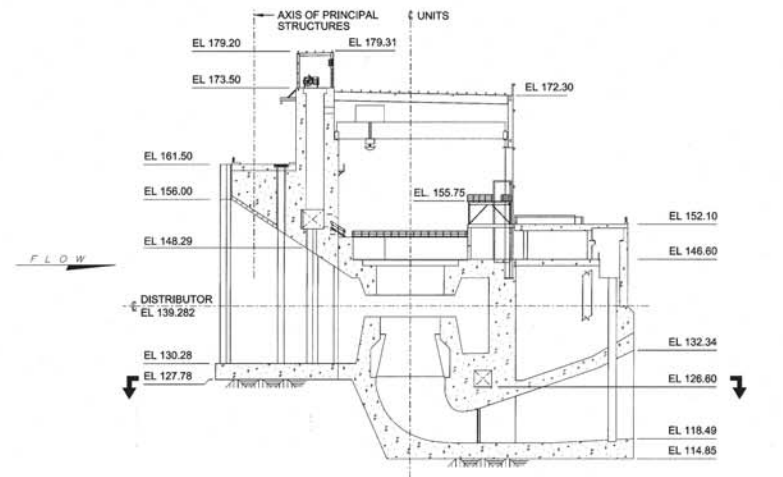
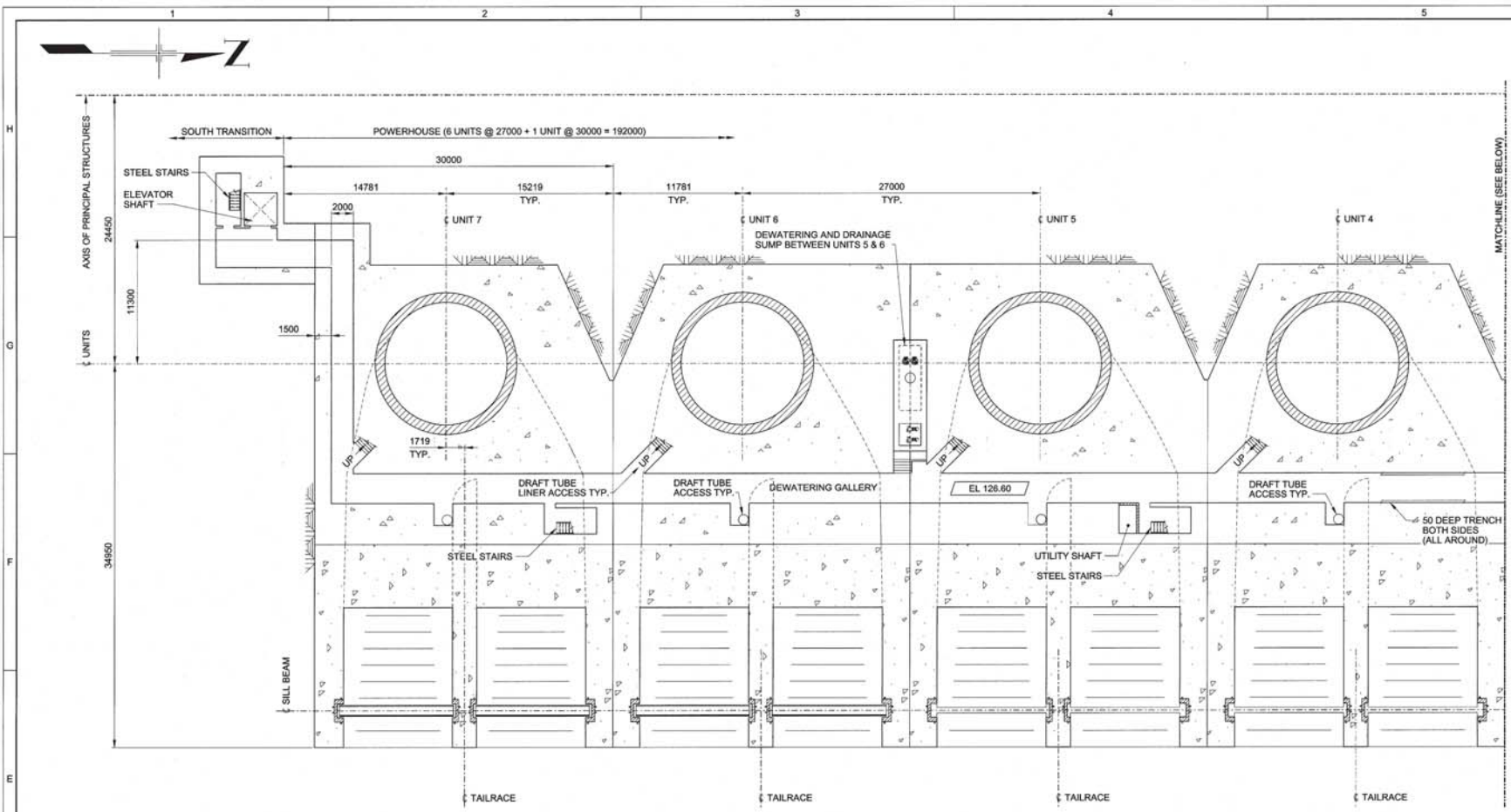
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00	2012 02 10	ISSUED FOR INFORMATION	BAR	RM	WLM
REV.	DATE	DESCRIPTION	BY	CHKD.	APP./P. ENG.
DRAWN: S. POLINCHUK		CHECKED:	SCALE: 1:125		
DESIGNED: D.B. DRAKE		CHECKED:	DATE:		
KEYEYASK GENERATING STATION					
BASIS FOR DESIGN GENERAL ARRANGEMENT SERVICE BAY CROSS SECTION					
DRAWING NUMBER				SHEET	REVISION
1-00195-DE-06200-0029				0001	0C

HATCH
HATCH DWS. NO. H341433-5550-00-042-0001

AREA COORD. W. MILLIONS DATE
DISCIP. ENGR. W. MILLIONS DATE
PROJ. ENGR. A. TRUDEL DATE
PROJ. MGR. W. GENDZEL DATE

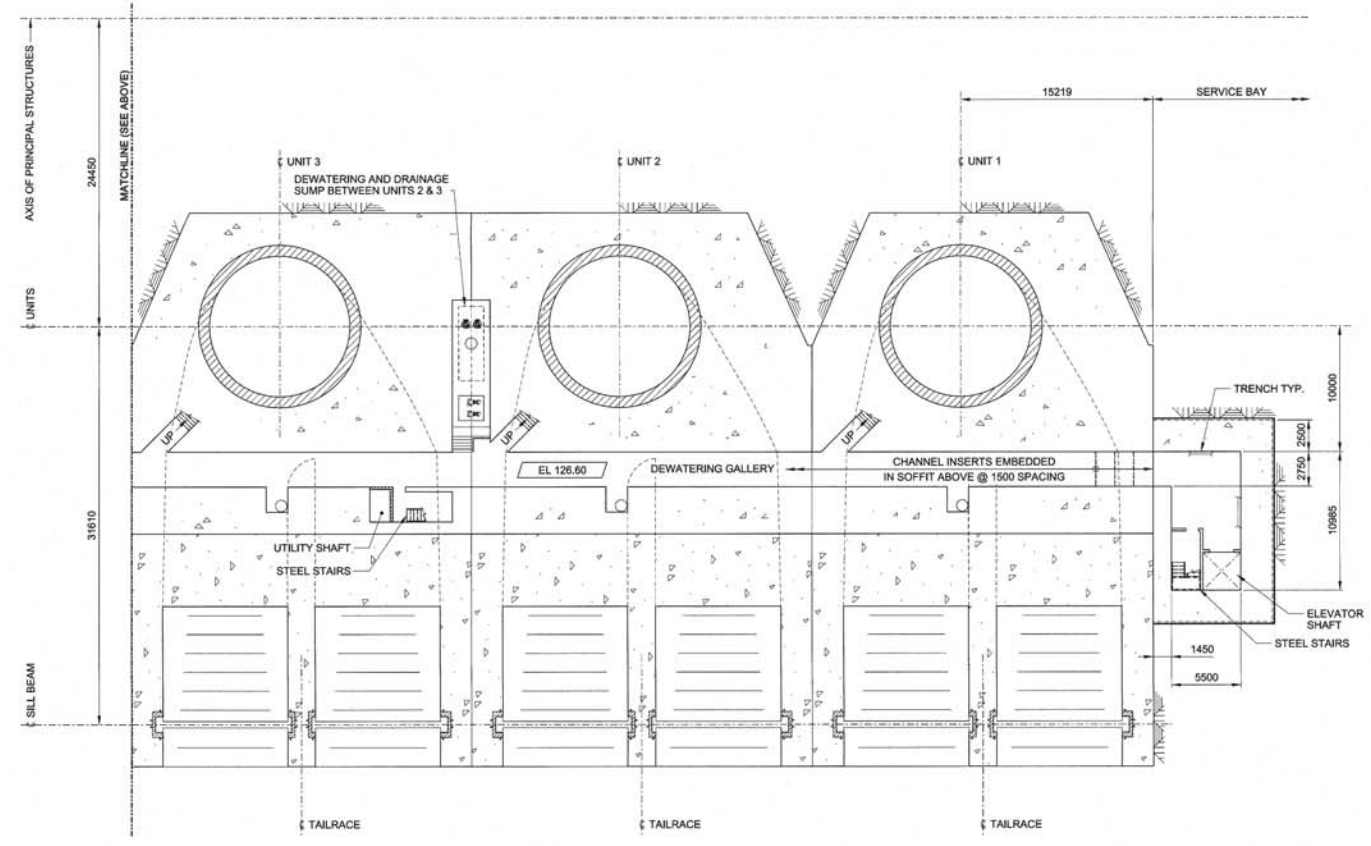
Manitoba Hydro

AUTHENTICATION FOR CURRENT REVISION



KEY SECTION

- NOTES:**
1. EMBEDDED PIPES NOT SHOWN ON THE DRAWING FOR CLARITY.
 2. FLOOR SLOPES NOT SHOWN FOR CLARITY.
 3. FLOOR FINISHES FOR TOPPINGS SHALL BE U3-TROWELLED TYPE FINISHING.
 4. WATERSTOPS NOT SHOWN FOR CLARITY. IN GENERAL TWO LINES OF PVC-RIBBED WATERSTOPS ARE REQUIRED FOR ALL CONSTRUCTION AND CONTRACTION JOINTS.

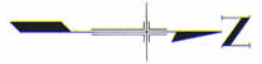


PLAN ABOVE DEWATERING GALLERY AT EL 126.60

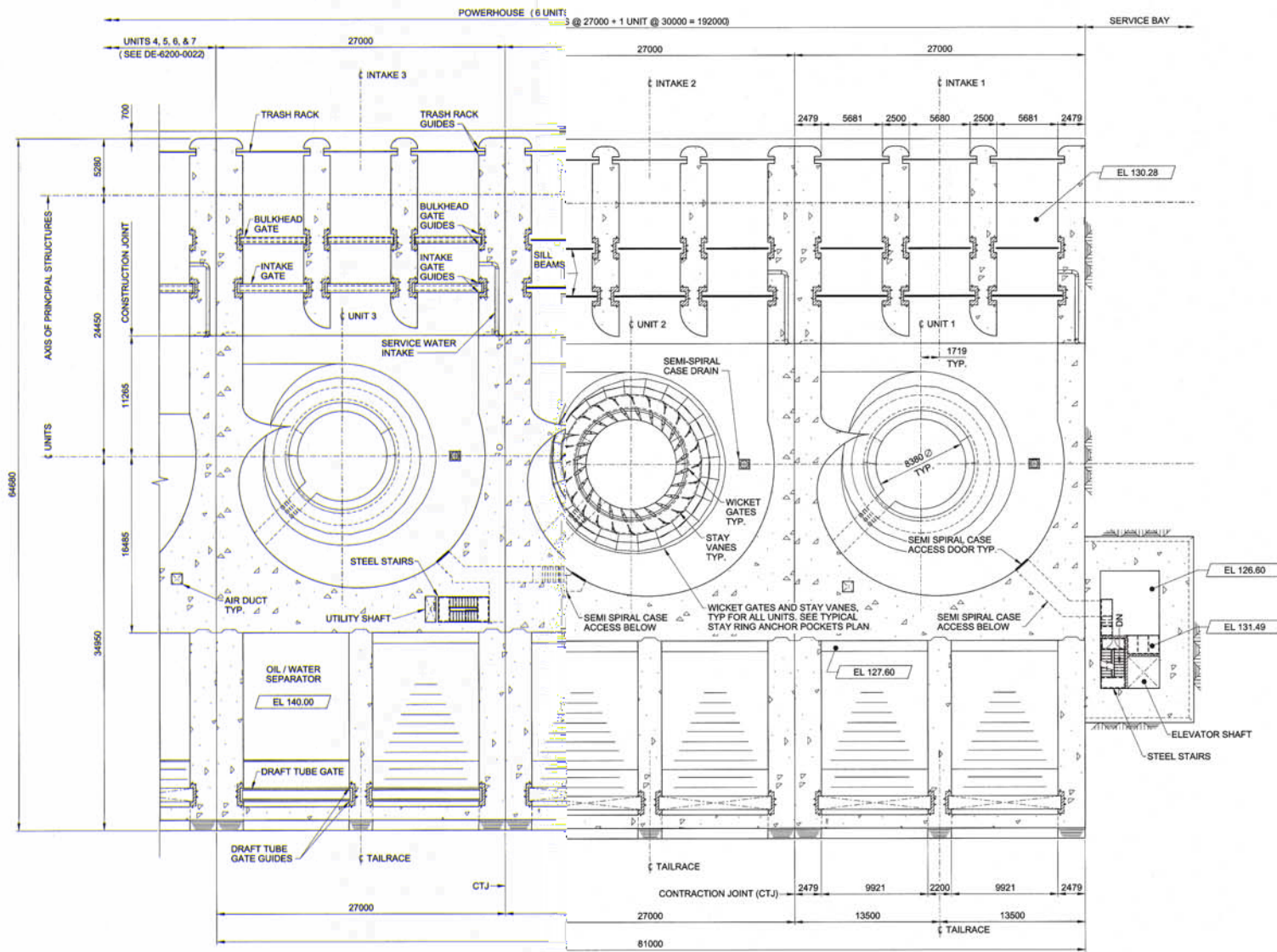
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D.S. BOONARUK			1:200		
DESIGNED:		CHECKED:	DATE:		
S.W. HAY					
KEYASK GENERATING STATION					
BASIS FOR DESIGN					
GENERAL ARRANGEMENT					
POWERHOUSE UNITS 1 TO 7					
DEWATERING GALLERY PLAN					
DRAWING NUMBER				SHEET	REVISION
1-00195-DE-06200-0020				0001	OC

HATCH
 HATCH NO. H341433-5050-00-042-0003
 AREA COORD. R. MANNEM
 DATE
 DISCIPL. ENGR. W. MILLIONS
 DATE
 PROJ. ENGR. A. TRUDEL
 DATE
 PROJ. MGR. W. GENDZEL
 DATE

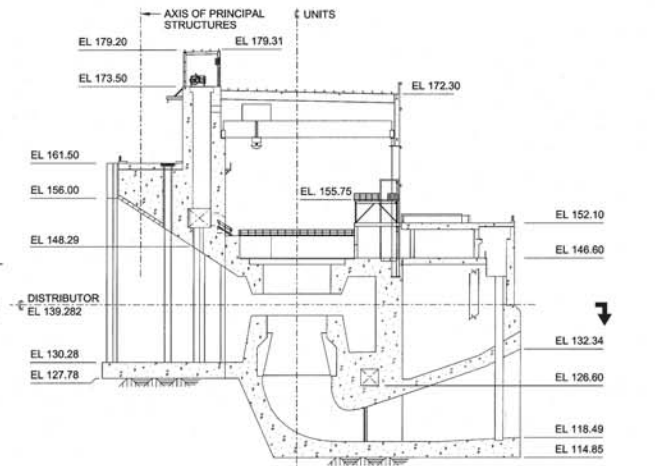
Manitoba Hydro
 AUTHENTICATION FOR CURRENT REVISION



FLOW

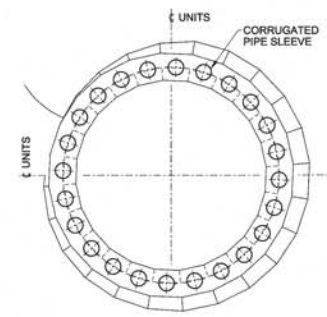


PLAN AT CENTERLINE OF DISTRIBUTOR AT EL 139.28



KEY SECTION

- NOTES:
1. EMBEDDED PIPES NOT SHOWN ON THE DRAWING FOR CLARITY.
 2. FLOOR SLOPES NOT SHOWN FOR CLARITY.
 3. FLOOR FINISHES FOR TOPPING SHALL BE U3-TROWELLED TYPE FINISHING.
 4. WATERSTOPS NOT SHOWN FOR CLARITY. IN GENERAL TWO LINES OF PVC-RIBBED WATERSTOPS ARE REQUIRED FOR ALL CONSTRUCTION AND CONTRACTION JOINTS.

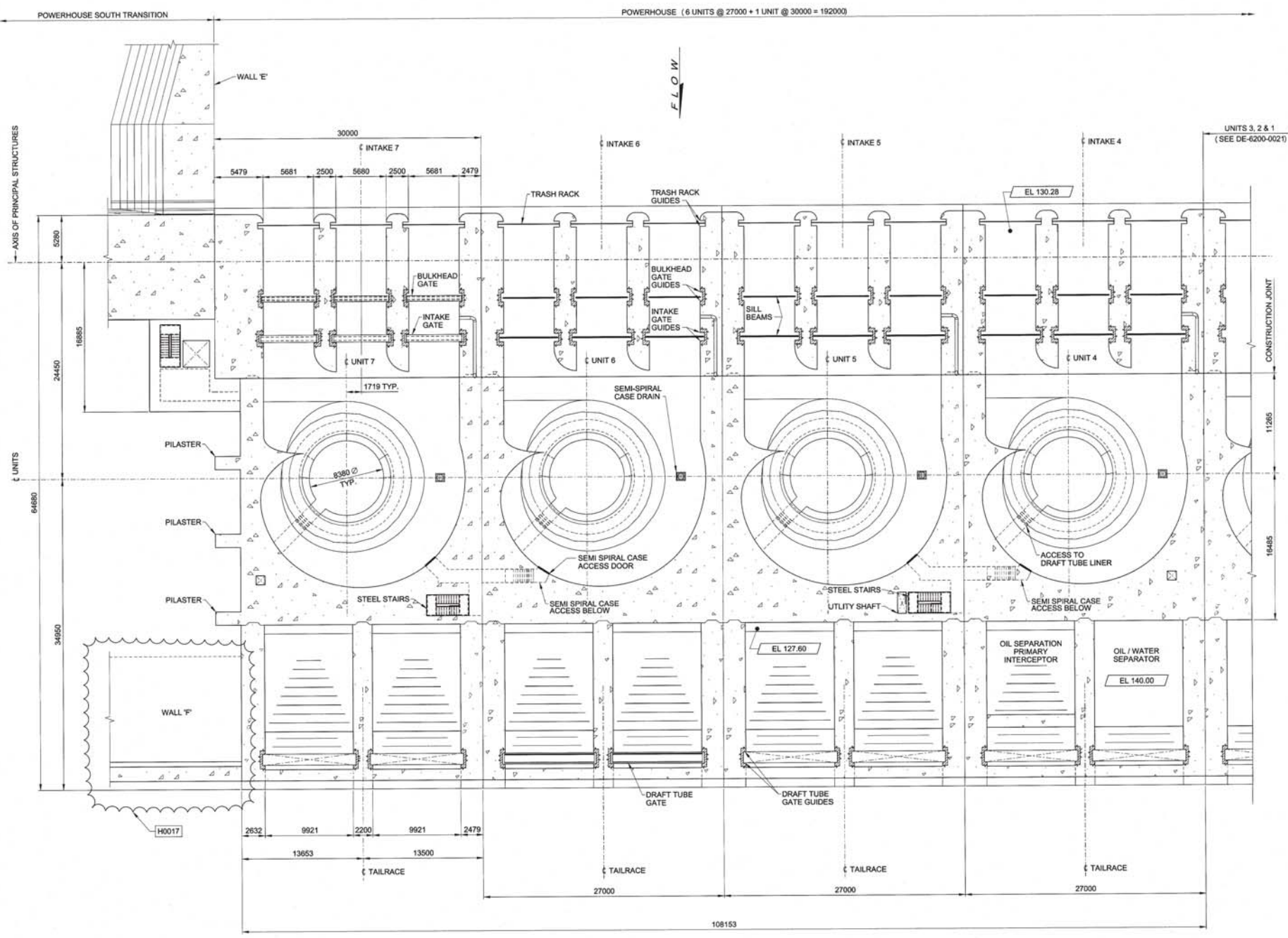


TYP STAY RING ANCHOR POCKETS PLAN
CONCEPTUAL

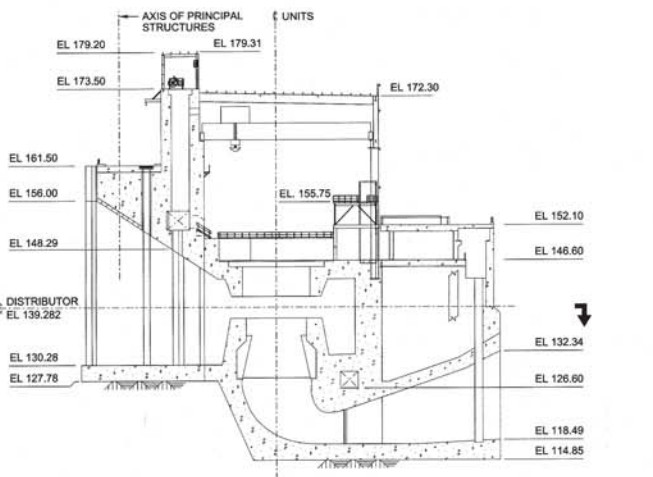
Issued for Proposal - RFP 016203 DO NOT USE FOR CONSTRUCTION 2013-03-28			
00	2012 02 10	ISSUED FOR INFORMATION	RAR RM WLM
REV.	DATE	DESCRIPTION	BY CKD APP.PP. ENL.
DRAWN: D.S. BOONARLUK		CHECKED:	SCALE: 1:200
DESIGNED: L.K. STANSELL		CHECKED:	DATE:
KEYASK GENERATING STATION BASIS FOR DESIGN GENERAL ARRANGEMENT POWERHOUSE UNITS 1 TO 3 PLAN AT DISTRIBUTOR CL			
DRAWING NUMBER		SHEET	REVISION
1-00195-DE-06200-0021		0001	0C

HATCH
 AREA COORD
 R. MANNEM
 DATE
 DISCIPL. ENGR
 W. MILLION
 DATE
 PROJ. ENGR
 A. TRUDEL
 DATE
 PROJ. MGR.
 W. GENOZZE
 DATE

Manitoba Hydro
 AUTHENTICATION FOR CURRENT REVISION



PLAN AT CENTERLINE OF DISTRIBUTOR AT EL. 139.28



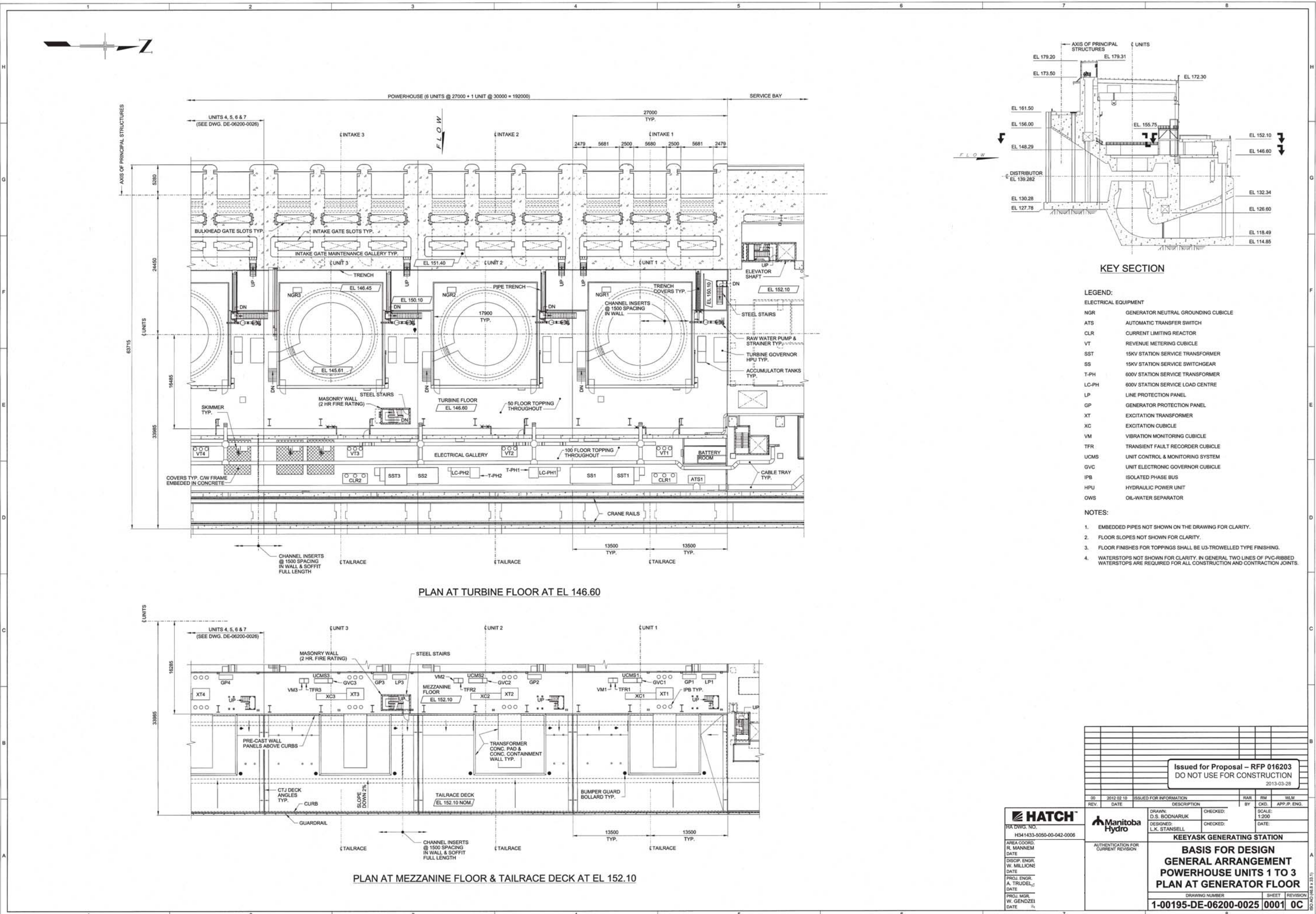
KEY SECTION

- NOTES:
- EMBEDDED PIPES NOT SHOWN ON THE DRAWING FOR CLARITY.
 - FLOOR SLOPES NOT SHOWN FOR CLARITY.
 - FLOOR FINISHES FOR TOPPING SHALL BE US-TROWELLED TYPE FINISHING.
 - WATERSTOPS NOT SHOWN FOR CLARITY. IN GENERAL TWO LINES OF PVC-RIBBED WATERSTOPS ARE REQUIRED FOR ALL CONSTRUCTION AND CONTRACTION JOINTS.
- HOLD:
- H0017 WALL 'F' UNDER REVIEW

Issued for Proposal – RFP 016203 DO NOT USE FOR CONSTRUCTION 2013-03-28					
00	2012 02 12	ISSUED FOR INFORMATION	RAR	RM	WLM
REV.	DATE	DESCRIPTION	BY	CHKD.	APP.P. ENG.
		DRAWN: D.S. BOONARUK	CHECKED:	SCALE: 1:200	DATE:
		DESIGNED: L.K. STANSELL	CHECKED:	DATE:	
KEYEASK GENERATING STATION BASIS FOR DESIGN GENERAL ARRANGEMENT POWERHOUSE UNITS 4 TO 7 PLAN AT DISTRIBUTOR CL					
DRAWING NUMBER			SHEET REVISION		
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 AREA COORD. R. MANNEM
 DATE
 DISCIPLIN. ENGR. W. MILLIONS
 DATE
 PROJ. ENGR. A. TRUDEAU
 DATE
 PROJ. MGR. W. GENDZEL
 DATE

Manitoba Hydro
 AUTHENTICATION FOR CURRENT REVISION



KEY SECTION

LEGEND:

- ELECTRICAL EQUIPMENT**
- NGR GENERATOR NEUTRAL GROUNDING CUBICLE
 - ATS AUTOMATIC TRANSFER SWITCH
 - CLR CURRENT LIMITING REACTOR
 - VT REVENUE METERING CUBICLE
 - SST 15KV STATION SERVICE TRANSFORMER
 - SS 15KV STATION SERVICE SWITCHGEAR
 - T-PH 600V STATION SERVICE TRANSFORMER
 - LC-PH 600V STATION SERVICE LOAD CENTRE
 - LP LINE PROTECTION PANEL
 - GP GENERATOR PROTECTION PANEL
 - XT EXCITATION TRANSFORMER
 - XC EXCITATION CUBICLE
 - VM VIBRATION MONITORING CUBICLE
 - TFR TRANSIENT FAULT RECORDER CUBICLE
 - UCMS UNIT CONTROL & MONITORING SYSTEM
 - GVC UNIT ELECTRONIC GOVERNOR CUBICLE
 - IPB ISOLATED PHASE BUS
 - HPU HYDRAULIC POWER UNIT
 - OWS OIL-WATER SEPARATOR

NOTES:

1. EMBEDDED PIPES NOT SHOWN ON THE DRAWING FOR CLARITY.
2. FLOOR SLOPES NOT SHOWN FOR CLARITY.
3. FLOOR FINISHES FOR TOPPING SHALL BE U3-TROWELLED TYPE FINISHING.
4. WATERSTOPS NOT SHOWN FOR CLARITY. IN GENERAL TWO LINES OF PVC-RIBBED WATERSTOPS ARE REQUIRED FOR ALL CONSTRUCTION AND CONTRACTION JOINTS.

PLAN AT TURBINE FLOOR AT EL 146.60

PLAN AT MEZZANINE FLOOR & TAILRACE DECK AT EL 152.10

Issued for Proposal - RFP 016203
DO NOT USE FOR CONSTRUCTION
2013-03-28

HATCH
HA DWS. NO. H341433-5050-00-042-0006
AREA COORD. R. MANNEM
DATE
DISCIP. ENGR. W. MILLIONS
DATE
PROJ. ENGR. A. TRUDEL
DATE
PROJ. MGR. W. GENDZEI
DATE

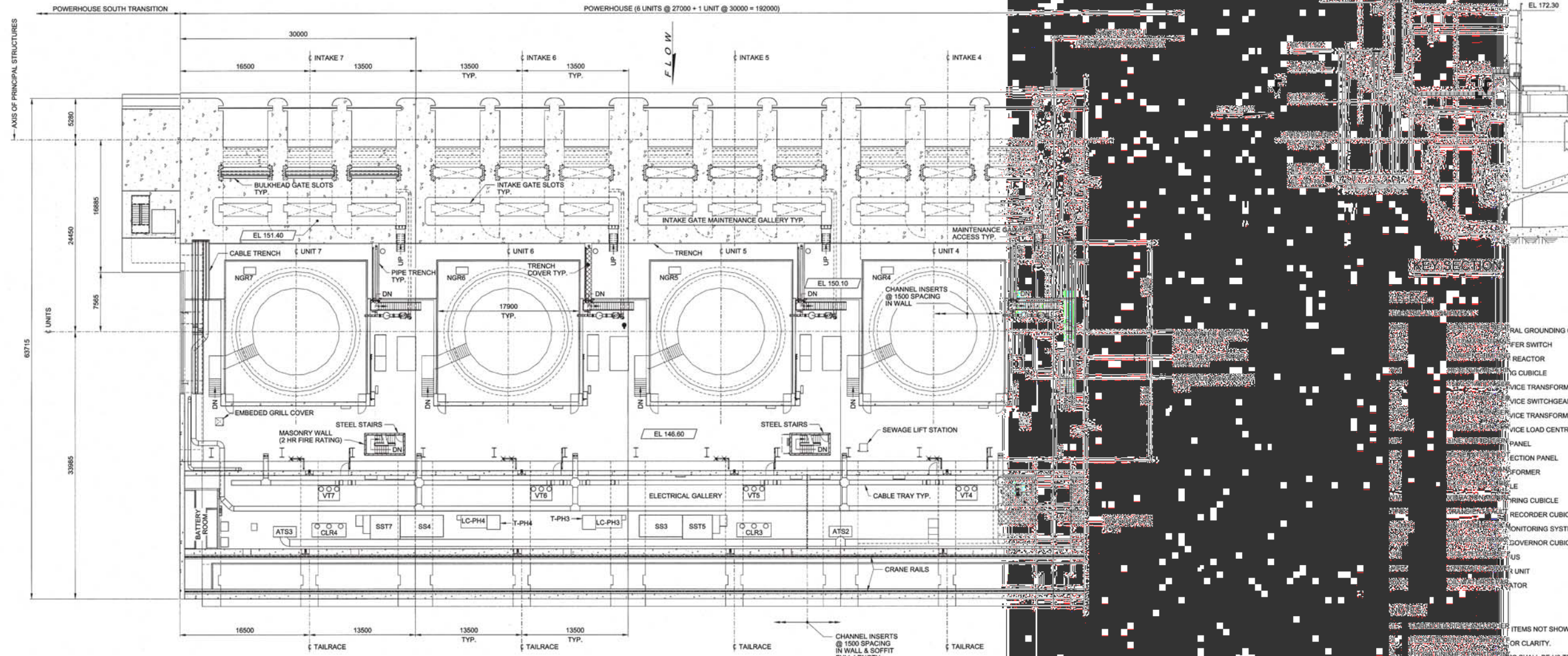
Manitoba Hydro
AUTHENTICATION FOR CURRENT REVISION

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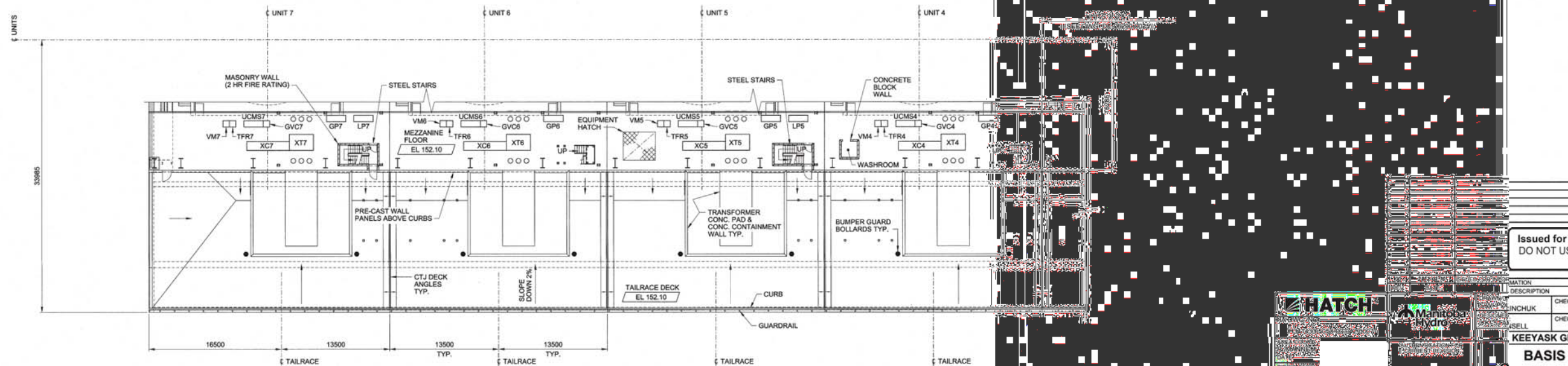
KEYASK GENERATING STATION

BASIS FOR DESIGN
GENERAL ARRANGEMENT
POWERHOUSE UNITS 1 TO 3
PLAN AT GENERATOR FLOOR

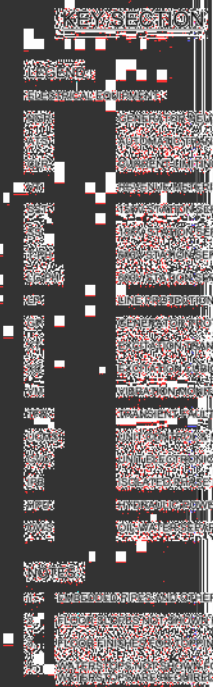
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1-00195-DE-06200-0025	0001	OC



PLAN AT TURBINE FLOOR AT EL 146.60



PLAN AT MEZZANINE FLOOR & TAILRACE DECK AT EL 152.10



- EL 172.30
 - EL 152.10
 - EL 146.60
 - EL 132.34
 - EL 126.60
 - EL 118.49
 - EL 114.85
- GENERAL GROUNDING CUBICLE
 - FEEDER SWITCH
 - REACTOR
 - GROUNDING CUBICLE
 - SERVICE TRANSFORMER
 - SERVICE SWITCHGEAR
 - SERVICE TRANSFORMER
 - SERVICE LOAD CENTRE
 - CONTROL PANEL
 - SECTION PANEL
 - TRANSFORMER
 - LE
 - GROUNDING CUBICLE
 - RECORDING CUBICLE
 - MONITORING SYSTEM
 - GOVERNOR CUBICLE
 - UNIT
 - GENERATOR
- ITEMS NOT SHOWN ON THE DRAWING FOR CLARITY.
- FOR CLARITY.
- FINISHES SHALL BE U3-TROWELLED TYPE FINISHING.
- FOR CLARITY, IN GENERAL TWO LINES OF PVC-RIBBED FOR ALL CONSTRUCTION AND CONTRACTION JOINTS.

Issued for Proposal - RFP 016203
DO NOT USE FOR CONSTRUCTION
2013-03-28

DESCRIPTION	BAR	RM	W/M
BY	CKD.	APP.	P. ENG.
CHECKED:	SCALE:	1:200	
SELL	CHECKED:	DATE:	

KEYEASK GENERATING STATION
BASIS FOR DESIGN
GENERAL ARRANGEMENT
POWERHOUSE UNITS 4 TO 7
PLAN AT GENERATOR FLOOR

DRAWING NUMBER	SHEET	REVISION
00195-DE-06200-0026	0001	OC

