PLANS

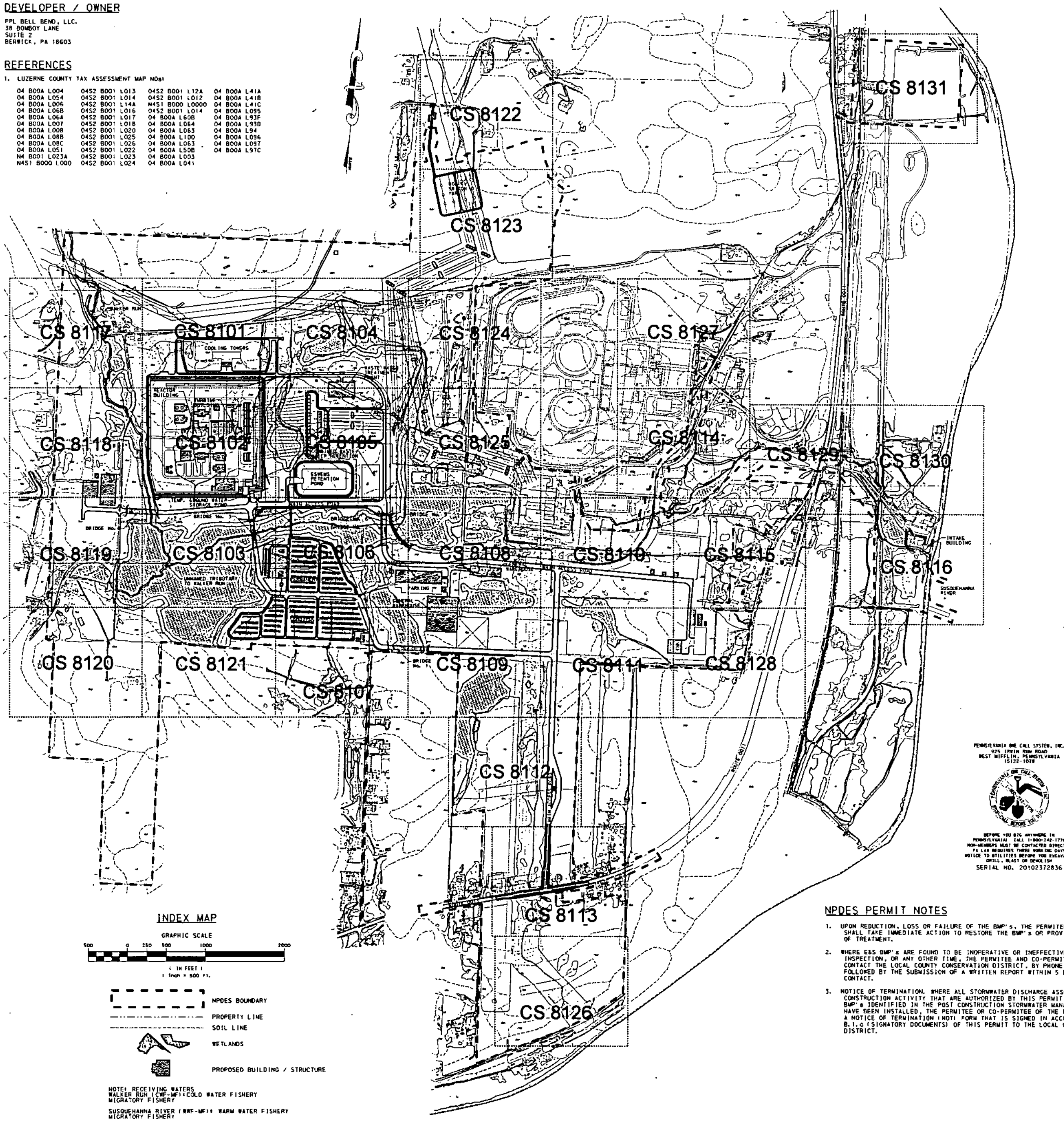
DEVELOPER / OWNER

PPL BELL BEND, LLC.
38 BOMBOY LANE
SUITE 2
BERWICK, PA 18603

REFERENCES

1. LUZERNE COUNTY TAX ASSESSMENT MAP NOs:

04 B00A L004	04S2 B001 L013	04S2 B001 L12A	04 B00A L41A
04 B00A L054	04S2 B001 L014	04S2 B001 L012	04 B00A L41B
04 B00A L006	04S2 B001 L14A	N4S1 B000 L0000	04 B00A L41C
04 B00A L06B	04S2 B001 L016	04S2 B001 L014	04 B00A L095
04 B00A L06A	04S2 B001 L017	04 B00A L60B	04 B00A L93F
04 B00A L007	04S2 B001 L018	04 B00A L064	04 B00A L93D
04 B00A L008	04S2 B001 L020	04 B00A L063	04 B00A L94
04 B00A L08B	04S2 B001 L025	04 B00A L100	04 B00A L096
04 B00A L08C	04S2 B001 L026	04 B00A L063	04 B00A L097
04 B00A L051	04S2 B001 L022	04 B00A L50B	04 B00A L97C
N4 B001 L023A	04S2 B001 L023	04 B00A L003	
N4S1 B000 L000	04S2 B001 L024	04 B00A L041	



INDEX MAP

GRAPHIC SCALE

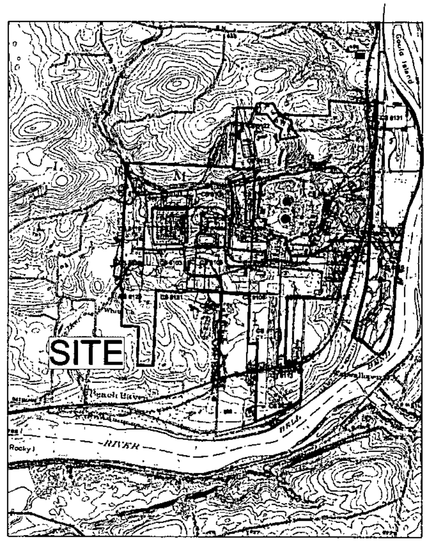
500 0 250 500 1000 2000

(IN FEET)
1 inch = 500 ft.

NPDES BOUNDARY
PROPERTY LINE
SOIL LINE
WETLANDS
PROPOSED BUILDING / STRUCTURE

NOTE: RECEIVING WATERS
WALKER RUN (CWF-MF): COLD WATER FISHERY
MIGRATORY FISHERY

SUSQUEHANNA RIVER (WWF-MF): WARM WATER FISHERY
MIGRATORY FISHERY



LOCATION MAP

BERWICK QUADRANGLE
SCALE: 1"=2000'

GENERAL NOTES

1. BOUNDARY INFORMATION SHOWN HEREON WAS OBTAINED BY A BOUNDARY SURVEY PERFORMED BY PENNONI ASSOCIATES, INC., WHICH TOOK PLACE DURING MAY 2010 AND AUGUST 2010.
2. PENNONI ASSOCIATES, INC. DOES NOT GUARANTEE THE LOCATION OF SUB-SURFACE STRUCTURES OR SURFACE STRUCTURES THAT ARE NOT VISIBLE AT THE TIME OF THE SURVEY.
3. CONTOUR INTERVAL SHOWN IS 2' AND IS BASED ON NAVD88 DATUM.
4. TOPOGRAPHIC AND PLANIMETRIC INFORMATION SHOWN IS FROM A SURVEY PERFORMED BY AEROCON PHOTOGRAMMETRIC SERVICES, INC. IN NOVEMBER 2007, JANUARY 2008 AND 2010.
5. IMPROVEMENTS SHOWN ON THIS PLAN ARE SUBJECT TO THE RULES AND REGULATIONS CONTAINED IN THE SALEM TOWNSHIP ZONING ORDINANCE.
6. HIGHWAY OCCUPANCY PERMITS FOR ACCESS TO ROADS UNDER THE JURISDICTION OF SALEM TOWNSHIP.
7. ACCORDING TO THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP FOR THE SALEM TOWNSHIP - COMMUNITY PANEL NUMBER 420625 0020 B, PANEL 20 OF 20, EFFECTIVE DATE MARCH 18, 1980.

PENNSYLVANIA ONE CALL SYSTEM, INC.
925 IRVIN RUN ROAD
WEST MIFFLIN, PENNSYLVANIA
15122-1078

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA! CALL 1-800-242-1776
NON-MEMBERS MUST BE CONTACTED DIRECTLY
PA LAW REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL, BLAST OR DEMOLISH
SERIAL NO. 20102372836

NPDES PERMIT NOTES

1. UPON REDUCTION, LOSS OR FAILURE OF THE BMP's, THE PERMITEE AND CO-PERMITEE SHALL TAKE IMMEDIATE ACTION TO RESTORE THE BMP's OR PROVIDE ALTERNATE METHOD OF TREATMENT.
2. WHERE E&S BMP's ARE FOUND TO BE INOPERATIVE OR INEFFECTIVE DURING AN INSPECTION, OR ANY OTHER TIME, THE PERMITEE AND CO-PERMITEE SHALL IMMEDIATELY CONTACT THE LOCAL COUNTY CONSERVATION DISTRICT, BY PHONE OR PERSONAL CONTACT, FOLLOWED BY THE SUBMISSION OF A WRITTEN REPORT WITHIN 5 DAYS OF THE INITIAL CONTACT.
3. NOTICE OF TERMINATION. WHERE ALL STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY THAT ARE AUTHORIZED BY THIS PERMIT ARE ELIMINATED, AND BMP's IDENTIFIED IN THE POST CONSTRUCTION STORMWATER MANAGEMENT (PCSM) PLAN HAVE BEEN INSTALLED, THE PERMITEE OR CO-PERMITEE OF THE FACILITY MUST SUBMIT A NOTICE OF TERMINATION (NOT) FORM THAT IS SIGNED IN ACCORDANCE WITH PART B.1.c (SIGNATORY DOCUMENTS) OF THIS PERMIT TO THE LOCAL COUNTY CONSERVATION DISTRICT.

DRAWING LIST

CS8001	EROSION AND SEDIMENTATION INDEX PLAN
CS8002	EROSION AND SEDIMENTATION SOIL CHARACTERISTICS
CS8003	EROSION AND SEDIMENTATION CONSTRUCTION SEQUENCE
CS8004	EROSION AND SEDIMENTATION CONSTRUCTION SEQUENCE
CS8101	EROSION AND SEDIMENTATION CONTROL PLAN
CS8102	EROSION AND SEDIMENTATION CONTROL PLAN
CS8103	EROSION AND SEDIMENTATION CONTROL PLAN
CS8104	EROSION AND SEDIMENTATION CONTROL PLAN
CS8105	EROSION AND SEDIMENTATION CONTROL PLAN
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CS8107	EROSION AND SEDIMENTATION CONTROL PLAN
CS8108	EROSION AND SEDIMENTATION CONTROL PLAN
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CS8110	EROSION AND SEDIMENTATION CONTROL PLAN
CS8111	EROSION AND SEDIMENTATION CONTROL PLAN
CS8112	EROSION AND SEDIMENTATION CONTROL PLAN
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CS8115	EROSION AND SEDIMENTATION CONTROL PLAN
CS8116	EROSION AND SEDIMENTATION CONTROL PLAN
CS8117	EROSION AND SEDIMENTATION CONTROL PLAN
CS8118	EROSION AND SEDIMENTATION CONTROL PLAN
CS8119	EROSION AND SEDIMENTATION CONTROL PLAN
CS8120	EROSION AND SEDIMENTATION CONTROL PLAN
CS8121	EROSION AND SEDIMENTATION CONTROL PLAN
CS8122	EROSION AND SEDIMENTATION CONTROL PLAN
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CS8128	EROSION AND SEDIMENTATION CONTROL PLAN
CS8129	EROSION AND SEDIMENTATION CONTROL PLAN
CS8130	EROSION AND SEDIMENTATION CONTROL PLAN
CS8131	EROSION AND SEDIMENTATION CONTROL PLAN
CS8501	EROSION AND SEDIMENTATION CONTROL DETAILS
CS8502	EROSION AND SEDIMENTATION CONTROL DETAILS
CS8503	EROSION AND SEDIMENTATION CONTROL DETAILS
CS8504	EROSION AND SEDIMENTATION CONTROL NOTES

ALSO PLANS

SEQUENCE OF CONSTRUCTIONS PLANS
CS9000 - CS9010

STREAM/WETLAND MITIGATION PLANS
WALKER RUN SITE: SHEET 1 - SHEET 17

WETLAND MITIGATION PLANS
CONFERS LANE SITE: SHEET 1 - SHEET 5
RIVERLANDS SITE: SHEET 1 - SHEET 9

Pennoni Associates Inc.
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BELL BEND NUCLEAR POWER PLANT

SALEM TOWNSHIP, PENNSYLVANIA

EROSION & SEDIMENTATION INDEX PLAN

PPL BELL BEND, LLC
38 BOMBOY LANE
SUITE 2
BERWICK, PA 18603

CS8001

PHYSICAL SOIL CHARACTERISTICS & LEGEND

Symbol	Name	Group	Slopes	Capability Subclass	Hazard of Erosion:
ASF	Arnot-Rock outcrop complex	C/D	steep	VIIs	Slight
At	Atherton silt loam	B/D	-	IVw	Slight
BrA	Braceville gravelly loam	C	0% to 3% slopes	IIw	Slight
BrB	Braceville gravelly loam	C	3% to 8% slopes	IIw	Moderate
BrC	Braceville gravelly loam	C	8% to 15% slopes	IIIe	Moderate
ChA	Chenango gravelly loam	A	0% to 3% slopes	IIs	Slight
ChB	Chenango gravelly loam	A	3% to 8% slopes	IIs	Moderate
ChC	Chanango gravelly loam	A	8% to 15% slopes	IIIe	Moderate
Ho	Holly silt loam	B/D	0% to 3% slopes	IIIw	Slight
OIB	Oquaga and Lordstown channery silt loams	C	3% to 8% slopes	IIe	Moderate
OIC	Oquaga and Lordstown channery silt loams	C	8% to 15% slopes	IIIe	Moderate
OID	Oquaga and Lordstown channery silt loams	C	15% to 25% slopes	IVe	Moderate
OpB	Oquaga and Lordstown extremely stony silt looms	C	3% to 8% slopes	VIIs	Slight
OpD	Oquaga and Lordstown extremely stony silt looms	C	8% to 25% slopes	VIIs	Slight
OXF	Oquaga and Lordstown extremely stony silt looms	C	steep	VIIs	Slight
Po	Pope Soils	B	0% to 5% slopes	I	None to Slight
RdA	Rexford loam	C	0% to 3% slopes	IIIw	None to Slight
RdB	Rexford loam	C	3% to 8% slopes	IIIw	Slight
WeB	Welkert and Klinesville channery loam	C/D	3% to 8% slopes	IIIe	Moderate
WeC	Welkert and Klinesville channery loam	C/D	8% to 15% slopes	IVe	Moderate
WeD	Welkert and Klinesville channery silt loams	C/D	15% to 25% slopes	VIe	Moderate
WmB	Wellsboro very stony silt loam	C	3% to 8% slopes	VIs	Slight
WyD	Wyoming gravelly loam	A	15% to 25% slopes	IVe	Moderate
WyF	Wyoming gravelly loam	A	25% to 60% slopes	VIIe	Moderate

SOIL LIMITATIONS & RESOLUTIONS

ASF Arnot-Rock

LIMITATIONS:
1. DEPTH TO BEDROCK
2. SLOPE
3. STONINESS
4. ROCK OUTCROP

RESOLUTIONS:
1. EXTENSIVE ROCK REMOVAL AND ADDITIONAL SUITABLE FILL MAY BE REQUIRED.
2. STABILIZE ALL DISTURBED AREAS PER BMP's.
3. WHEN FILTER FABRIC FENCE CANNOT BE PROPERLY ANCHORED IN STONY SOILS, ALTERNATE SEDIMENT BARRIERS SUCH AS STRAW BALES OR ROCK BERMS SHALL BE UTILIZED. ALTERNATE MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH PADEP'S EROSION AND SEDIMENTATION POLLUTION CONTROL PROGRAM MANUAL.
4. EXTENSIVE ROCK REMOVAL AND ADDITIONAL SUITABLE FILL MAY BE REQUIRED.

At Atherton

LIMITATIONS:
1. HIGH WATER TABLE
2. SLOW PERMEABILITY
3. PONDING

RESOLUTIONS:
1a. WHERE NECESSARY, TEMPORARY DEWATERING FACILITIES WILL BE REQUIRED. LIMIT CONSTRUCTION IN AREAS OF HIGH WATER TABLES TO THE DRY SEASON AS NEEDED AND/OR FEASIBLE. WHEN SOILS BECOME UNSUITABLE OR SATURATED FROM THE WATER TABLE, EXCAVATE AND REPLACE THE SOIL WITH LOW PERMEABILITY SOILS.
1b. SELECTING VEGETATIVE SPECIES TOLERANT TO WET CONDITIONS; TILING VEGETATED AREAS; AND IMPLEMENTING COMBINATIONS OF THESE AND/OR OTHER METHODS.
2. DEWATER AREA USING THE PUMP FILTER BAG.
3. WHEN FILTER FABRIC FENCE CANNOT BE PROPERLY ANCHORED IN STONY SOILS, ALTERNATE SEDIMENT BARRIERS SUCH AS STRAW BALES OR ROCK BERMS SHALL BE UTILIZED. ALTERNATE MEASURED SHALL BE INSTALLED IN ACCORDANCE WITH PADEP'S EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL.

BrA and BrB Braceville

LIMITATIONS:
1. SEASONAL HIGH WATER TABLE
2. MODERATELY SLOW PERMEABILITY

RESOLUTIONS:
1a. WHERE NECESSARY, TEMPORARY DEWATERING FACILITIES WILL BE REQUIRED. LIMIT CONSTRUCTION IN AREAS OF SEASONAL HIGH WATER TABLES TO THE DRY SEASON AS NEEDED AND/OR FEASIBLE. WHEN SOILS BECOME UNSUITABLE OR SATURATED FROM THE WATER TABLE, EXCAVATE AND REPLACE THE SOIL WITH LOW PERMEABILITY SOILS.
1b. SELECTING VEGETATIVE SPECIES TOLERANT TO WET CONDITIONS; TILING VEGETATED AREAS; AND IMPLEMENTING COMBINATIONS OF THESE AND/OR OTHER METHODS.
2. DEWATER AREA USING THE PUMP FILTER BAG.

BrC Braceville

LIMITATIONS:
1. SEASONAL HIGH WATER TABLE
2. MODERATELY SLOW PERMEABILITY
3. SLOPE

RESOLUTIONS:
1a. WHERE NECESSARY, TEMPORARY DEWATERING FACILITIES WILL BE REQUIRED. LIMIT CONSTRUCTION IN AREAS OF SEASONAL HIGH WATER TABLES TO THE DRY SEASON AS NEEDED AND/OR FEASIBLE. WHEN SOILS BECOME UNSUITABLE OR SATURATED FROM THE WATER TABLE, EXCAVATE AND REPLACE THE SOIL WITH LOW PERMEABILITY SOILS.
1b. SELECTING VEGETATIVE SPECIES TOLERANT TO WET CONDITIONS; TILING VEGETATED AREAS; AND IMPLEMENTING COMBINATIONS OF THESE AND/OR OTHER METHODS.
2. DEWATER AREA USING THE PUMP FILTER BAG.
3. STABILIZE ALL DISTURBED AREAS PER BMP's.

ChA Chenango

LIMITATIONS:
1. MODERATELY RAPID TO RAPID PERMEABILITY
2. GROUNDWATER CONTAMINATION

RESOLUTIONS:
1. IN THE EVENT OF A CONTAMINENT SPILL, ISOLATE AND CONTAIN THE SPILL AND CLEAN UP IMMEDIATELY. EXCAVATION OF THE CONTAMINATED SOIL AND REPLACEMENT OF SUITABLE SOIL MAY BE REQUIRED.
2. DUE DILIGENCE AND TESTING MAY BE REQUIRED IN THOSE AREAS OF CONCERN.

ChB and ChC Chenango

LIMITATIONS:
1. MODERATELY RAPID TO RAPID PERMEABILITY
2. GROUNDWATER CONTAMINATION
2. COARSE FRAGMENTS

RESOLUTIONS:
1. IN THE EVENT OF A CONTAMINENT SPILL, ISOLATE AND CONTAIN THE SPILL AND CLEAN UP IMMEDIATELY. EXCAVATION OF THE CONTAMINATED SOIL AND REPLACEMENT OF SUITABLE SOIL MAY BE REQUIRED.
2. DUE DILIGENCE AND TESTING MAY BE REQUIRED IN THOSE AREAS OF CONCERN.
3. WHEN FILTER FABRIC FENCE CANNOT BE PROPERLY ANCHORED IN STONY SOILS, ALTERNATE SEDIMENT BARRIERS SUCH AS STRAW BALES OR ROCK BERMS SHALL BE UTILIZED. ALTERNATE MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH PADEP'S EROSION AND SEDIMENTATION POLLUTION CONTROL PROGRAM MANUAL.

Ho Holy

LIMITATIONS:
1. SEASONAL HIGH WATER TABLE
2. FREQUENT FLOODING

RESOLUTIONS:
1a. WHERE NECESSARY, TEMPORARY DEWATERING FACILITIES WILL BE REQUIRED. LIMIT CONSTRUCTION IN AREAS OF SEASONAL HIGH WATER TABLES TO THE DRY SEASON AS NEEDED AND/OR FEASIBLE. WHEN SOILS BECOME UNSUITABLE OR SATURATED FROM THE WATER TABLE, EXCAVATE AND REPLACE THE SOIL WITH LOW PERMEABILITY SOILS.
1b. SELECTING VEGETATIVE SPECIES TOLERANT TO WET CONDITIONS; TILING VEGETATED AREAS; AND IMPLEMENTING COMBINATIONS OF THESE AND/OR OTHER METHODS.
2. DEWATER AREA USING THE PUMP FILTER BAG.

OIB Oquaga and Lordstown

LIMITATIONS:
1. DEPTH TO BEDROCK

RESOLUTIONS:
1. EXTENSIVE ROCK REMOVAL AND ADDITIONAL SUITABLE FILL MAY BE REQUIRED.

OIC and OID Oquaga and Lordstown
WeC and WeD Weikert and Klinesville

LIMITATIONS:
1. DEPTH TO BEDROCK
2. SLOPE

RESOLUTIONS:
1. EXTENSIVE ROCK REMOVAL AND ADDITIONAL SUITABLE FILL MAY BE REQUIRED.
2. STABALIZE ALL DISTURBED AREAS PER BMP's.

OpB Oquaga and Lordstown

LIMITATIONS:
1. DEPTH TO BEDROCK
2. SURFACE STONINESS

RESOLUTIONS:
1. EXTENSIVE ROCK REMOVAL AND ADDITIONAL SUITABLE FILL MAY BE REQUIRED.
2. WHEN FILTER FABRIC FENCE CANNOT BE PROPERLY ANCHORED IN STONY SOILS, ALTERNATE SEDIMENT BARRIERS SUCH AS STRAW BALES OR ROCK BERMS SHALL BE UTILIZED. ALTERNATE MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH PADEP'S EROSION AND SEDIMENTATION POLLUTION CONTROL PROGRAM MANUAL.

OpD and OXF Oquaga and Lordstown

LIMITATIONS:
1. DEPTH TO BEDROCK
2. SLOPE
3. SURFACE STONINESS

RESOLUTIONS:
1. EXTENSIVE ROCK REMOVAL AND ADDITIONAL SUITABLE FILL MAY BE REQUIRED.
2. STABILIZE ALL DISTURBED AREAS PER BMP's.
3. WHEN FILTER FABRIC FENCE CANNOT BE PROPERLY ANCHORED IN STONY SOILS, ALTERNATE SEDIMENT BARRIERS SUCH AS STRAW BALES OR ROCK BERMS SHALL BE UTILIZED. ALTERNATE MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH PADEP'S EROSION AND SEDIMENTATION POLLUTION CONTROL PROGRAM MANUAL.

Ps Pope

LIMITATIONS:
1. FLOOD HAZARD

RESOLUTIONS:
1. DEWATER AREA USING THE PUMP FILTER BAG.

RdA and RdB Rexford

LIMITATIONS:
1. SEASONAL HIGH WATER TABLE
2. SLOW PERMEABILITY

RESOLUTIONS:
1a. WHERE NECESSARY, TEMPORARY DEWATERING FACILITIES WILL BE REQUIRED. LIMIT CONSTRUCTION IN AREAS OF SEASONAL HIGH WATER TABLES TO THE DRY SEASON AS NEEDED AND/OR FEASIBLE. WHEN SOILS BECOME UNSUITABLE OR SATURATED FROM THE WATER TABLE, EXCAVATE AND REPLACE THE SOIL WITH LOW PERMEABILITY SOILS.
1b. SELECTING VEGETATIVE SPECIES TOLERANT TO WET CONDITIONS; TILING VEGETATED AREAS; AND IMPLEMENTING COMBINATIONS OF THESE AND/OR OTHER METHODS.
2. DEWATER AREA USING THE PUMP FILTER BAG.

WeB Weikert and Klinesville

LIMITATIONS:
1. DEPTH TO BEDROCK
2. COARSE FRAGMENTS

RESOLUTIONS:
1. EXTENSIVE ROCK REMOVAL AND ADDITIONAL SUITABLE FILL MAY BE REQUIRED.
2. WHEN FILTER FABRIC FENCE CANNOT BE PROPERLY ANCHORED IN STONY SOILS, ALTERNATE SEDIMENT BARRIERS SUCH AS STRAW BALES OR ROCK BERMS SHALL BE UTILIZED. ALTERNATE MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH PADEP'S EROSION AND SEDIMENTATION POLLUTION CONTROL PROGRAM MANUAL.

WmB Wellsboro -

LIMITATIONS:
1. SEASONAL HIGH WATER TABLE
2. SLOW PERMEABILITY
3. SURFACE STONINESS

RESOLUTIONS:
1a. WHERE NECESSARY, TEMPORARY DEWATERING FACILITIES WILL BE REQUIRED. LIMIT CONSTRUCTION IN AREAS OF SEASONAL HIGH WATER TABLES TO THE DRY SEASON AS NEEDED AND/OR FEASIBLE. WHEN SOILS BECOME UNSUITABLE OR SATURATED FROM THE WATER TABLE, EXCAVATE AND REPLACE THE SOIL WITH LOW PERMEABILITY SOILS.
1b. SELECTING VEGETATIVE SPECIES TOLERANT TO WET CONDITIONS; TILING VEGETATED AREAS; AND IMPLEMENTING COMBINATIONS OF THESE AND/OR OTHER METHODS.
2. DEWATER AREA USING THE PUMP FILTER BAG.
3. WHEN FILTER FABRIC FENCE CANNOT BE PROPERLY ANCHORED IN STONY SOILS, ALTERNATE SEDIMENT BARRIERS SUCH AS STRAW BALES OR ROCK BERMS SHALL BE UTILIZED. ALTERNATE MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH PADEP'S EROSION AND SEDIMENTATION POLLUTION CONTROL PROGRAM MANUAL.

WyD Wyoming

LIMITATIONS:
1. SLOPE
2. RAPID PERMEABILITY
3. COARSE FRAGMENTS
4. GROUNDWATER CONTAMINATION

RESOLUTIONS:
1. STABILIZE ALL DISTURBED AREAS PER BMP's.
2. IN THE EVENT OF A CONTAMINENT SPILL, ISOLATE AND CONTAIN THE SPILL AND CLEAN UP IMMEDIATELY. EXCAVATION OF THE CONTAMINATED SOIL AND REPLACEMENT OF SUITABLE SOIL MAY BE REQUIRED.
3. WHEN FILTER FABRIC FENCE CANNOT BE PROPERLY ANCHORED IN STONY SOILS, ALTERNATE SEDIMENT BARRIERS SUCH AS STRAW BALES OR ROCK BERMS SHALL BE UTILIZED. ALTERNATE MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH PADEP'S EROSION AND SEDIMENTATION POLLUTION CONTROL PROGRAM MANUAL.
4. DUE DILIGENCE AND TESTING MAY BE REQUIRED IN THOSE AREAS OF CONCERN.

WyF Wyoming

LIMITATIONS:
1. SLOPE
2. RAPID PERMEABILITY
3. COARSE FRAGMENTS

RESOLUTIONS:
1. STABILIZE ALL DISTURBED AREAS PER BMP's.
2. IN THE EVENT OF A CONTAMINENT SPILL, ISOLATE AND CONTAIN THE SPILL AND CLEAN UP IMMEDIATELY. EXCAVATION OF THE CONTAMINATED SOIL AND REPLACEMENT OF SUITABLE SOIL MAY BE REQUIRED.
3. WHEN FILTER FABRIC FENCE CANNOT BE PROPERLY ANCHORED IN STONY SOILS, ALTERNATE SEDIMENT BARRIERS SUCH AS STRAW BALES OR ROCK BERMS SHALL BE UTILIZED. ALTERNATE MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH PADEP'S EROSION AND SEDIMENTATION POLLUTION CONTROL PROGRAM MANUAL.

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TEL: 570-824-2200 FAX: 570-824-0800
Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

EROSION & SEDIMENTATION INDEX PLAN

PPL BELL BEND, LLC

CS8002

BELL BEND CONSTRUCTION SEQUENCE

ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE WILL BE COMPLETED IN COMPLIANCE WITH CHAPTER 102 REGULATIONS BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED TO ONLY THOSE AREAS DESCRIBED IN EACH STAGE.

AT LEAST 7 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, THE OPERATOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES, THE LAND OWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, THE EROSION AND SEDIMENT CONTROL PLAN PREPARER, AND A REPRESENTATIVE FROM THE LUZERNE CONSERVATION DISTRICT TO A PRE-CONSTRUCTION MEETING. ALSO, AT LEAST 3 WORKING DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM, INC. AT 1-800-242-1776 FOR BURIED UTILITY LOCATIONS.

BEFORE IMPLEMENTING ANY REVISIONS TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED E&S CONTROL PLAN, THE OPERATOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE LUZERNE CONSERVATION DISTRICT.

AT LEAST 7 DAYS BEFORE STARTING ANY TREE CLEARING ACTIVITIES BETWEEN APRIL 1 AND NOVEMBER 15 NOTIFY THE U. S. FISH AND WILDLIFE SERVICE (USFWS). TREE CLEARING DURING THIS PERIOD WILL BE LIMITED TO TREES WITH A DIAMETER AT BREAST HEIGHT LESS THAN 5 INCHES DUE TO POTENTIAL IMPACT TO FORAGING INDIANA BATS, OR IN ACCORDANCE WITH FINAL BAT MANAGEMENT PLAN AS APPROVED BY USFWS.

THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA CODE 260.1 ET SEQ. AND 287.1 ET SEQ.

BEFORE DISPOSING OF SOIL OR RECEIVING BORROW FOR THE SITE, THE OPERATOR MUST ASSURE THAT EACH SPOIL OR BORROW AREA HAS AN EROSION AND SEDIMENT CONTROL PLAN APPROVED BY THE LUZERNE CONSERVATION DISTRICT, AND WHICH IS BEING IMPLEMENTED AND MAINTAINED ACCORDING TO CHAPTER 102 REGULATIONS. THE OPERATOR SHALL ALSO NOTIFY THE LUZERNE CONSERVATION DISTRICT IN WRITING OF ALL RECEIVING SPOIL AND BORROW AREAS WHEN THEY HAVE BEEN IDENTIFIED.

THE GENERAL SEQUENCE OF EARTHMOVING ACTIVITIES FOR THE CONSTRUCTION OF THE PPL BELL BEND NUCLEAR POWER PLANT PROJECT IS AS FOLLOWS. PLEASE REFERENCE THE CONSTRUCTION SEQUENCE ALSO SET FOR PHASE AND AREA MAPS:

THE GENERAL SEQUENCE OF EARTHMOVING ACTIVITIES FOR THE CONSTRUCTION OF THE PPL BELL BEND NUCLEAR POWER PLANT PROJECT IS AS FOLLOWS, PLEASE REFERENCE THE CONSTRUCTION SEQUENCE ALSO SET FOR PHASE AND AREA MAPS:

PHASE I

EACH STAGE OF THE SEQUENCE MUST BE COMPLETED PRIOR TO INITIATION OF THE NEXT STAGE OF THE SEQUENCE OF EARTH MOVING OPERATIONS WITHIN THIS PHASE.

1. FIELD-MARK THE LIMITS OF DISTURBANCE FOR PHASE I (AREA 9A).

2. INITIAL SITE ACCESS WILL BE AT THE EXISTING ROCK CONSTRUCTION ENTRANCE 1A (AREA 3) AND ASSOCIATED CONSTRUCTION PARKING AREA AS SHOWN ON PLANS.

3. INSTALL ALL PERIMETER CONTROL: SILT FENCE, AND SILT DIKE AS SHOWN ON PLANS (AREA 9A).

4. INSTALL SEDIMENT BASIN 15, 15A AND 15B WITH ALL RELATED APPURTENANCES.

5. CLEAR AND GRUB AREAS OF CONSTRUCTION WITHIN THE LIMITS OF DISTURBANCE FOR PHASE I (AREA 9A).

6. PERFORM LOCAL EXCAVATIONS FOR TRANSMISSION TOWER FOUNDATIONS (AREA 9A).

7. INSTALL TRANSMISSION TOWER FOUNDATIONS FOR THE RELOCATION OF THE 230KV TRANSMISSION LINES (AREA 9A).

8. GRADE DISTURBED AREAS AT FOUNDATION LOCATIONS (AREA 9A).

9. PERMANENTLY SEED ALL AREAS DISTURBED BY THE CONSTRUCTION. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS (AREA 9A).

10. INSTALL NEW TRANSMISSION LINES (AREA 9A) AND REMOVE EXISTING TRANSMISSION LINES CROSSING THROUGH THE POWER BLOCK AREA (AREA 3) AS SHOWN ON THE PLANS.

11. REMOVE PERIMETER CONTROLS INCLUDING SILT FENCE AND SILT DIKES (AREA 9A).

12. STABILIZE THE AREAS WHERE BMPS WERE LOCATED. DISPOSE OF ANY SEDIMENT AS OUTLINED IN THE MAINTENANCE NOTES (AREA 9A).

PHASE II

EACH STAGE OF THE SEQUENCE MUST BE COMPLETED PRIOR TO INITIATION OF THE NEXT STAGE OF THE SEQUENCE OF EARTH MOVING OPERATIONS WITHIN THIS PHASE.

1. FIELD-MARK THE LIMITS OF DISTURBANCE FOR PHASE II (AREA 1 & 2).

2. INSTALL ROCK CONSTRUCTION ENTRANCE 2A (AREA 1) AND 2B (AREA 2) AND ASSOCIATED CONSTRUCTION PARKING AREAS AS SHOWN ON PLANS.

3. INSTALL SEDIMENT BASIN 8, 9, 20, AND 21 WITH ALL RELATED APPURTENANCES.

4. INSTALL ALL PERIMETER CONTROLS: SUPER SILT FENCE, SILT FENCE AND SILT DIKE AS SHOWN ON PLANS (AREA 1 & 2).

5. INSTALL RETAINING WALL ALONG ACCESS ROAD NORTH OF ROUTE 11 (STA 0+00 TO STA 5+50) (AREA 2).

6. CLEAR AREAS OF CONSTRUCTION WITHIN THE LIMITS OF DISTURBANCE FOR PHASE II (AREA 1 & 2). RELOCATE EXISTING UTILITIES IN THE AREAS OF CONSTRUCTION.

7. STRIP ORGANIC MATERIAL FROM THE AREAS OF CONSTRUCTION WITHIN THE LIMITS OF PHASE II (AREA 1 & 2) AND HAUL OFF SITE TO THE PERMANENT SPOILS AREA.

8. BEGIN CONSTRUCTION OF WEST ABUTMENT FOR BRIDGE 4 (STA 905+50) (AREA 1).

9. CLOSE CONFERS LANE AT LOCATIONS SHOWN ON THE PLANS.

10. BEGIN ROUGH GRADING IN AREA WEST OF MARKET STREET (AREA 1) MOVING CUT MATERIAL TO THE ACCESS ROAD AREA NORTH OF ROUTE 11 (AREA 2). BEGIN ROUGH GRADING OF ACCESS ROAD PROGRESSING INWARD (STA 0+00 TO STA 41+12.85).

11. AS ROUGH GRADING OF ACCESS ROAD IS ACHIEVED, INSTALL GEOTEXTILE FABRIC FOLLOWED BY INSTALLATION OF AGGREGATE SUB BASE AS SHOWN ON THE PLANS.

12. INSTALL INFILTRATION BASIN 12B.

13. INSTALL PLANT UTILITY SERVICE LINES FROM SOUTH ABUTMENT FOR BRIDGE 6, ALONG NORTH ACCESS ROAD TO THE EAST LIMIT OF DISTURBANCE FOR THE ACCESS ROAD AREA (N 338,925 E 2,407,607 TO N 338,688 E 2,410,073) (AREA 2). INSTALL TEMPORARY PIPE CLOSURES AT TERMINATION POINTS.

14. CONTINUE ROUGH GRADING OF ACCESS ROAD (STA 151+00 TO STA 175+00). AS ROUGH GRADING OF ACCESS ROAD IS ACHIEVED, INSTALL GEOTEXTILE FABRIC FOLLOWED BY INSTALLATION OF AGGREGATE SUB BASE AS SHOWN ON THE PLANS.

15. INSTALL RAIL BED (STA 536+00 TO STA 555+00).

16. BEGIN CONSTRUCTION OF SOUTH ABUTMENTS FOR BRIDGES 2 (STA 149+90), 5 (STA 556+20) & 6 (STA 149+90).

17. WHILE INSTALLATION OF PLANT UTILITY SERVICE LINES PROGRESSES, INSTALL INFILTRATION BASIN 10.

18. CONTINUE ROUGH GRADING OF ACCESS ROAD (STA 339+00 TO STA 335+19.70). AS ROUGH GRADING OF ACCESS ROAD IS ACHIEVED, INSTALL GEOTEXTILE FABRIC FOLLOWED BY INSTALLATION OF AGGREGATE SUB BASE AS SHOWN ON THE PLANS.

19. BEGIN CONSTRUCTION OF EAST ABUTMENT FOR BRIDGE 1 (STA 339+00).

20. WHILE INSTALLATION OF ACCESS ROAD PROGRESSES (STA 339+00 TO STA 335+19.70), INSTALL INFILTRATION BASIN 12A.

21. INSTALL FOUNDATIONS FOR STRUCTURES LOCATED WITHIN THE LIMITS OF DISTURBANCE FOR THE ACCESS ROAD AREA AS SHOWN ON THE PLANS.

22. AS ROUGH GRADING PROGRESSES, INSTALL STORM DRAIN SYSTEM PIPING AND CONNECT TO INFILTRATION BASINS 10, 12A & 12B (AREA 2). INSTALL FILTER BAGS AT ALL CATCH BASIN INLETS.

23. INSTALL WATER, SANITARY SEWER AND ELECTRICAL SERVICES TO STRUCTURES LOCATED IN THE ACCESS ROAD AREA. TERMINATE SEWER LINE AT THE SANITARY SEWER LIFT STATION (AREA 2). INSTALL TEMPORARY PIPE CLOSURES.

24. CONTINUE ROUGH GRADING ALONG WEST SIDE OF ACCESS ROAD (STA 13+27 TO STA 23+85) ESTABLISHING AREA FOR FUTURE TOP-SOIL STOCKPILE AREA.

25. ONCE ROUGH GRADING IS COMPLETE IN AREA WEST OF MARKET STREET (AREA 1), BEGIN INSTALLATION OF INFILTRATION BASIN 16, FOLLOWED BY INSTALLATION OF INFILTRATION BASIN 17.

26. INSTALL FOUNDATION FOR SANITARY SEWER LIFT STATION IN THE AREA EAST OF MARKET STREET AS SHOWN ON THE PLANS (AREA 1).

27. INSTALL FOUNDATIONS FOR STRUCTURES LOCATED IN THE AREA WEST OF MARKET STREET AS SHOWN ON THE PLANS (AREA 1).

28. INSTALL STORM DRAIN SYSTEM PIPING AND CONNECT TO INFILTRATION BASINS 16 & 17 (AREA 1). INSTALL FILTER BAGS AT ALL CATCH BASIN INLETS.

29. INSTALL WATER, SANITARY SEWER, AND ELECTRICAL SERVICES TO STRUCTURES LOCATED IN THE AREA WEST OF MARKET STREET.

30. CONTINUE INSTALLATION OF WATER AND SANITARY SEWER LINES UNDER MARKET STREET AND TERMINATE AT THE SANITARY SEWER LIFT STATION (AREA 1). INSTALL TEMPORARY PIPE CLOSURES.

31. FINAL GRADE ENTRANCE ROAD AND PARKING AREAS WEST OF MARKET STREET AND INSTALL SUB-BASE PAVEMENT AS SHOWN ON THE PLANS.

32. STABILIZE CONSTRUCTION PARKING AND LAY-DOWN AREAS WITH AGGREGATE SUB BASE (AREA 1 & 2).

33. PERMANENTLY SEED PERIMETER GRADED SLOPES, SWALES AND DRAINAGE TRENCHES AND CLEAN ALL WATER CONVEYANCE FACILITIES IN AREA WEST OF MARKET STREET AND NORTHWEST QUADRANT OF ACCESS ROAD AREA (AREA 1 & 2). AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

34. REMOVE PERIMETER CONTROLS FROM THE AREA WEST OF MARKET STREET (AREA 1) AS SHOWN ON PLANS THAT INCLUDE: SUPER SILT FENCE, SILT FENCE, SILT DIKE AND INLET FILTER BAGS AS SHOWN ON PLANS.

35. STABILIZE THE AREAS WHERE BMPS WERE LOCATED WEST OF MARKET STREET (AREA 1). DISPOSE OF ANY SEDIMENT AS OUTLINED IN THE MAINTENANCE NOTES.EACH STAGE OF THE SEQUENCE MUST BE COMPLETED PRIOR TO INITIATION OF THE NEXT STAGE OF THE SEQUENCE OF EARTH MOVING OPERATIONS WITHIN THIS PHASE.

PHASE III

EACH STAGE OF THE SEQUENCE MUST BE COMPLETED PRIOR TO INITIATION OF THE NEXT STAGE OF THE SEQUENCE OF EARTH MOVING OPERATIONS WITHIN THIS PHASE.

1. BMPS FOR PHASE II REMAIN IN-PLACE IN THE AREA EAST OF MARKET STREET (WEST ABUTMENT FOR BRIDGE 4 13/32 AREA 1), AND THE ACCESS ROAD AREA (AREA 2).

2. FIELD-MARK ADDITIONAL LIMITS OF DISTURBANCE FOR PHASE III (AREA 3 & 5).

3. INSTALL ALL NEW PERIMETER CONTROLS FOR PHASE III: SUPER SILT FENCE, SILT FENCE AND SILT DIKE AS SHOWN ON PLANS (AREA 3 & 5).

4. MODIFY PERIMETER CONTROLS BETWEEN THE ACCESS ROAD AREA (AREA 2) AND THE BATCH PLANT AREA (AREA 5) AT THE COMMON BOUNDARY AS SHOWN ON THE PLANS.

5. INSTALL SEDIMENT BASIN 10, 12 AND 6 WITH ALL RELATED APPURTENANCES.

6. CLEAR AND GRUB THE POWER BLOCK AREA WITHIN THE LIMITS OF DISTURBANCE (AREA 3). RELOCATE EXISTING UTILITIES IN THE IN THE AREAS OF CONSTRUCTION (AREA 3). REMOVE ABANDONED TRANSMISSION TOWERS AND ASSOCIATED FOUNDATIONS.

7. INSTALL PERIMETER CONTROLS AROUND THE TOP-SOIL STOCK PILE AREA WEST OF MARKET STREET (AREA 1) AS SHOW ON PLANS.

8. STRIP ORGANIC MATERIAL FROM THE POWER BLOCK AREA WITHIN THE LIMITS OF DISTURBANCE (AREA 3) AND HAUL TO THE DESIGNATED TOP-SOIL STOCK PILE AREA WEST OF MARKET STREET. HAUL EXCESS ORGANIC MATERIAL OFF SITE TO THE PERMANENT SPOILS AREA (AREA TO BE DETERMINED).

9. BEGIN ROUGH GRADING IN POWER BLOCK AREA (AREA 3) MOVING CUT MATERIAL TO THE ACCESS ROAD AREA NORTH AND SOUTH OF ROUTE 11 (AREA 2) FILLING REMAINING LOW SPOTS FROM PHASE II. EXCESS CUT MATERIAL FROM THE POWER BLOCK AREA MAY BE HAULED OFF-SITE TO THE PERMANENT SPOILS AREA (AREA TO BE DETERMINED) AT ANY TIME IF SUITABLE FILL AREAS ARE NOT PROPERLY PREPARED FOR ACCEPTING MATERIAL.

10. ONCE ROUGH GRADING IS ACHIEVED IN REMAINING PHASE II AREAS NORTH OF ROUTE 11, FINAL GRADE ACCESS ROADS (STA 0+00 TO STA 41+12.85, STA 151+00 TO STA 175+00 AND STA 339+00 TO STA 335+19.70) AND INSTALL SUB-BASE PAVEMENT AS SHOWN ON PLANS (AREA 2).

11. STABILIZE CONSTRUCTION LAY-DOWN AREAS IN THE NORTHWEST QUADRANT OF THE ACCESS ROAD AREA WITH AGGREGATE SUB BASE (AREA 2).

12. PERMANENTLY SEED PERIMETER GRADED SLOPES, SWALES AND DRAINAGE TRENCHES AND CLEAN ALL WATER CONVEYANCE FACILITIES IN THE ACCESS ROAD AREA (AREA 2). AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

13. INSTALL INFILTRATION BASIN 6 IN THE POWER BLOCK AREA (AREA 3).

14. ESTABLISH ROUGH GRADE IN THE AREA OF INFILTRATION BASIN 6 AND INSTALL STORM DRAIN SYSTEM PIPING CONNECTING TO INFILTRATION BASIN 6 IN THE POWER BLOCK AREA (AREA 3). STABILIZE CONSTRUCTION LAY-DOWN AREA WITH AGGREGATE SUB BASE. INSTALL FILTER BAGS AT ALL CATCH BASIN INLETS. STABILIZE SIDE SLOPES ALONG BEACH GROVE ROAD AND ADJACENT WETLAND AREAS BY SEEDING.

15. BEGIN CONSTRUCTION OF EAST ABUTMENT FOR BRIDGE 4 (STA 909+50) AND NORTH ABUTMENTS FOR BRIDGES 2 (STA 145+90), 3 (STA 407+85), 5 (STA 561+35), 6 (STA 145+90) & 7 (STA 805+25) (AREA 3).

16. WHILE CONSTRUCTION OF BRIDGE ABUTMENTS PROGRESSES, INSTALL INFILTRATION BASIN 4 AND BEGIN CONSTRUCTION OF RETAINING WALLS 1A AND 3B (AREA 3).

17. CONTINUE ROUGH GRADING IN POWER BLOCK AREA FILLING LOW AREAS BEHIND RETAINING WALLS 1A AND 3B (AREA 3). EXCESS CUT MATERIAL MAY BE USED TO FILL LOW SPOTS IN THE BATCH PLANT AREA (AREA 5) OR HAULED TO THE PERMANENT SPOILS AREA (AREA TO BE DETERMINED).

18. BEGIN CONSTRUCTION OF RETAINING WALLS 1B AND 3A (AREA 3).

19. CONTINUE ROUGH GRADING IN POWER BLOCK AREA FILLING LOW AREAS BEHIND RETAINING WALLS 1B AND 3A (AREA 3). EXCESS CUT MATERIAL MAY BE USED TO FILL LOW SPOTS IN THE BATCH PLANT AREA (AREA 5) OR HAULED TO THE PERMANENT SPOILS AREA (AREA TO BE DETERMINED).

20. AS ROUGH GRADING OF SOUTH ACCESS ROAD PROGRESSES IN THE POWER BLOCK AREA (STA 910+00 TO 921+24.44), INSTALL STORM DRAIN SYSTEM PIPING AND CONNECT TO INFILTRATION BASIN 4. INSTALL FILTER BAGS AT ALL CATCH BASIN INLETS.

21. INSTALL WATER AND SEWER SERVICE LINES BETWEEN EAST ABUTMENT FOR BRIDGE 4 AND NORTH ABUTMENT FOR BRIDGE 7 (AREA 3). INSTALL TEMPORARY PIPE CLOSURES.

22. WHEN CONSTRUCTION OF NORTH ABUTMENT FOR BRIDGE 2 (STA 145+90) AND EAST ABUTMENT FOR BRIDGE 4 (STA 909+50) ARE COMPLETE, BEGIN CONSTRUCTION OF SUPERSTRUCTURE FOR BRIDGE 2 AND BRIDGE 4.

23. INSTALL REMAINING WATER AND SEWER SERVICE LINES BETWEEN EAST AND WEST ABUTMENTS FOR BRIDGE 4 AND CONNECT TO PREVIOUSLY INSTALLED PIPING.

24. FINAL GRADE ACCESS ROADS IN SOUTHERN POWER BLOCK AREA BETWEEN BRIDGE 3 AND BRIDGE 4 (STA 910+00 TO 921+24.44) AND INSTALL SUB-BASE PAVEMENT AS SHOWN ON PLANS (AREA 3).

25. PERMANENTLY SEED PERIMETER GRADED SLOPES, SWALES AND DRAINAGE TRENCHES AND CLEAN ALL WATER CONVEYANCE FACILITIES IN THE AREA IN THE AREA EAST OF MARKET STREET (AREA 1) AND THE AREA BETWEEN BRIDGE 3 AND BRIDGE 4 (AREA 3). AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

26. WHEN CONSTRUCTION OF NORTH ABUTMENTS FOR BRIDGE 5 (STA 561+35) AND BRIDGE 6 (STA 145+90) ARE COMPLETE, BEGIN CONSTRUCTION OF SUPERSTRUCTURE FOR BRIDGE 5 AND BRIDGE 6.

27. WHEN SUPERSTRUCTURE FOR BRIDGE 6 IS COMPLETE, INSTALL PLANT UTILITY SERVICE LINES ACROSS BRIDGE 6 FROM TEMPORARY TERMINATION POINT AT SOUTH ABUTMENT TO POWER BLOCK AREA (N 338,925 E 2,407,607 TO N 339,523 E 2,407,551) (AREA 3). INSTALL TEMPORARY PIPE CLOSURES.

28. INSTALL SEDIMENT BASIN 18 WITH ALL RELATED APPURTENANCES.

29. WHEN ROUGH GRADING BEGINS IN THE POWER BLOCK AREA, BEGIN TO CLEAR AND GRUB BATCH PLANT AREA WITHIN THE LIMITS OF DISTURBANCE. RELOCATE EXISTING UTILITIES IN THE IN THE AREAS OF CONSTRUCTION (AREA 5).

30. INSTALL PERIMETER CONTROLS AROUND TOP-SOIL STOCK PILE AREA WEST OF ACCESS ROAD (AREA 2) AS SHOW ON PLANS.

13. INSTALL SEDIMENT BASIN 3 WITH ALL RELATED APPURTENANCES.

31. STRIP ORGANIC MATERIAL FROM THE BATCH PLANT AREA WITHIN THE LIMITS OF DISTURBANCE (AREA 5) AND HAUL TO THE TOP-SOIL STOCK PILE AREA WEST OF ACCESS ROAD. HAUL EXCESS ORGANIC MATERIAL OFF SITE TO THE PERMANENT SPOILS AREA (AREA TO BE DETERMINED).

32. INSTALL INFILTRATION BASIN 13, FOLLOWED BY INFILTRATION BASIN 14, AND THEN INFILTRATION BASIN 15.

33. INSTALL PLANT UTILITY SERVICE LINES FROM TEMPORARY TERMINATION POINTS ALONG NORTH ACCESS ROAD TO THE NORTHEAST LIMIT OF DISTURBANCE FOR THE BATCH PLANT AREA (N 338,688 E 2,410,073 TO N 339,672 E 2,411,692) (AREA 5). INSTALL TEMPORARY PIPE CLOSURES.

34. WHILE INSTALLATION OF PLANT UTILITY SERVICE LINES PROGRESSES, INSTALL INFILTRATION BASIN 11.

35. AS ROUGH GRADING OF ACCESS ROAD IS ACHIEVED IN BATCH PLANT AREA (STA 175+00 TO STA 2900+00) (AREA 5), INSTALL GEOTEXTILE FABRIC FOLLOWED BY INSTALLATION OF AGGREGATE SUB BASE AS SHOWN ON THE PLANS.

36. INSTALL RAIL BED (STA 500+00 TO STA 536+00).

37. INSTALL FOUNDATIONS FOR STRUCTURES LOCATED IN THE BATCH PLANT AREA AS SHOWN ON THE PLANS (AREA 5).

38. AS ROUGH GRADING CONTINUES IN THE BATCH PLANT AREA (AREA 5), INSTALL STORM DRAIN SYSTEM PIPING AND CONNECT TO INFILTRATION BASINS 11, 13, 14 & 15. INSTALL FILTER BAGS AT ALL CATCH BASIN INLETS.

39. INSTALL WATER, SANITARY SEWER, AND ELECTRICAL SERVICES TO STRUCTURES LOCATED IN THE BATCH PLANT AREA.

40. FINAL GRADE ACCESS ROADS IN BATCH PLANT AREA (STA 175+00 TO STA 2900+00) AND INSTALL SUB-BASE PAVEMENT AS SHOWN ON PLANS (AREA 5).

41. STABILIZE CONSTRUCTION LAY-DOWN AREAS IN THE BATCH PLANT AREA WITH AGGREGATE SUB BASE (AREA 5).

42. PERMANENTLY SEED GRADED SLOPES, SWALES AND DRAINAGE TRENCHES AND CLEAN ALL WATER CONVEYANCE FACILITIES IN THE BATCH PLANT AREA (AREA 5). AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

43. REMOVE ALL PERIMETER CONTROLS FROM THE AREA EAST OF MARKET STREET (AREA 1), THE ACCESS ROAD AREA (AREA 2) AND THE BATCH PLANT AREA (AREA 5) THAT INCLUDE: SUPER SILT FENCE, SILT FENCE, SILT DIKE AND INLET FILTER BAGS AS SHOWN ON PLANS.

44. STABILIZE THE AREAS WHERE BMPS WERE LOCATED IN THE AREA EAST OF MARKET STREET (AREA 1), THE ACCESS ROAD AREA (AREA 2) AND THE BATCH PLANT AREA (AREA 5). DISPOSE OF ANY SEDIMENT AS OUTLINED IN THE MAINTENANCE NOTES.

PHASE IV

EACH STAGE OF THE SEQUENCE MUST BE COMPLETED PRIOR TO INITIATION OF THE NEXT STAGE OF THE SEQUENCE OF EARTH MOVING OPERATIONS WITHIN THIS PHASE.

1. BMPS FOR PHASE III REMAIN IN-PLACE IN THE POWER BLOCK AREA (AREA 3).

2. FIELD-MARK ADDITIONAL LIMITS OF DISTURBANCE FOR PHASE IV (AREA 4).

3. INSTALL ALL NEW PERIMETER CONTROLS FOR PHASE IV: SUPER SILT FENCE, SILT FENCE AND SILT DIKE AS SHOWN ON PLANS (AREA 4).

4. INSTALL SEDIMENT BASIN 1 AND SEDIMENT TRAP 1A AND 1B WITH ALL RELATED APPURTENANCES.

5. AS ROUGH GRADING OF THE POWER BLOCK AREA PROGRESSES, CLEAR THE PARKING AREA WITHIN THE LIMITS OF DISTURBANCE (AREA 4). RELOCATE EXISTING UTILITIES IN THE IN THE AREAS OF CONSTRUCTION (AREA 4).

6. STRIP ORGANIC MATERIAL FROM THE PARKING AREA WITHIN THE LIMITS OF DISTURBANCE (AREA 4). HAUL ORGANIC MATERIAL OFF SITE TO THE PERMANENT SPOILS AREA (AREA TO BE DETERMINED).

7. INSTALL INFILTRATION BASIN 9 (AREA 4).

8. BEGIN ROUGH GRADING IN THE PARKING AREA (AREA 4) MOVING CUT MATERIAL FROM THE POWER BLOCK AREA (AREA 3) TO FILL LOW SPOTS.

9. BEGIN CONSTRUCTION OF WEST ABUTMENT FOR BRIDGE 1 (STA 333+85) AND SOUTH ABUTMENTS FOR BRIDGES 3 (STA 407+85) & 7 (STA 312+90) (AREA 4).

10. INSTALL FOUNDATIONS FOR STRUCTURES LOCATED IN THE PARKING AREA AS SHOWN ON THE PLANS (AREA 4).

11. AS ROUGH GRADING CONTINUES IN THE PARKING AREA (AREA 4), INSTALL STORM DRAIN SYSTEM PIPING AND CONNECT TO INFILTRATION BASIN 9. INSTALL FILTER BAGS AT ALL CATCH BASIN INLETS.

12. INSTALL WATER AND SANITARY SEWER SERVICES IN THE PARKING AREA FROM SANITARY SEWER LIFT STATION AND WATER METER HOUSE TO THE SOUTH ABUTMENT FOR BRIDGE 7. INSTALL TEMPORARY PIPE CLOSURES AT TERMINATION POINTS.

13. INSTALL WATER, SANITARY SEWER, AND ELECTRICAL SERVICES TO STRUCTURES LOCATED IN THE PARKING AREA (AREA 4).

14. AS ROUGH GRADING OF ACCESS ROADS AND PARKING LOTS ARE ACHIEVED IN THE PARKING AREA (AREA 4), INSTALL GEOTEXTILE FABRIC FOLLOWED BY INSTALLATION OF AGGREGATE SUB BASE AS SHOWN ON THE PLANS.

15. WHEN CONSTRUCTION OF WEST ABUTMENT FOR BRIDGE 1 (STA 333+85) AND SOUTH ABUTMENT FOR BRIDGE 3 (STA 407+85) ARE COMPLETE, BEGIN CONSTRUCTION OF SUPERSTRUCTURE FOR BRIDGE 1 AND BRIDGE 3.

16. WHEN SUPERSTRUCTURE FOR BRIDGE 1 IS COMPLETE, INSTALL WATER AND SEWER SERVICES BETWEEN THE EAST AND WEST ABUTMENTS FOR BRIDGE 1 AND CONNECT TO PREVIOUSLY INSTALLED PIPING.

17. AFTER THE SUPERSTRUCTURE FOR BRIDGE 1 IS COMPLETE, REMOVE REMAINING SECTION OF CONFERS LANE AND MITIGATE THE NORTH AND SOUTH WETLAND AREAS.

18. WHEN CONSTRUCTION OF SOUTH ABUTMENT FOR BRIDGE7 (STA 312+90) IS COMPLETE, BEGIN CONSTRUCTION OF SUPERSTRUCTURE FOR BRIDGE 7.

19. WHEN SUPERSTRUCTURE FOR BRIDGE 7 IS COMPLETE, INSTALL WATER AND SEWER SERVICES BETWEEN THE NORTH AND SOUTH ABUTMENTS FOR BRIDGE 7 AND CONNECT TO PREVIOUSLY INSTALLED PIPING.

20. FINAL GRADE PARKING AREA AND INSTALL SUB-BASE PAVEMENT AS SHOWN ON PLANS (AREA 4).

21. PERMANENTLY SEED GRADED SLOPES IN THE PARKING AREA (AREA 4) INCLUDING SWALES AND DRAINAGE TRENCHES AND CLEAN ALL WATER CONVEYANCE FACILITIES. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

22. REMOVE ALL PERIMETER CONTROLS FROM THE PARKING AREA (AREA 4) THAT INCLUDE: SUPER SILT FENCE, SILT FENCE, SILT DIKE AND INLET FILTER BAGS AS SHOWN ON PLANS.

23. STABILIZE THE AREAS WHERE BMPS WERE LOCATED IN THE PARKING AREA (AREA 4). DISPOSE OF ANY SEDIMENT AS OUTLINED IN THE MAINTENANCE NOTES.

24. AS ROUGH GRADING IN THE POWER BLOCK PROGRESSES, INSTALL INFILTRATION BASIN 8, FOLLOWED BY INFILTRATION BASIN 5 (AREA 3).

25. INSTALL PLANT UTILITY SERVICE LINES IN THE POWER BLOCK AREA (AREA 3). INSTALL TEMPORARY PIPE CLOSURES AT ALL TERMINATION POINTS.

26. WHILE INSTALLATION OF PLANT UTILITY SERVICE LINES PROGRESSES, INSTALL INFILTRATION BASIN 7.

27. AS ROUGH GRADING PROGRESSES IN THE EASTERN HALF OF THE POWER BLOCK AREA (AREA 3), INSTALL STORM DRAIN SYSTEM PIPING AND CONNECT TO INFILTRATION BASINS 5, 7 & 8. INSTALL FILTER BAGS AT ALL CATCH BASIN INLETS.

28. COMPLETE ROUGH GRADING IN THE EASTERN HALF OF THE POWER BLOCK, FINAL GRADING ACCESS ROADS (STA 117+00 TO STA 145+00). INSTALL GEOTEXTILE FABRIC FOLLOWED BY INSTALLATION OF AGGREGATE SUB BASE (AREA 3).

29. INSTALL RAIL BED (STA 562+00 TO 591+00).

30. INSTALL ACCESS ROAD SUB-BASE PAVEMENT (STA 117+00 TO STA 145+00) AS SHOWN ON PLANS.

31. STABILIZE CONSTRUCTION LAY-DOWN AREAS IN THE EASTERN HALF OF THE POWER BLOCK AREA WITH AGGREGATE SUB BASE (AREA 3).

32. PERMANENTLY SEED GRADED SLOPES AND LARGE OPEN AREAS IN EASTERN HALF OF POWER BLOCK AREA (AREA 3) INCLUDING SWALES AND DRAINAGE TRENCHES. CLEAN ALL INSTALLED WATER CONVEYANCE FACILITIES IN THE EASTERN HALF OF THE POWER BLOCK AREA. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

33. CONTINUE ROUGH GRADING IN THE WESTERN HALF OF THE POWER BLOCK AREA (AREA 3), HAULING EXCESS CUT MATERIALS TO THE PERMANENT SPOILS AREA (AREA TO BE DETERMINED).

34. INSTALL INFILTRATION BASINS.

35. COMPLETE ROUGH GRADING IN THE NORTHWEST QUADRANT OF THE POWER BLOCK AREA AND INSTALL STORM DRAIN SYSTEM PIPING AND CONNECT TO INFILTRATION BASIN 3. INSTALL FILTER BAGS AT ALL CATCH BASIN INLETS.

36. STABILIZE CONSTRUCTION LAY-DOWN AREAS IN THE NORTHWEST QUADRANT OF THE POWER BLOCK AREA WITH AGGREGATE SUB BASE (AREA 3).

37. PERMANENTLY SEED GRADED SLOPES, SWALES AND DRAINAGE TRENCHES AND CLEAN ALL INSTALLED WATER CONVEYANCE FACILITIES IN THE NORTHWEST QUADRANT OF THE POWER BLOCK AREA (AREA 3). AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.EACH STAGE OF THE SEQUENCE MUST BE COMPLETED PRIOR TO INITIATION OF THE NEXT STAGE OF THE SEQUENCE OF EARTH MOVING OPERATIONS WITHIN THIS PHASE.

PHASE V

EACH STAGE OF THE SEQUENCE MUST BE COMPLETED PRIOR TO INITIATION OF THE NEXT STAGE OF THE SEQUENCE OF EARTH MOVING OPERATIONS WITHIN THIS PHASE.

1. MODIFY PERIMETER CONTROLS IN THE POWER BLOCK AREA (AREA 3) AS SHOWN ON THE PLANS TO PERFORM MASS EXCAVATION OF THE POWER BLOCK. THE PERIMETER CONTROLS AS SHOWN ON THE PLANS WILL REMAIN IN PLACE UNTIL CONSTRUCTION OF PRIMARY POWER PLANT STRUCTURES HAS PROGRESSED SUFFICIENTLY TO PERMIT BACKFILL OPERATIONS AND FINAL GRADING IN THE AREA.

2. BEGIN MASS EXCAVATION OF THE POWER BLOCK (APPROXIMATE BOTTOM OF EXCAVATION ELEVATION 675 FT). INSTALL TEMPORARY EXCAVATION DEWATERING FEATURES AS EXCAVATION PROGRESSES.

3. REMOVE PERIMETER CONTROLS FROM THE POWER BLOCK AREA AS SHOWN ON THE PLANS (AREA 3) THAT INCLUDE: SUPER SILT FENCE, SILT FENCE, SILT DIKE AND INLET FILTER BAGS AS SHOWN ON PLANS.

4. STABILIZE THE AREAS WHERE BMPS WERE LOCATED IN THE POWER BLOCK AREA. DISPOSE OF ANY SEDIMENT AS OUTLINED IN THE MAINTENANCE NOTES.

5. FIELD-MARK ADDITIONAL LIMITS OF DISTURBANCE FOR PHASE V (AREA9).

6. INSTALL ALL NEW PERIMETER CONTROLS FOR PHASE V: SUPER SILT FENCE, SILT FENCE AND SILT DIKE AS SHOWN ON PLANS (AREA 9).

7. CLEAR THE ACCESS ROAD AREA FROM THOMAS ROAD TO THE SUSQUEHANNA NO 1 500KV SWITCHYARD AREA WITHIN THE LIMITS OF DISTURBANCE (AREA 9). RELOCATE EXISTING UTILITIES IN THE IN THE AREAS OF CONSTRUCTION (AREA 9).

8. STRIP ORGANIC MATERIAL FROM THE ACCESS ROAD AREA FROM THOMAS ROAD TO THE SUSQUEHANNA NO 1 500KV SWITCHYARD WITHIN THE LIMITS OF DISTURBANCE (AREA 9). HAUL ORGANIC MATERIAL OFF SITE TO THE PERMANENT SPOILS AREA (AREA TO BE DETERMINED).

9. ROUGH GRADE THE ACCESS ROAD FROM THOMAS ROAD TO THE SUSQUEHANNA NO 1 500KV SWITCHYARD (AREA 9). AS ROUGH GRADING OF ACCESS ROAD IS ACHIEVED, INSTALL GEOTEXTILE FABRIC FOLLOWED BY INSTALLATION OF AGGREGATE SUB BASE AS SHOWN ON THE PLANS.

10. PERMANENTLY SEED GRADED SLOPES, SWALES AND DRAINAGE TRENCHES ALONG THE ACCESS ROAD FROM THOMAS ROAD TO THE SUSQUEHANNA NO 1 500KV SWITCHYARD (AREA 9). AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

11. CLEAR THE SUSQUEHANNA NO 1 500KV SWITCHYARD AREA WITHIN THE LIMITS OF DISTURBANCE (AREA 9).

12. STRIP ORGANIC MATERIAL FROM THE SUSQUEHANNA NO 1 500KV SWITCHYARD WITHIN THE LIMITS OF DISTURBANCE (AREA 9).

13. BEGIN ROUGH GRADING IN THE SUSQUEHANNA NO 1 500KV SWITCHYARD (AREA 9). HAUL EXCESS CUT MATERIAL TO THE PERMANENT SPOILS AREA (AREA TO BE DETERMINED).

14. WHILE ROUGH GRADING IN THE SUSQUEHANNA NO 1 500KV SWITCHYARD AREA PROGRESSES, INSTALL INFILTRATION BASIN 18.

15. INSTALL FOUNDATIONS FOR STRUCTURES LOCATED IN THE SUSQUEHANNA NO 1 500KV SWITCHYARD AREA AS SHOWN ON THE PLANS (AREA 9).

16. INSTALL STORM DRAIN SYSTEM PIPING AND CONNECT TO INFILTRATION BASIN 18. INSTALL FILTER BAGS AT ALL CATCH BASIN INLETS.

17. STABILIZE THE SUSQUEHANNA NO 1 500KV SWITCHYARD AREA WITH CRUSHED STONE AS SHOWN ON THE PLANS (AREA 9).

18. FINAL GRADE THE ACCESS ROAD FROM THOMAS ROAD TO THE SUSQUEHANNA NO 1 500KV SWITCHYARD AREA AND INSTALL CRUSHED STONE SURFACING MATERIAL.

19. PERMANENTLY SEED PERIMETER GRADED SLOPES, SWALES AND DRAINAGE TRENCHES AND CLEAN ALL WATER CONVEYANCE FACILITIES IN THE SUSQUEHANNA NO 1 500KV SWITCHYARD AREA (AREA 9). AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

20. REMOVE ALL PERIMETER CONTROLS FROM THE SUSQUEHANNA NO 1 500KV SWITCHYARD AREA AND FROM ALONG THE ACCESS ROAD TO THE SWITCHYARD (AREA 9) THAT INCLUDE: SUPER SILT FENCE, SILT FENCE, SILT DIKE AND INLET FILTER BAGS AS SHOWN ON PLANS.

21. STABILIZE THE AREAS WHERE BMPS WERE LOCATED IN THE SUSQUEHANNA NO 1 500KV SWITCHYARD AREA AND ALONG THE ACCESS ROAD (AREA 9). DISPOSE OF ANY SEDIMENT AS OUTLINED IN THE MAINTENANCE NOTES.

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BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

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CS8003

SEQUENCE OF EARTHMOVING OPERATIONS (CONT'D)

PHASE VI

EACH STAGE OF THE SEQUENCE MUST BE COMPLETED PRIOR TO INITIATION OF THE NEXT STAGE OF THE SEQUENCE OF EARTH MOVING OPERATIONS WITHIN THIS PHASE.

1. CONTINUE MASS EXCAVATION OF THE POWER BLOCK AND MODIFY TEMPORARY EXCAVATION DEWATERING FEATURES AS REQUIRED.

2. FIELD-MARK THE LIMITS OF DISTURBANCE FOR PHASE VI (AREA 10).

3. INSTALL ALL PERIMETER CONTROLS: SUPER SILT FENCE, SILT FENCE AND SILT DIKE AS SHOWN ON PLANS (AREA 10).

4. CLEAR AREAS OF CONSTRUCTION WITHIN THE LIMITS OF DISTURBANCE FOR PHASE VI (AREA 10).

5. STRIP ORGANIC MATERIAL FROM THE AREAS OF CONSTRUCTION WITHIN THE LIMITS OF PHASE VI (AREA 10) AND HAUL OFF SITE TO THE PERMANENT SPOILS AREA (AREA TO BE DETERMINED).

6. BEGIN ROUGH GRADING OF THE CONSTRUCTION LAY-DOWN AREA (AREA 10) MOVING EXCESS CUT MATERIAL TO THE PERMANENT SPOILS AREA (AREA TO BE DETERMINED).

7. AS ROUGH GRADING OF CONSTRUCTION LAY-DOWN AREA (AREA 10) IS ACHIEVED, STABILIZE THE GRADED AREAS WITH AGGREGATE SUB BASE AS SHOWN ON THE PLANS.

8. SEED PERIMETER GRADED SLOPES, SWALES AND DRAINAGE TRENCHES WITHIN THE AREA OF CONSTRUCTION FOR PHASE VI (AREA 10) AS SHOWN ON THE PLANS. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

9. REMOVE PERIMETER CONTROLS FROM THE CONSTRUCTION LAY-DOWN AREA (AREA 10) AS SHOWN ON PLANS THAT INCLUDE: SUPER SILT FENCE, SILT FENCE AND SILT DIKE AS SHOWN ON PLANS.

10. STABILIZE THE AREAS WHERE BMPS WERE LOCATED FOR THE DEVELOPMENT OF THE CONSTRUCTION LAY-DOWN AREA (AREA 10). DISPOSE OF ANY SEDIMENT AS OUTLINED IN THE MAINTENANCE NOTES.

PHASE VII

EACH STAGE OF THE SEQUENCE MUST BE COMPLETED PRIOR TO INITIATION OF THE NEXT STAGE OF THE SEQUENCE OF EARTH MOVING OPERATIONS WITHIN THIS PHASE.

1. CONTINUE MASS EXCAVATION OF THE POWER BLOCK AND MODIFY TEMPORARY EXCAVATION DEWATERING FEATURES AS REQUIRED.

2. FIELD-MARK THE LIMITS OF DISTURBANCE FOR PHASE VII (AREA 6).

3. INSTALL ALL PERIMETER CONTROLS: SUPER SILT FENCE, SILT FENCE AND SILT DIKE AS SHOWN ON PLANS (AREA 6).

4. CLEAR AREAS OF CONSTRUCTION WITHIN THE LIMITS OF DISTURBANCE FOR PHASE VII (AREA 6).

5. STRIP ORGANIC MATERIAL FROM THE AREAS OF CONSTRUCTION WITHIN THE LIMITS OF PHASE VII (AREA 6) AND HAUL OFF SITE TO THE PERMANENT SPOILS AREA (AREA TO BE DETERMINED).

6. INSTALL TEMPORARY DREDGE MATERIAL POND.

7. INSTALL TEMPORARY COFFERDAMS IN EXISTING CANAL TO DRAIN CANAL RESTORATION WORK AREAS AS SHOWN ON THE PLANS.

8. PERFORM CANAL RESTORATION ACTIVITIES, REMOVING ABOVE GRADE PORTIONS OF ABANDONED CANAL CONTROL STRUCTURES AND ROUGH GRADE CANAL SLOPES. STABILIZE GRADED CANAL SLOPES AS SHOWN ON THE PLANS.

9. INSTALL COFFERDAM FOR THE INTAKE STRUCTURE IN SUSQUEHANNA RIVER AND DEWATER TO TEMPORARY DREDGE POND.

10. INSTALL TEMPORARY CONSTRUCTION STORMWATER MANAGEMENT FEATURES FOR PHASE VII (AREA 6) AS SHOWN ON THE PLANS.

11. EXCAVATE AREA FOR INTAKE STRUCTURE PLACING ALL DREDGE MATERIAL FROM RIVER BOTTOM IN TEMPORARY DREDGE POND.

12. INSTALL FOUNDATIONS FOR INTAKE STRUCTURE.

13. AS CONSTRUCTION OF INTAKE STRUCTURE PROGRESSES, EXCAVATE TRENCH AND INSTALL PLANT UTILITY SERVICE LINES FROM THE INTAKE STRUCTURE TO WEST SIDE OF CANAL (N 339,566 E 2,414,532 TO N 340,096 E 2,413,909) (AREA 6). INSTALL TEMPORARY PIPE CLOSURES AT TERMINATION POINTS.

14. ROUGH GRADE AREAS OF TRENCH EXCAVATION ONCE PLANT UTILITY LINES ARE INSTALLED.

15. COMPLETE CANAL RESTORATION ACTIVITIES WHERE PLANT UTILITY LINES WERE INSTALLED.

16. REMOVE TEMPORARY COFFERDAM FROM CANAL AND COMPLETE FINAL GRADING IN AREAS OF DISTURBANCE. STABILIZE GRADED AREAS AS SHOWN ON THE PLANS.

17. INSTALL COFFERDAM FOR BLOW-DOWN LINE DIFFUSER IN SUSQUEHANNA RIVER AND DEWATER TO TEMPORARY DREDGE POND.

18. EXCAVATE TRENCH AND INSTALL BLOW-DOWN LINE AND DIFFUSER IN THE SUSQUEHANNA RIVER (N 339,494 E 2,414,204 TO N 338,753 E 2,414,927) (AREA 6).

19. ONCE BLOW-DOWN LINES ARE INSTALLED, ROUGH GRADE AREAS OF TRENCH EXCAVATION AND STABILIZE DISTURBED AREAS AS SHOWN ON THE PLANS.

20. ONCE INTAKE STRUCTURE FOUNDATIONS ARE INSTALLED ABOVE FINISH GRADE ELEVATIONS, INSTALL PERMANENT STORMWATER DRAINAGE FEATURES AS SHOWN ON THE PLANS (AREA 6).

21. AS ROUGH GRADE FOR THE ACCESS ROAD TO THE INTAKE STRUCTURE (STA 5000+00 TO STA 5003+45) IS ACHIEVED, INSTALL GEOTEXTILE FABRIC FOLLOWED BY INSTALLATION OF AGGREGATE SUB BASE AS SHOWN ON THE PLANS.

22. AS ROUGH GRADE FOR THE INTAKE STRUCTURE YARD AREA IS ACHIEVED, INSTALL AGGREGATE SUB BASE AS SHOWN ON THE PLANS.

23. INSTALL SUB-BASE PAVEMENT FOR THE INTAKE STRUCTURE ACCESS ROAD (STA 5000+00 TO STA 5003+45) AND ASSOCIATED INTAKE STRUCTURE YARD AREA AS SHOWN ON PLANS.

24. INSTALL RIP-RAP SHORE PROTECTION ALONG RIVER BANKS AS SHOWN ON THE PLANS (AREA 6).

25. REMOVE COFFERDAMS AND INSTALL RIP-RAP SHORE PROTECTIONS IN ANY REMAINING AREAS WHERE COFFERDAM IS REMOVED.

26. EXCAVATE DEWATERED DREDGE MATERIAL FROM THE TEMPORARY DREDGE MATERIAL POND AND HAUL TO THE PERMANENT SPOILS AREA (AREA TO BE DETERMINED).

27. REMOVE THE TEMPORARY DREDGE MATERIAL POND HAULING ANY EXCESS MATERIALS TO THE PERMANENT SPOILS AREA (AREA TO BE DETERMINED) AND GRADE THE AREA.

28. SEED PERIMETER GRADED SLOPES, SWALES AND DRAINAGE TRENCHES WITHIN THE AREA OF CONSTRUCTION FOR PHASE VII (AREA 6) AS SHOWN ON THE PLANS. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

29. REMOVE PERIMETER CONTROLS FROM THE INTAKE STRUCTURE AREA (AREA 6) THAT INCLUDE: SUPER SILT FENCE, SILT FENCE AND SILT DIKE AS SHOWN ON PLANS.

30. STABILIZE THE AREAS WHERE BMPS WERE LOCATED FOR THE DEVELOPMENT OF THE CONSTRUCTION LAY-DOWN AREA (AREA 6). DISPOSE OF ANY SEDIMENT AS OUTLINED IN THE MAINTENANCE NOTES.

PHASE VIII

EACH STAGE OF THE SEQUENCE MUST BE COMPLETED PRIOR TO INITIATION OF THE NEXT STAGE OF THE SEQUENCE OF EARTH MOVING OPERATIONS WITHIN THIS PHASE.

1. CONTINUE MASS EXCAVATION OF THE POWER BLOCK AND MODIFY TEMPORARY EXCAVATION DEWATERING FEATURES AS REQUIRED.

2. FIELD-MARK THE LIMITS OF DISTURBANCE FOR PHASE VIII (AREA 7).

3. INSTALL ALL PERIMETER CONTROLS: SUPER SILT FENCE AND SILT FENCE AS SHOWN ON PLANS (AREA 7).

4. CLEAR AREAS OF CONSTRUCTION WITHIN THE LIMITS OF DISTURBANCE FOR PHASE VIII (AREA 7).

5. STRIP ORGANIC MATERIAL FROM THE AREAS OF CONSTRUCTION WITHIN THE LIMITS OF PHASE VIII (AREA 7) AND HAUL OFF SITE TO THE PERMANENT SPOILS AREA (AREA TO BE DETERMINED).

6. EXCAVATE TRENCH EAST OF ROUTE 11 AND INSTALL PLANT UTILITY SERVICE LINES FROM THE TERMINATION POINTS AT CANAL RESTORATION AREA (AREA 6) TO ROUTE 11 (N 340,096 E 2,413,909 TO N 340,578 E 2,413,332). INSTALL TEMPORARY PIPE CLOSURES AT TERMINATION POINTS.

7. INSTALL PLANT UTILITY SERVICES UNDER ROUTE 11 (N 340,578 E 2,413,332 TO N 340,557 E 2,413,071) AS SHOWN ON THE PLANS.

8. EXCAVATE TRENCH WEST OF ROUTE 11 AND INSTALL PLANT UTILITY SERVICE LINES FROM THE BATCH PLANT AREA TO ROUTE 11 (N 339,672 E 2,411,692 TO N 340,557 E 2,413,071) COMPLETING THE PLANT UTILITY SERVICE LINE INSTALLATION.

9. ROUGH GRADE AREAS OF TRENCH EXCAVATION.

10. RESTORE ANY DISTURBED AREAS ALONG THE EAST AND WEST SIDES OF ROUTE 11 AS SHOWN ON THE PLANS.

11. SEED GRADED AREAS, SWALES AND DRAINAGE TRENCHES WITHIN THE AREA OF CONSTRUCTION FOR PHASE VIII (AREA 7) AS SHOWN ON THE PLANS. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

12. REMOVE PERIMETER CONTROLS FROM AREAS OF CONSTRUCTION FOR PHASE VIII (AREA 7) THAT INCLUDE: SUPER SILT FENCE AND SILT FENCE AS SHOWN ON PLANS.

13. STABILIZE THE AREAS WHERE BMPS WERE LOCATED (AREA 7). DISPOSE OF ANY SEDIMENT AS OUTLINED IN THE MAINTENANCE NOTES.

PHASE IX

EACH STAGE OF THE SEQUENCE MUST BE COMPLETED PRIOR TO INITIATION OF THE NEXT STAGE OF THE SEQUENCE OF EARTH MOVING OPERATIONS WITHIN THIS PHASE.

1. CONTINUE MASS EXCAVATION OF THE POWER BLOCK AND MODIFY TEMPORARY EXCAVATION DEWATERING FEATURES AS REQUIRED.

2. FIELD-MARK THE LIMITS OF DISTURBANCE FOR PHASE IX (AREA 8).

3. INSTALL ALL PERIMETER CONTROLS: SILT FENCE AS SHOWN ON PLANS (AREA 8).

4. EXCAVATE TRENCH FOR WATER SERVICE LINE INSTALLING PIPING AS EXCAVATION PROGRESSES. AS PIPE INSTALLATION PROGRESSES, FILL EXCAVATED AREAS. EXCAVATE ONLY THE REQUIRED TRENCH LENGTH REQUIRED TO ACCOMMODATE PLANNED PIPE INSTALLATION FOR THE DAY. EACH NIGHT, TRENCH SHALL BE BACKFILLED AND ROUGH GRADED. INSTALL ORANGE CONSTRUCTION FENCE AROUND ANY EXCAVATION AREAS THAT ARE LEFT OPEN OVERNIGHT WHERE WORK WILL COMMENCE ON THE NEXT WORK DAY. ENSURE ACCESS IS PROVIDED TO ANY RESIDENT DRIVEWAYS WHERE PIPE INSTALLATION CROSSES.

5. CONTINUE INSTALLATION OF WATER SERVICE TO THE TIE-IN POINT AT THE WATER METER HOUSE IN THE PARKING AREA (AREA 4).

6. COMPLETE THE WATER SERVICE INSTALLATION WITH THE TIE-IN TO THE EXISTING WATER MAIN AT ROUTE 11 AS SHOWN ON THE PLANS.

7. EXCAVATE TRENCH FOR THE SANITARY SEWER SERVICE LINE INSTALLING PIPING AS EXCAVATION PROGRESSES. AS PIPE INSTALLATION PROGRESSES, FILL EXCAVATED AREAS. EXCAVATE ONLY THE REQUIRED TRENCH LENGTH TO ACCOMMODATE THE PLANNED PIPE INSTALLATION FOR THE DAY. EACH NIGHT, THE TRENCH SHALL BE BACKFILLED AND ROUGH GRADED. INSTALL ORANGE CONSTRUCTION FENCE AROUND ANY EXCAVATIONS THAT ARE LEFT OPEN OVERNIGHT WHERE WORK WILL COMMENCE ON THE NEXT WORK DAY. ENSURE ACCESS IS PROVIDED TO ANY RESIDENT DRIVEWAYS WHERE PIPE INSTALLATION CROSSES.

8. CONTINUE INSTALLATION OF THE SANITARY SEWER SERVICE TO THE SANITARY SEWER LIFT STATION IN PARKING AREA (AREA 4).

9. COMPLETE THE SANITARY SEWER SERVICE INSTALLATION WITH THE TIE-IN TO THE EXISTING SEWER MAIN AT ROUTE 11 AS SHOWN ON THE PLANS.

10. RESTORE ANY DISTURBANCES TO RESIDENT DRIVEWAYS ALONG CONFERS LANE WITH APPROPRIATE MATERIALS: PAVEMENT, CRUSHED STONE, GRAVEL, ETC.

11. REPAIR DISTURBED AREAS OF CONFERS LANE SURFACING WITH PAVEMENT.

12. SEED GRADED AREAS, SWALES AND DRAINAGE TRENCHES WITHIN THE AREA OF CONSTRUCTION FOR PHASE IX (AREA 8) AS SHOWN ON THE PLANS. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

13. REMOVE PERIMETER CONTROLS FROM AREAS OF CONSTRUCTION FOR PHASE IX (AREA 8).

14. STABILIZE THE AREAS WHERE BMPS WERE LOCATED (AREA 8). DISPOSE OF ANY SEDIMENT AS OUTLINED IN THE MAINTENANCE NOTES.

PHASE X

EACH STAGE OF THE SEQUENCE MUST BE COMPLETED PRIOR TO INITIATION OF THE NEXT STAGE OF THE SEQUENCE OF EARTH MOVING OPERATIONS WITHIN THIS PHASE.

1. BEGIN CONSTRUCTION OF THE POWER BLOCK STRUCTURES.

2. AS CONSTRUCTION OF THE POWER BOCK STRUCTURES PROGRESSES, CONSTRUCT RETAINING WALL 4 AS SHOWN ON THE PLANS.

3. AS BACKFILL OPERATIONS WITHIN THE POWER BLOCK MASS EXCAVATION PROGRESS, MODIFY DEWATERING FEATURES AS REQUIRED.

4. ONCE THE AREA BEHIND RETAINING WALL 4 IS BACKFILLED, INSTALL RAIL BED (STA 591+00 TO 606+55.30) (AREA 3).

5. INSTALL REMAINING SECTION OF THE ACCESS ROAD IN NORTHWEST QUADRANT OF POWER BLOCK AREA (STA 100+00 TO STA 117+00) (AREA 3).

6. AS INSTALLATION OF THE ACCESS ROAD PROGRESSES (STA 100+00 TO STA 117+00), INSTALL GEOTEXTILE FABRIC FOLLOWED BY INSTALLATION OF AGGREGATE SUB BASE.

7. WHEN CONSTRUCTION OF THE POWER BLOCK STRUCTURES IS SUBSTANTIALLY COMPLETE, INSTALL INFILTRATION BASINS 1A, 1B AND 2.

8. INSTALL PERMANENT STORM WATER DRAINAGE PIPING AND CATCH BASINS WITHIN THE POWER BLOCK AREA.

9. INSTALL PLANT ROADS WITHIN THE POWER BLOCK AREA.

10. AS INSTALLATION OF PLANT ROADS PROGRESSES, INSTALL GEOTEXTILE FABRIC FOLLOWED BY INSTALLATION OF AGGREGATE SUB BASE.

11. FINAL GRADE ALL ROADS WITHIN THE POWER BLOCK AREA AND INSTALL SUB-BASE PAVEMENT AS SHOWN ON THE PLANS.

12. STABILIZE AREAS WITHIN THE POWER BLOCK AREA WITH STONE.

13. SEED GRADED AREAS, SWALES AND DRAINAGE TRENCHES WITHIN THE AREA OF CONSTRUCTION FOR PHASE X (AREA 3) AS SHOWN ON THE PLANS. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

14. REMOVE PERIMETER CONTROLS FROM AREAS OF CONSTRUCTION FOR PHASE X (AREA 3).

15. STABILIZE THE AREAS WHERE BMPS WERE LOCATED (AREA 3). DISPOSE OF ANY SEDIMENT AS OUTLINED IN THE MAINTENANCE NOTES.

NOTE: INSTALL ALL EROSION AND SEDIMENTATION CONTROL DEVICES AS REQUIRED BY THE NARRATIVE, PLAN, AND FIELD CONDITIONS. THESE MEASURES SHALL BE MAINTAINED DURING CONSTRUCTION AND UNTIL THE PERMANENT GROUND COVER IS ESTABLISHED IN THE DISTURBED AREAS. TO MAXIMIZE THE EFFECTIVENESS OF THIS PLAN, THE CONTRACTOR SHALL ARRANGE AN ON-SITE REVIEW WITH PERSONNEL FROM THE LUZERNE CONSERVATION DISTRICT TO DETERMINE HOW TO BEST IMPLEMENT THE PLAN.

LEGEND

EXISTING — PROPOSED

- MAJOR CONTOUR LINE (10')
- MINOR CONTOUR LINE (2')
- SOIL TYPE LABEL
- SOILS BOUNDARY
- STORM INLET
- STORM MANHOLE
- STORM PIPE
- STORM CLEANOUT
- STORM YARD DRAIN
- SANITARY MANHOLE
- SANITARY SEWER
- GAS LINE
- WATER LINE
- DRAINAGE PIPE
- WATER VALVE
- FIRE HYDRANT
- UTILITY POLE
- GUY WIRE
- EVERGREEN TREE
- DECIDUOUS TREE
- RAINGARDEN
- PROPERTY LINE
- ROAD R/W LINE
- FENCE
- TREE / BRUSH LINE
- EDGE OF PAVE
- RAILROAD
- WETLANDS BUFFER
- WETLANDS
- BUILDING / STRUCTURE
- LEVEL SPREADER
- CULVERT
- BRIDGE

EROSION & SEDIMENTATION LEGEND

- TEMPORARY PROPOSED CONTOUR LINE (10')
- TEMPORARY PROPOSED CONTOUR LINE (2')
- NPDES BOUNDARY
- LIMIT OF DISTURBANCE/CONSTRUCTION
- 18" SILT FENCE
- 30" SILT FENCE
- SUPER SILT FENCE
- ROCK FILTER
- FAIRCLOTH SKIMMER
- INLET FILTER BAG PROTECTION
- OUTLET PROTECTION
- ROCK CONSTRUCTION ENTRANCE
- PERMANENT SLOPE PROTECTION
- TEMPORARY STOCKPILE
- TEMPORARY EARTHEN BERM

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SALEM TOWNSHIP, PENNSYLVANIA

EROSION & SEDIMENTATION INDEX PLAN

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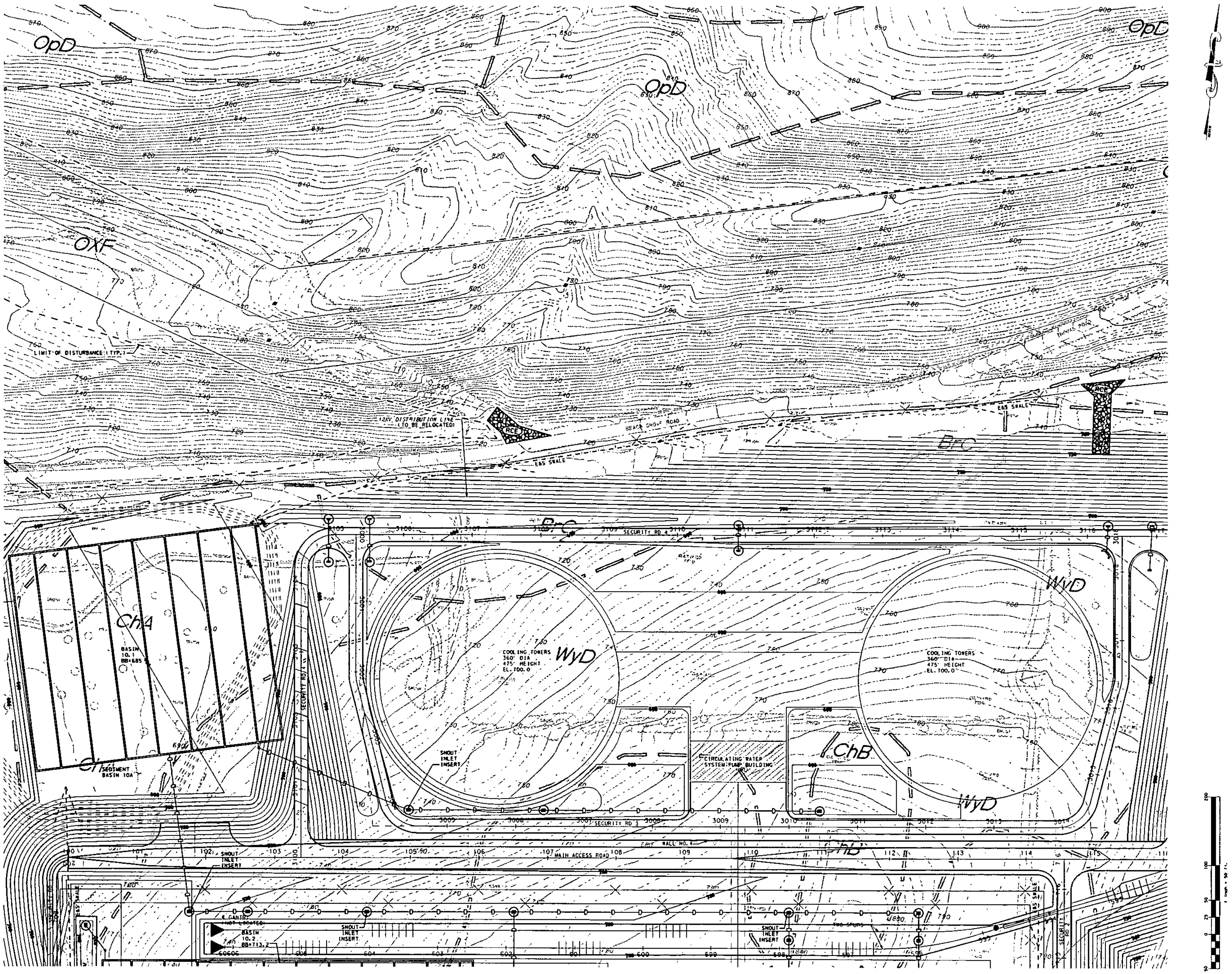

Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

DATE	NO.	REVISIONS	BY
08/20/2010	0	XXXXXXXX XXXXXXXXXX	YXX

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

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BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

EROSION & SEDIMENTATION CONTROL PLANS

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SHEET 6 OF 39

SCALE 1" = 50'
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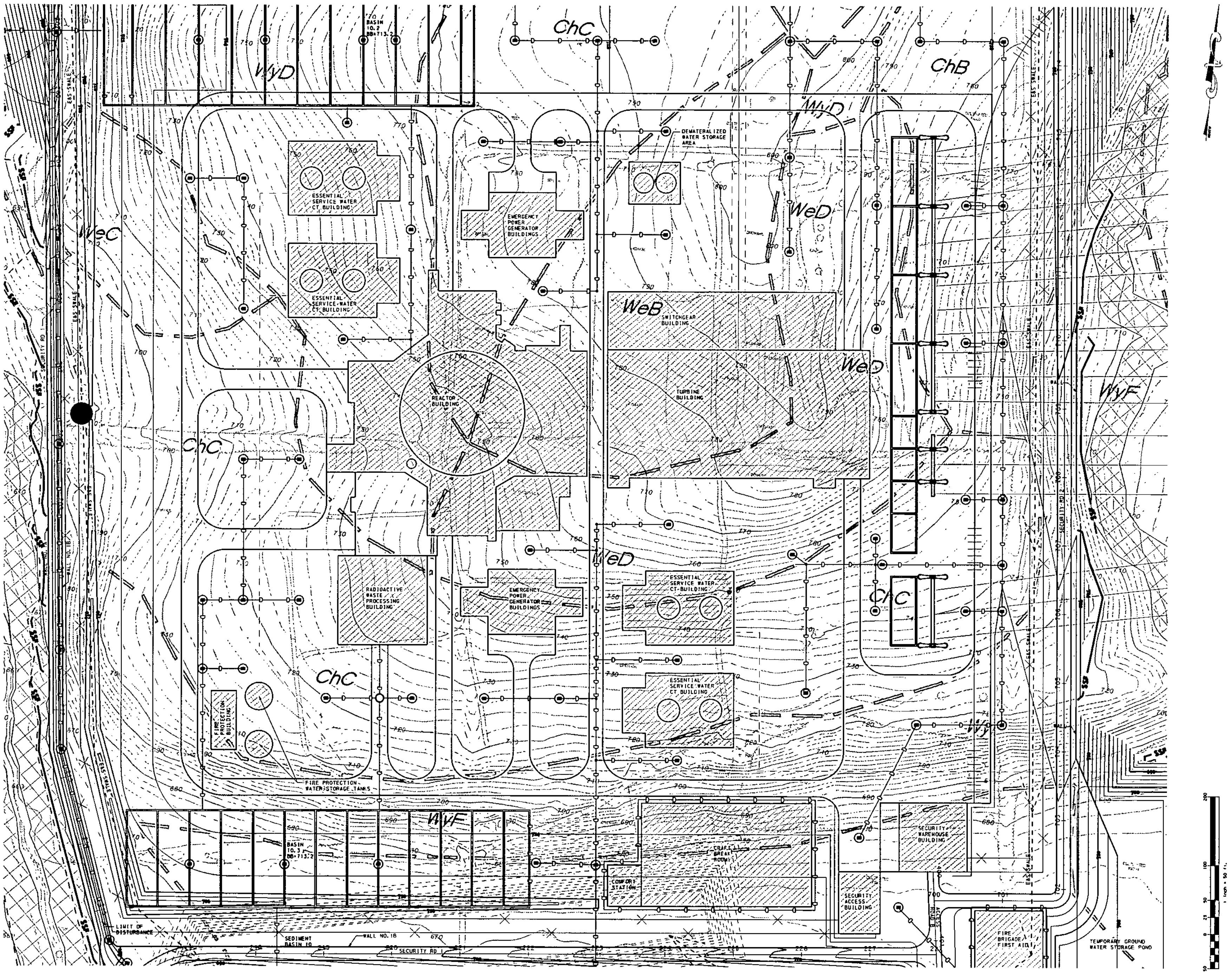
DATE 11/12/2010
APPROVED JPM
DRAWING NO. CS 8101



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CS8104

BELL BEND NUCLEAR POWER PLANT

SALEM TOWNSHIP, PENNSYLVANIA

EROSION & SEDIMENTATION CONTROL PLANS

PPL BELL BEND, LLC

39 BOMBOY LANE
SUITE 2
BERWICK, PA 18603

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK

DATE	NO	REVISIONS	BY

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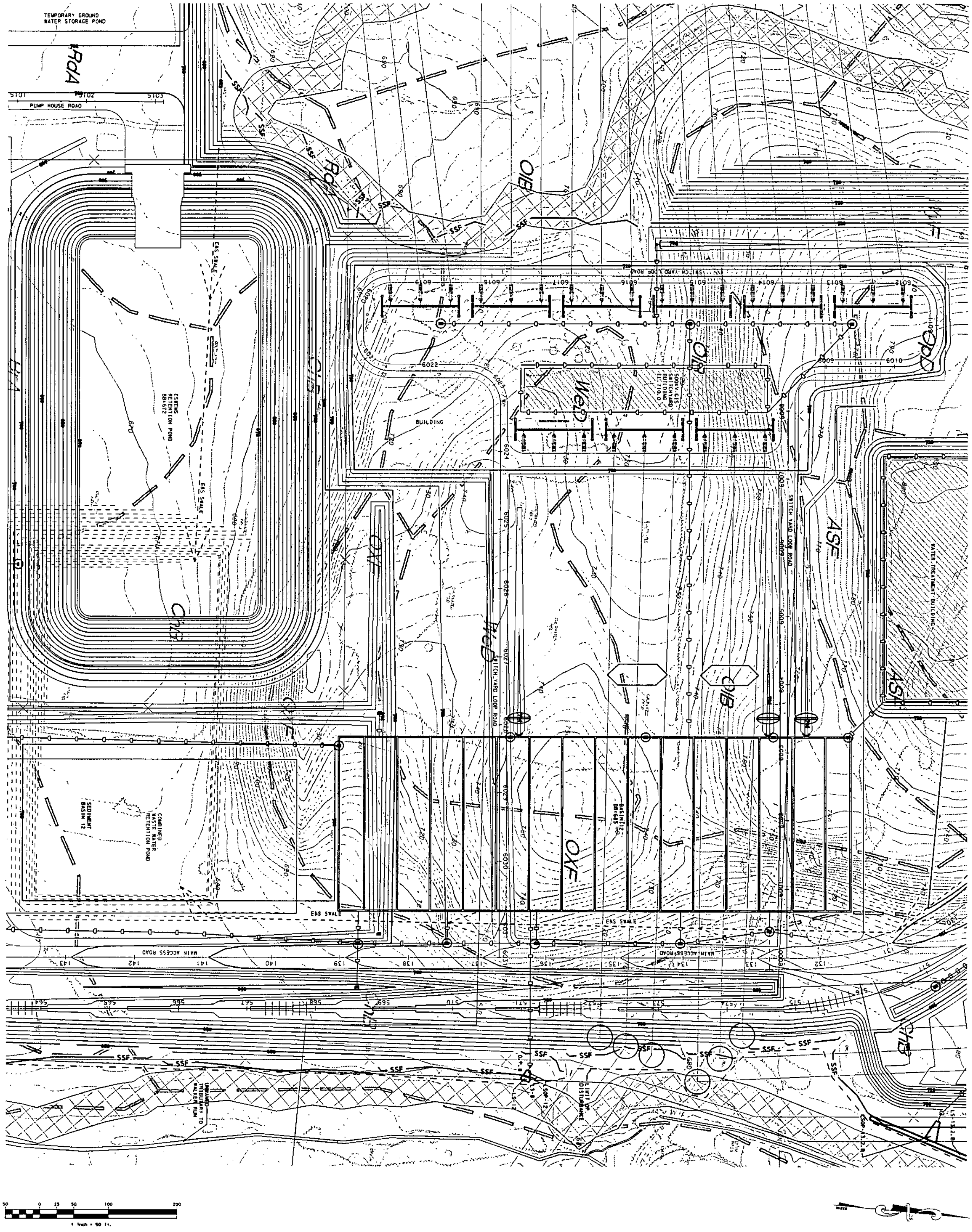

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SCALE 1" = 50'
DRAWING NO. CS 8105

BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

EROSION & SEDIMENTATION CONTROL PLANS

PPL BELL BEND, LLC
38 BOMBOY LANE
SUITE 2
BERWICK, PA 18603

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DATE	NO	REVISIONS	BY
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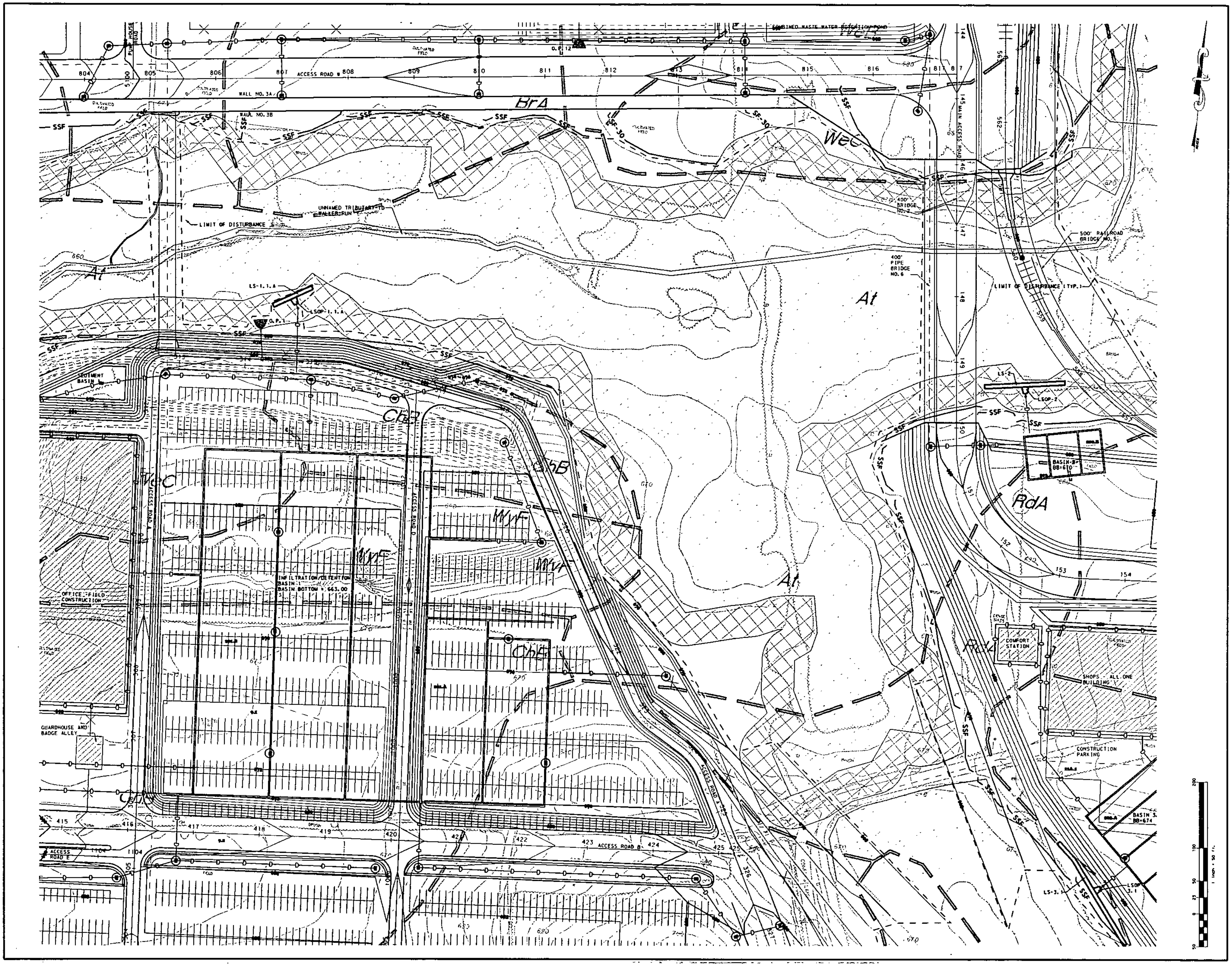

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BELL BEND NUCLEAR POWER PLANT

SALEM TOWNSHIP, PENNSYLVANIA

EROSION & SEDIMENTATION CONTROL PLANS

PPL BELL BEND, LLC

Pennoni Associates Inc.

CS 8106

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BELL BEND NUCLEAR POWER PLANT

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38 BOWBOY LANE
SUITE 2
BERWICK, PA 18603

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DATE	NO.	REVISIONS	BY
08/20/2010	0	XXXXXXX XXXXXXXXXX	YYY

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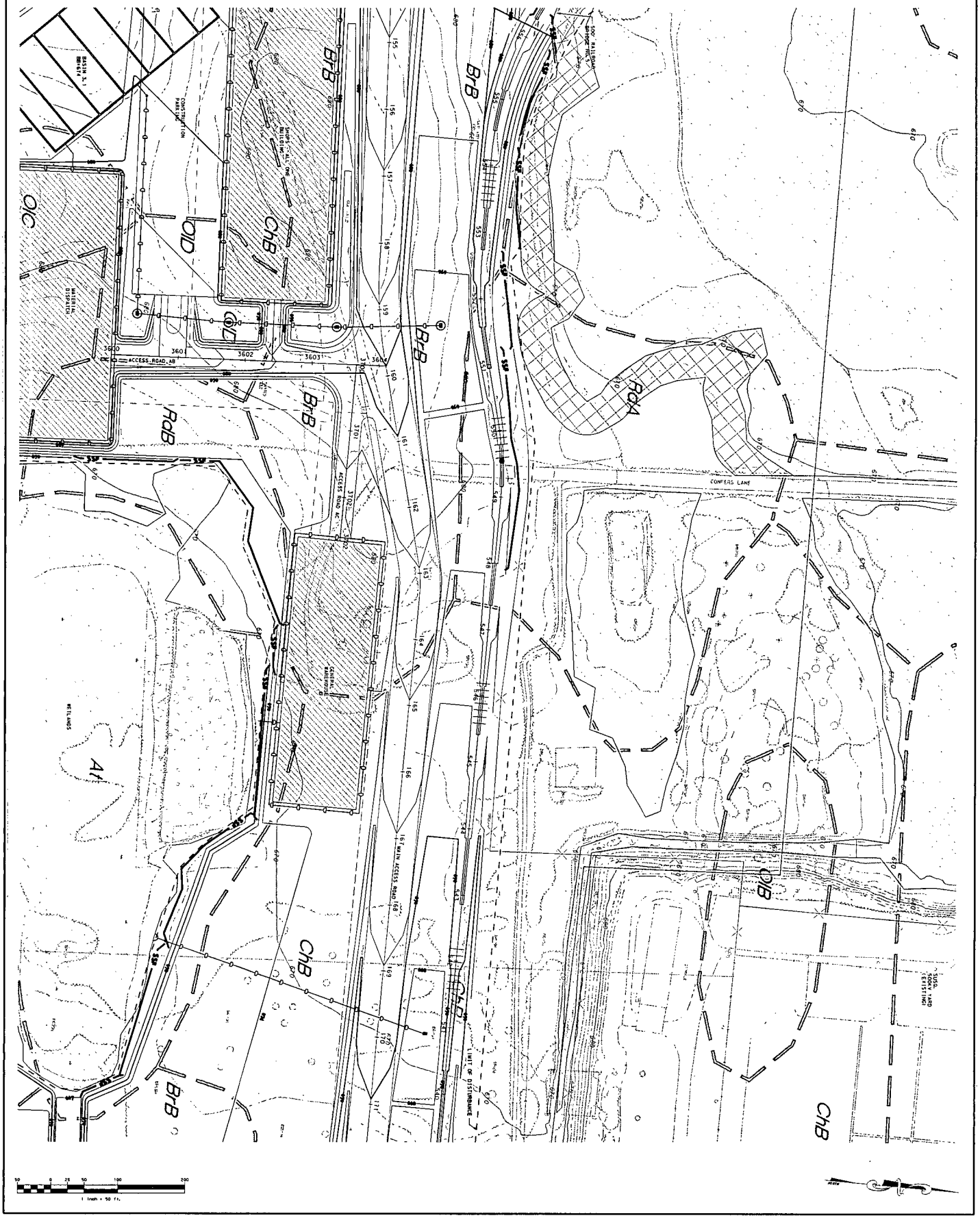

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SALEM TOWNSHIP, PENNSYLVANIA

EROSION & SEDIMENTATION CONTROL PLANS

PPL BELL BEND, LLC

39 BOWDOY LANE
SUITE 2
BERWICK, PA 18603

CS 8108

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DATE	NO.	REVISIONS	BY
06/20/2019	0	XXXXXXX XXXXXXXXXX	XXX

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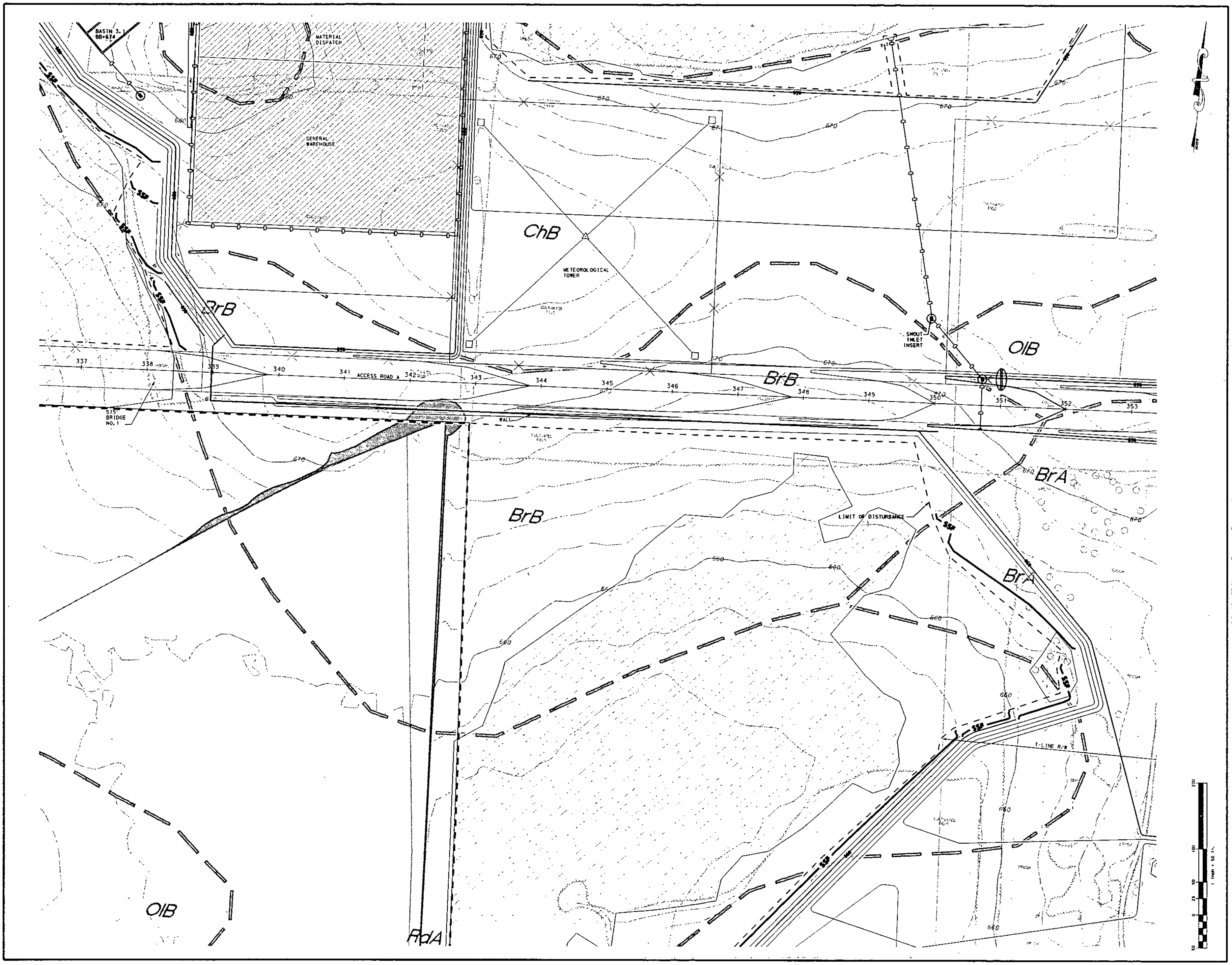

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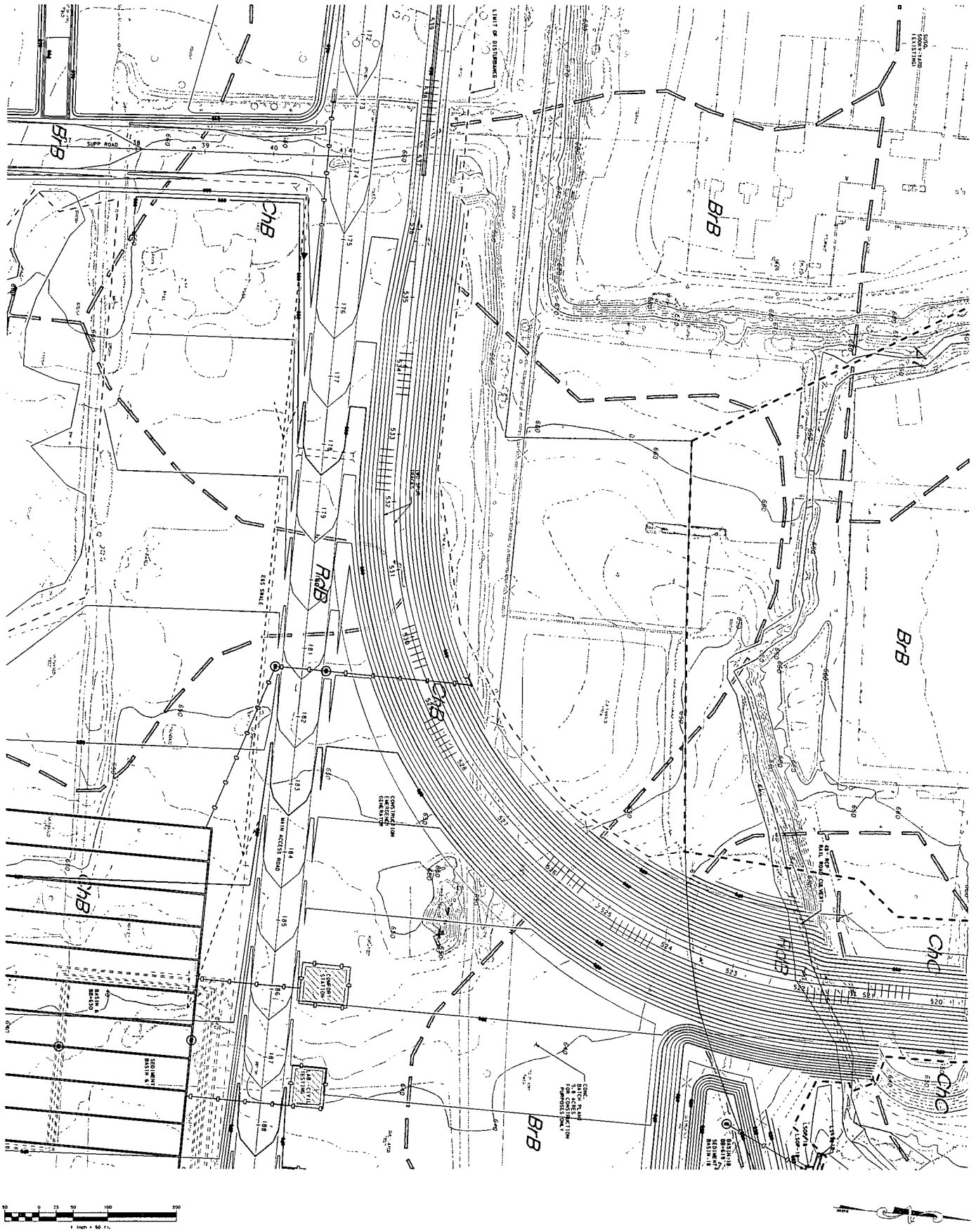
SALEM TOWNSHIP, PENNSYLVANIA

EROSION & SEDIMENTATION CONTROL PLANS

PPL BELL BEND, LLC

CS 8109



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SUITE 2
BERWICK, PA 18603

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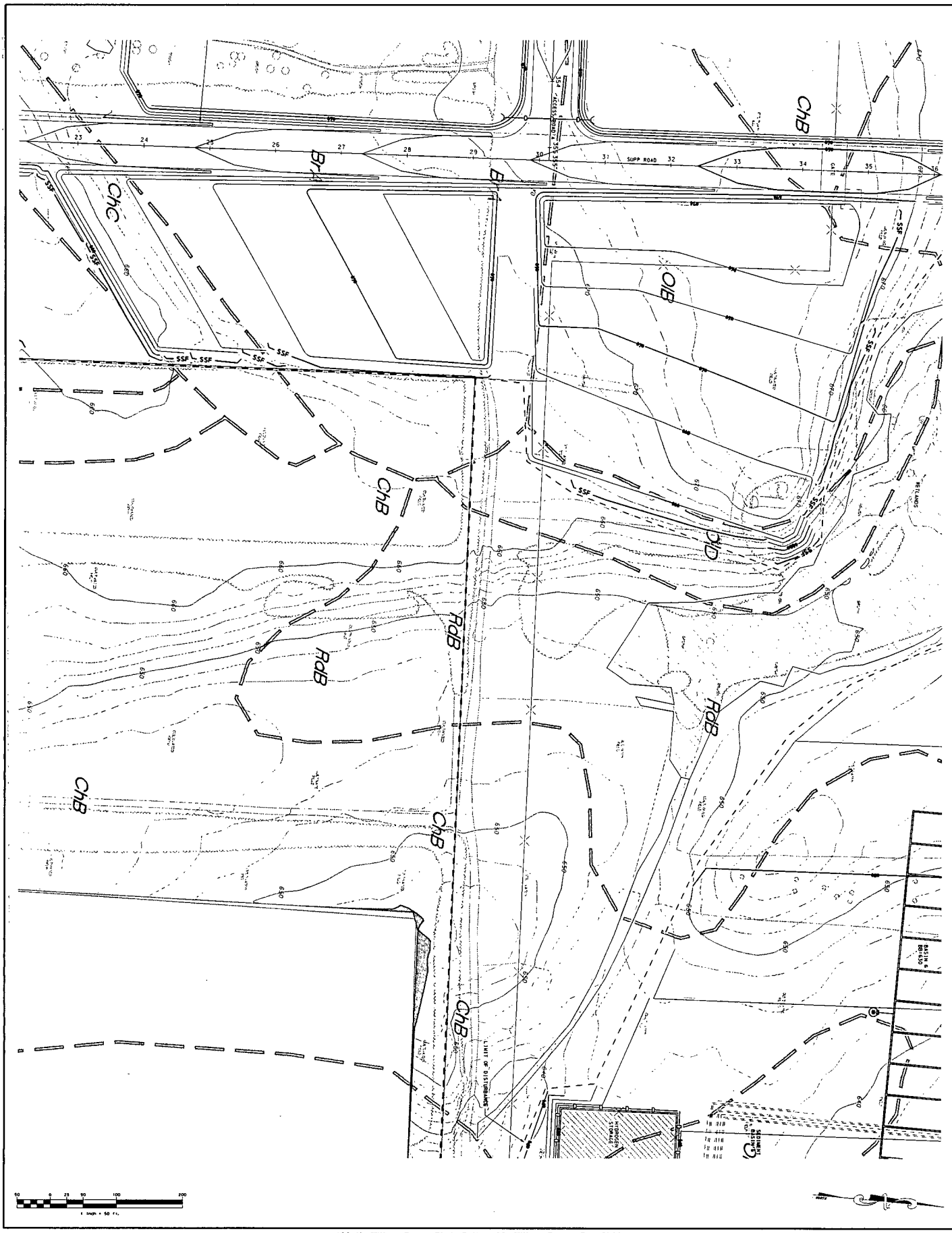

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SUITE 2
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DATE	NO.	REVISIONS	BY

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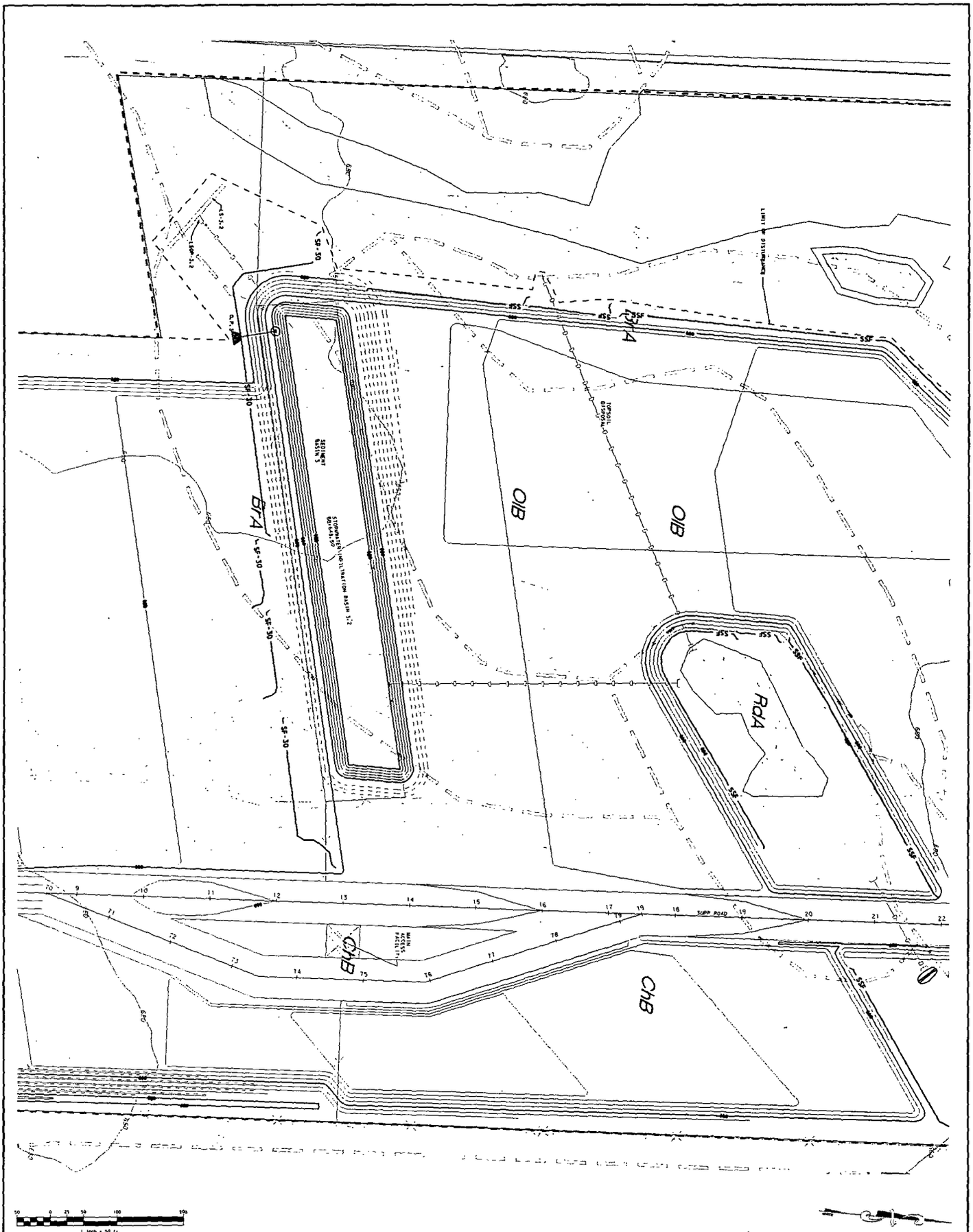
CONSULTING ENGINEERS



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SUITE 2
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DATE	NO	REVISIONS	BY

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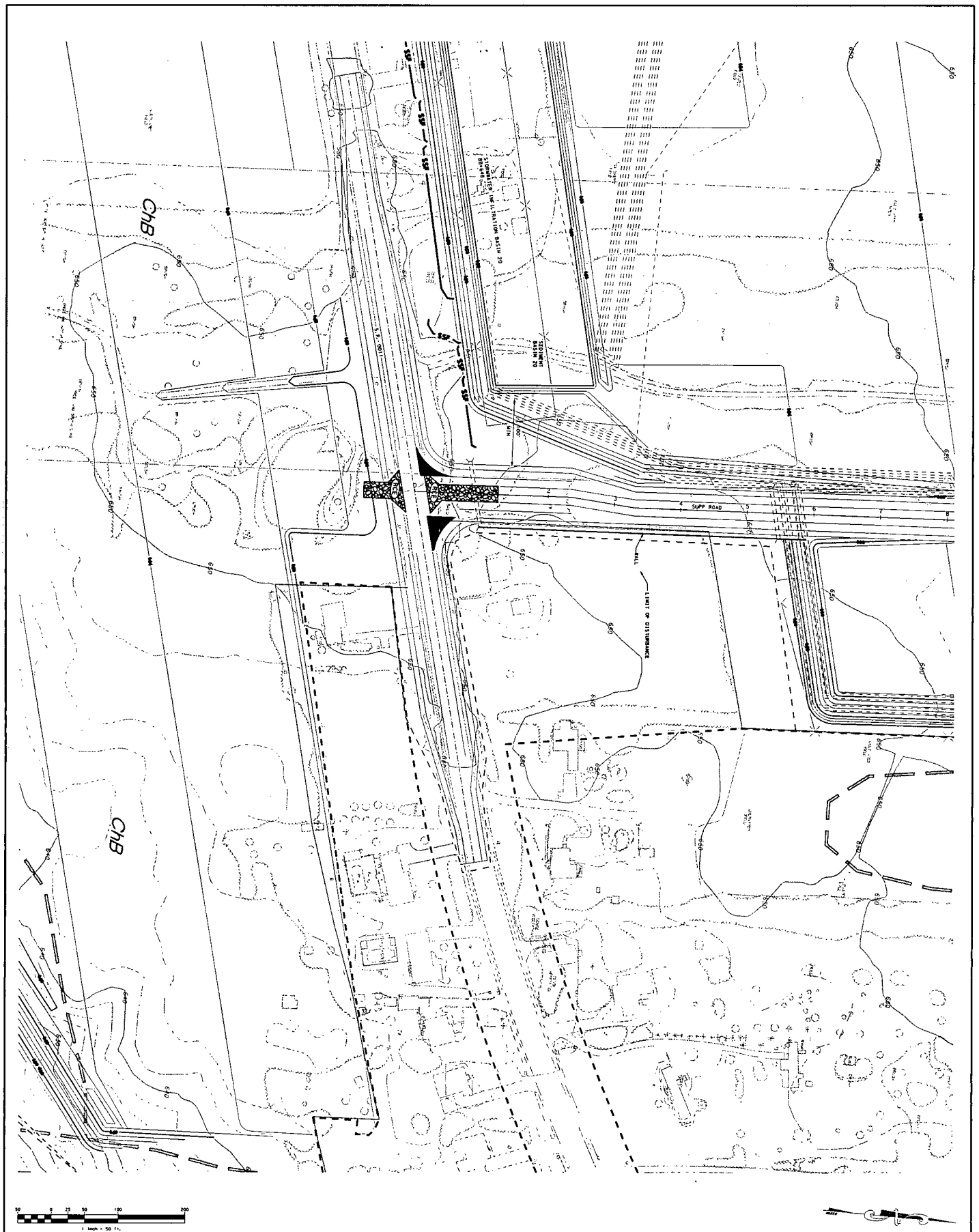

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SUITE 2
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DATE	NO.	REVISIONS	BY

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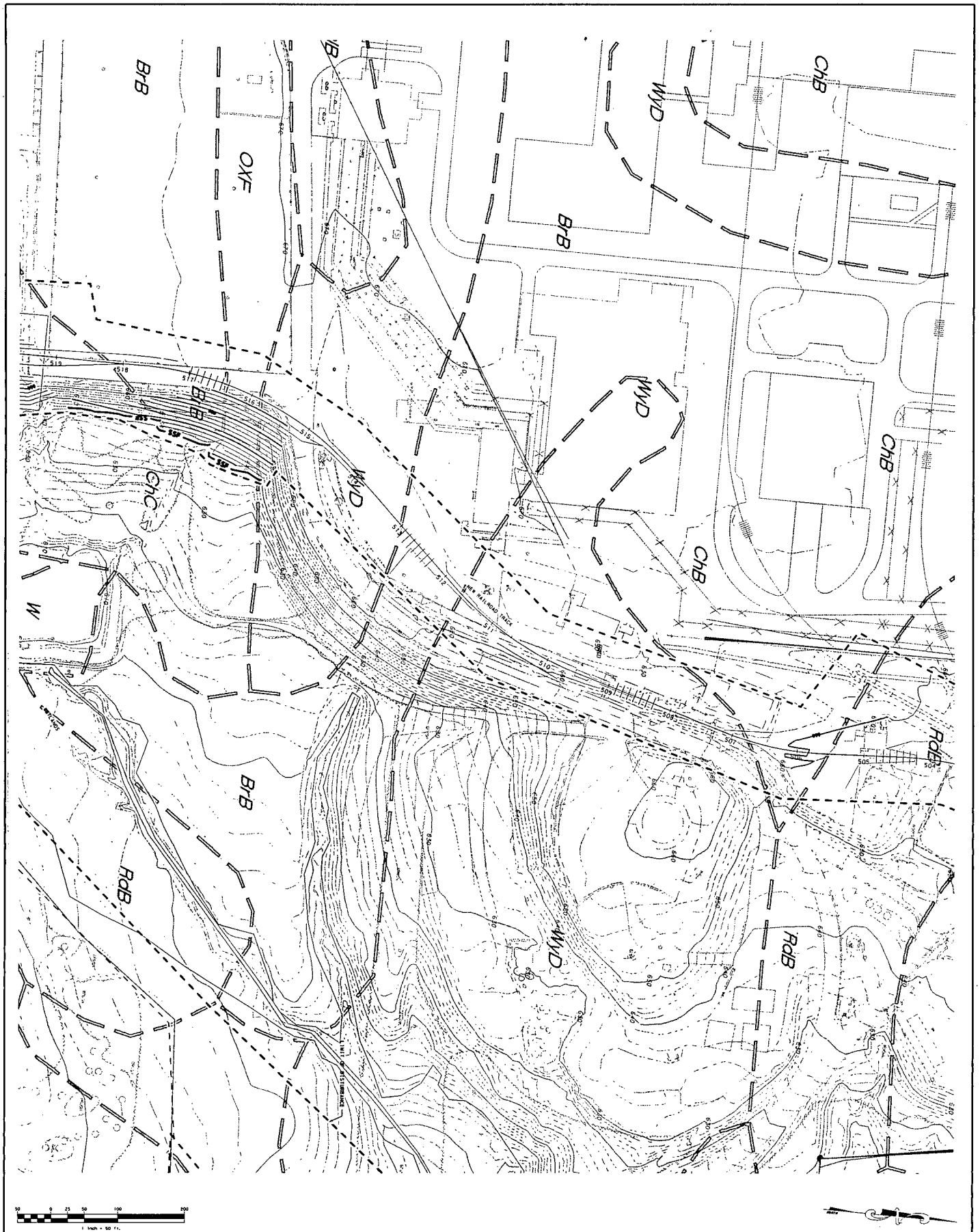

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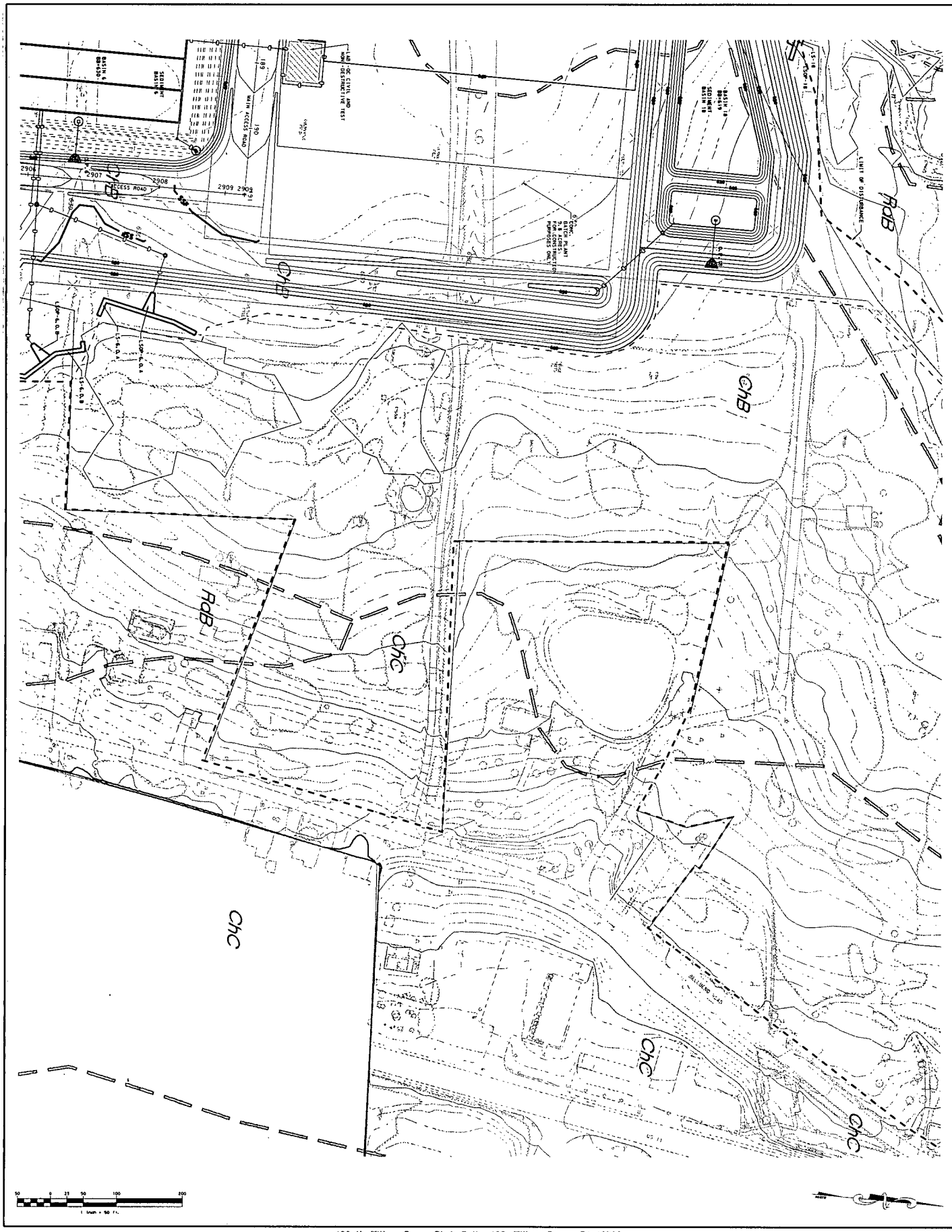

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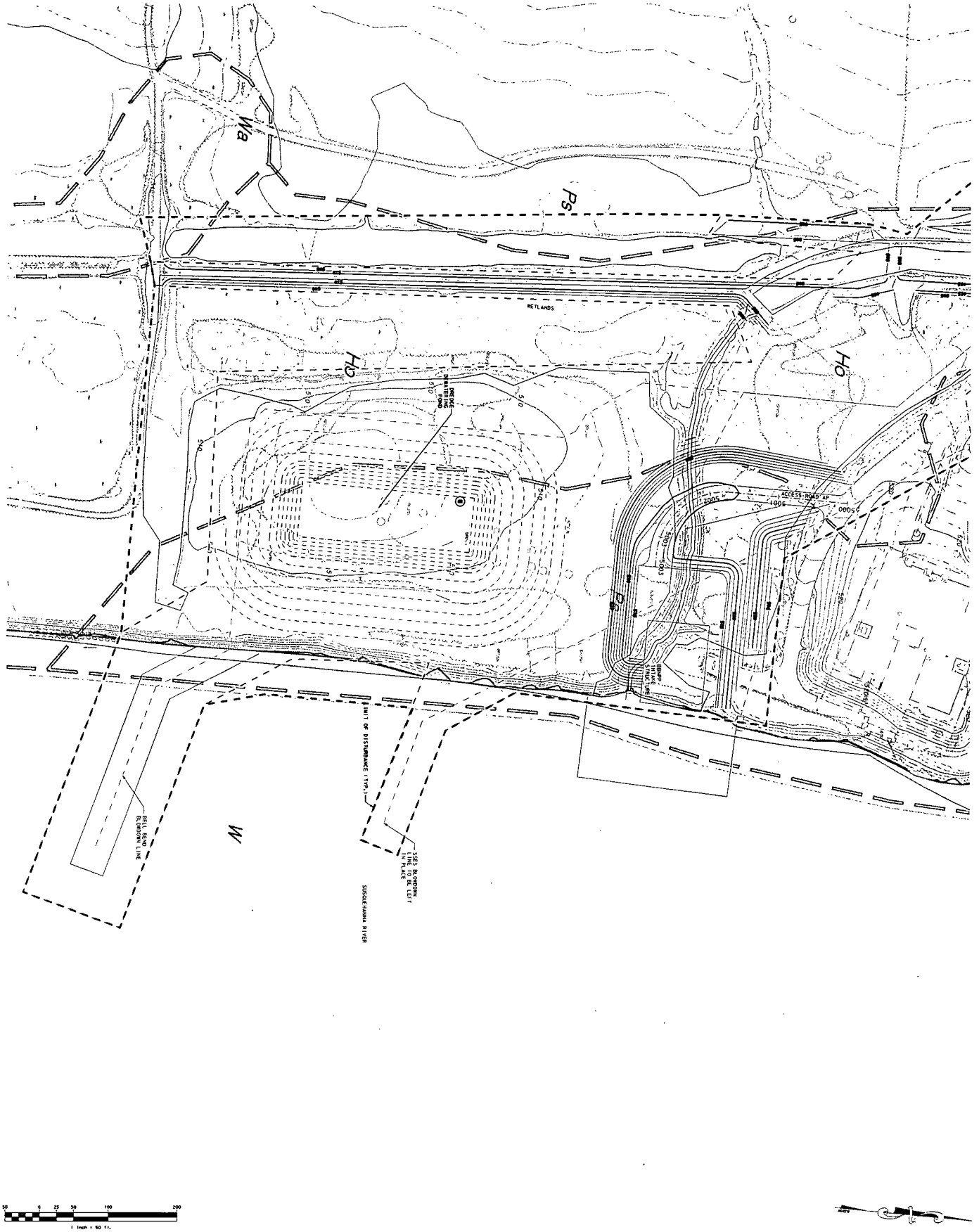

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PPL BELL BEND, LLC
38 BOWBOY LANE
SUITE 2
BERWICK, PA 18603

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DATE	NO.	REVISIONS	BY

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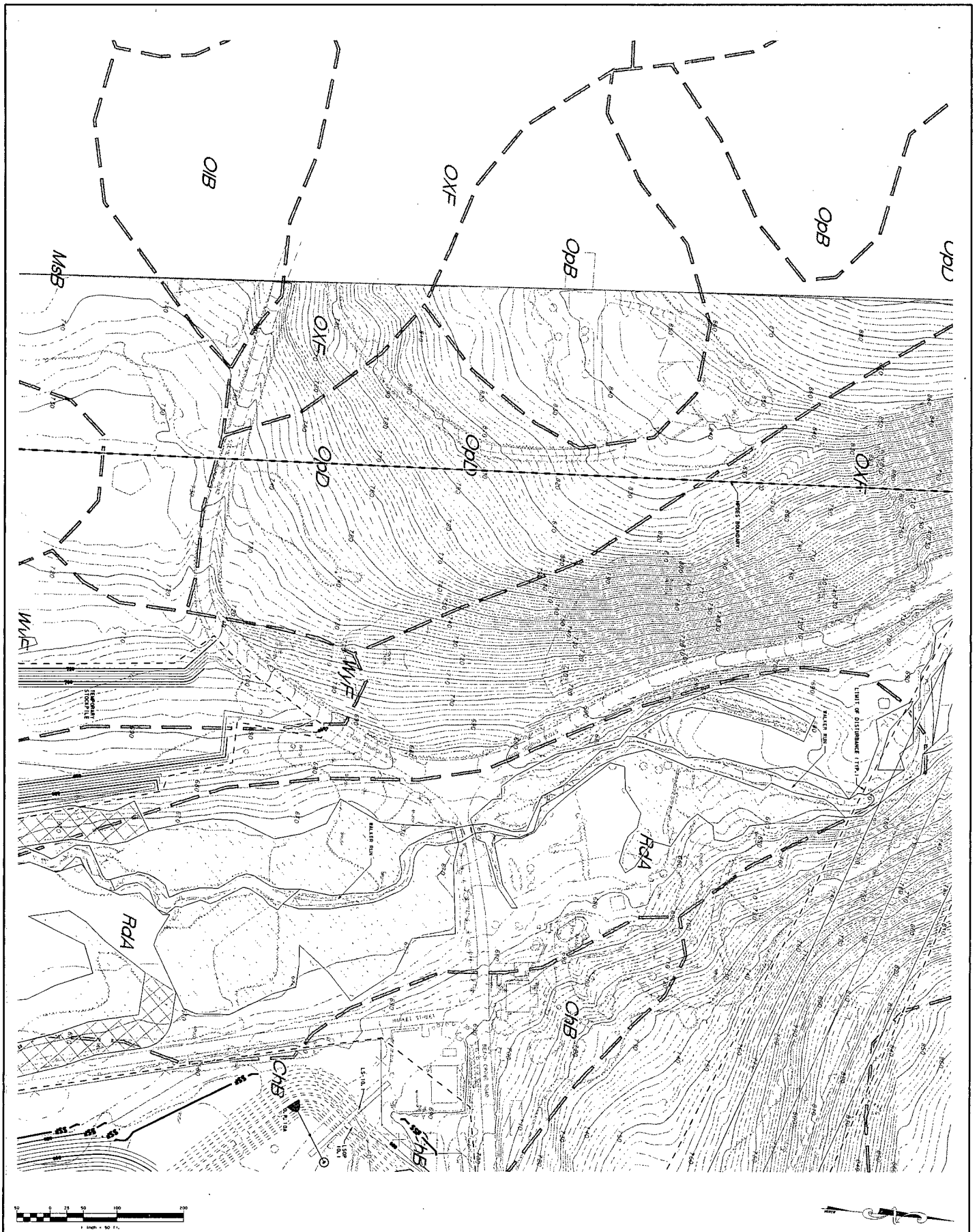

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38 BOMBOY LANE
SUITE 2
BERWICK, PA 18603

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK

DATE	NO.	REVISIONS	BY
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EROSION & SEDIMENTATION CONTROL PLANS

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38 BOWDOY LANE
SUITE 2
BERWICK, PA 18603

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DATE	NO.	REVISIONS	BY
08/20/2010	0	XXXXXXXX XXXXXXXXXX	YYX

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SUITE 2
BERWICK, PA 18603

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DATE	NO	REVISIONS	BY

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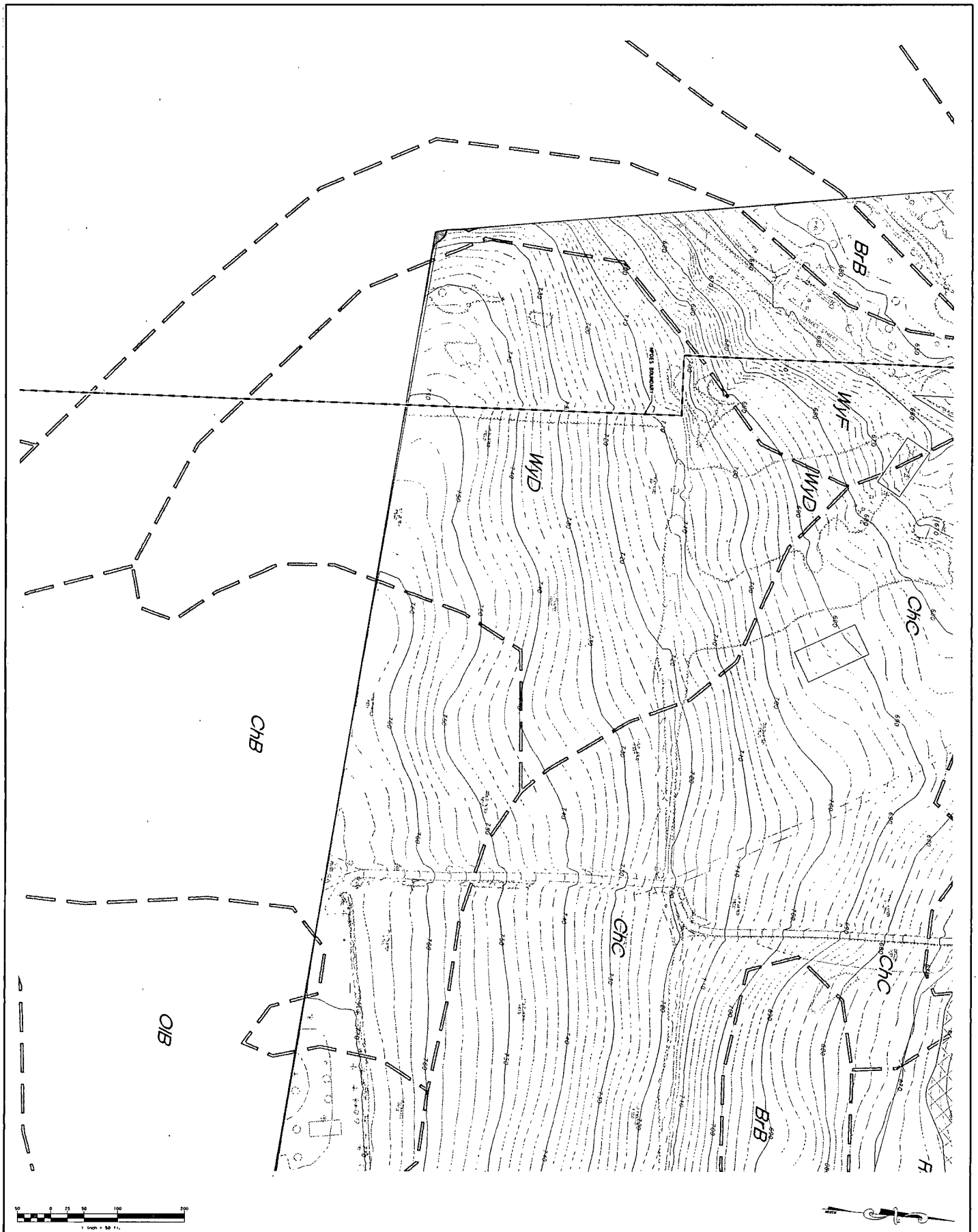

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SUITE 2
BERWICK, PA 18603

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DATE	NO.	REVISIONS	BY
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EROSION & SEDIMENTATION CONTROL PLANS

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SUITE 2
BERWICK, PA 18603

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DATE	NO.	REVISIONS	BY
06/20/2010	0	XXXXXXXX XXXXXXXXXX	YYX

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BELL BEND NUCLEAR POWER PLANT
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38 BOWBOY LANE
SUITE 2
BERWICK, PA 18603

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06/30/2010	0	XXXXXXX XXXXXXXXX	XXX

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EROSION & SEDIMENTATION CONTROL PLANS

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SUITE 2
BERWICK, PA 18603

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08/22/2012	0	XXXXXXXX XXXXXXXXXX	XXX

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BERWICK, PA 18603

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SUITE 2
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DATE	NO.	REVISIONS	BY
06/30/2015	0	XXXXXXX XXXXXXXXXX	XXX

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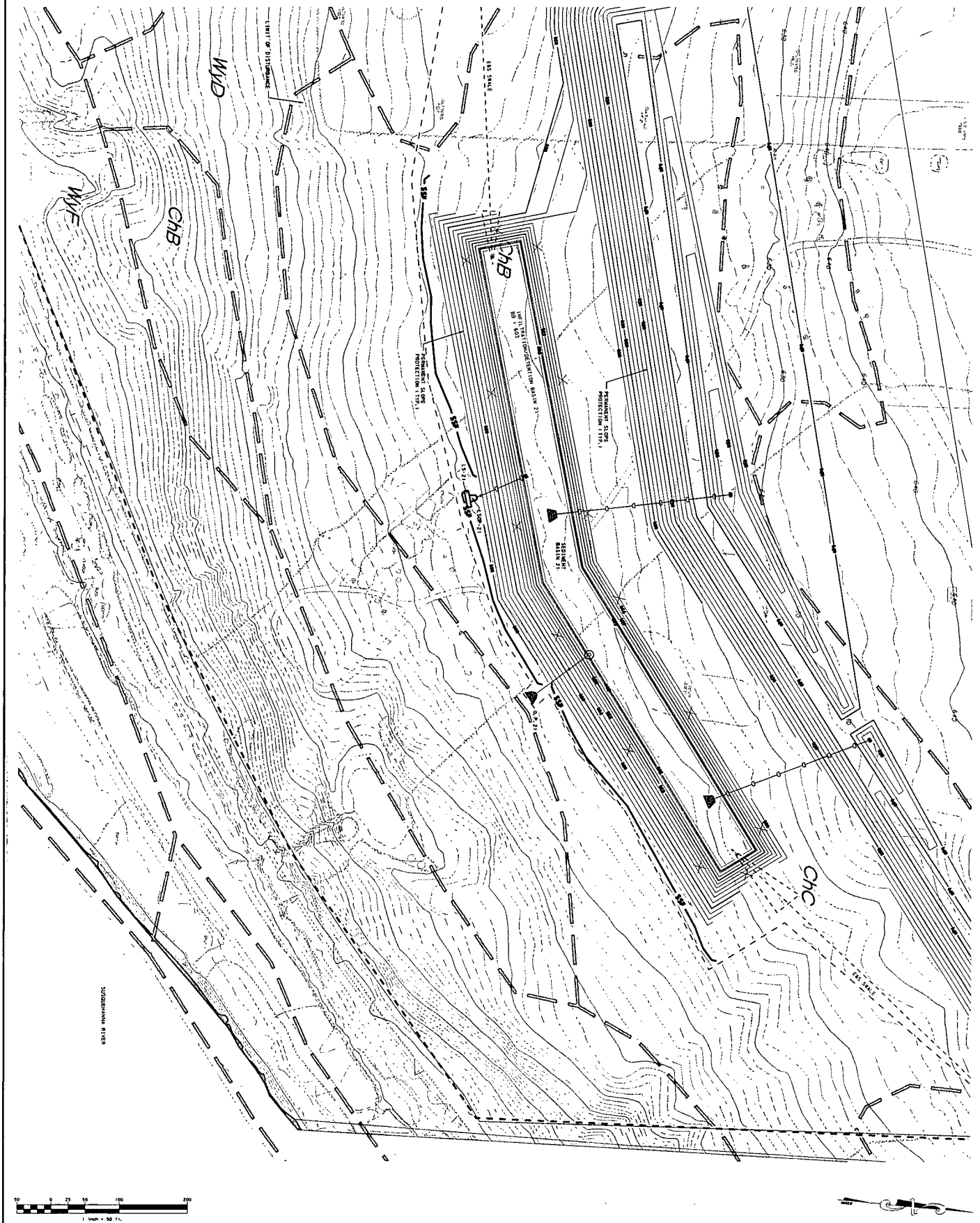

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BELL BEND NUCLEAR POWER PLANT
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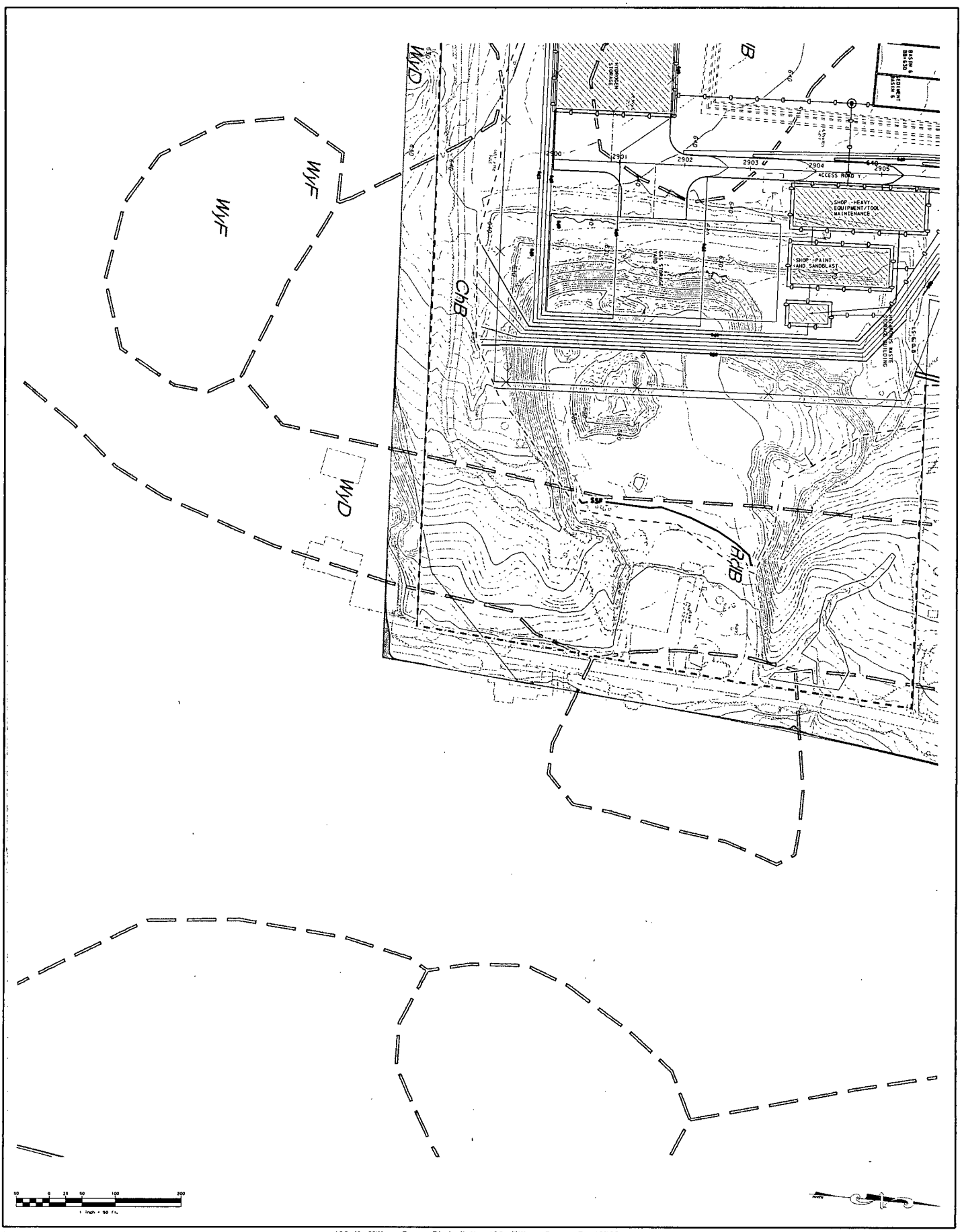

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SALEM TOWNSHIP, PENNSYLVANIA

EROSION & SEDIMENTATION CONTROL PLANS

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DATE	NO.	REVISIONS	BY
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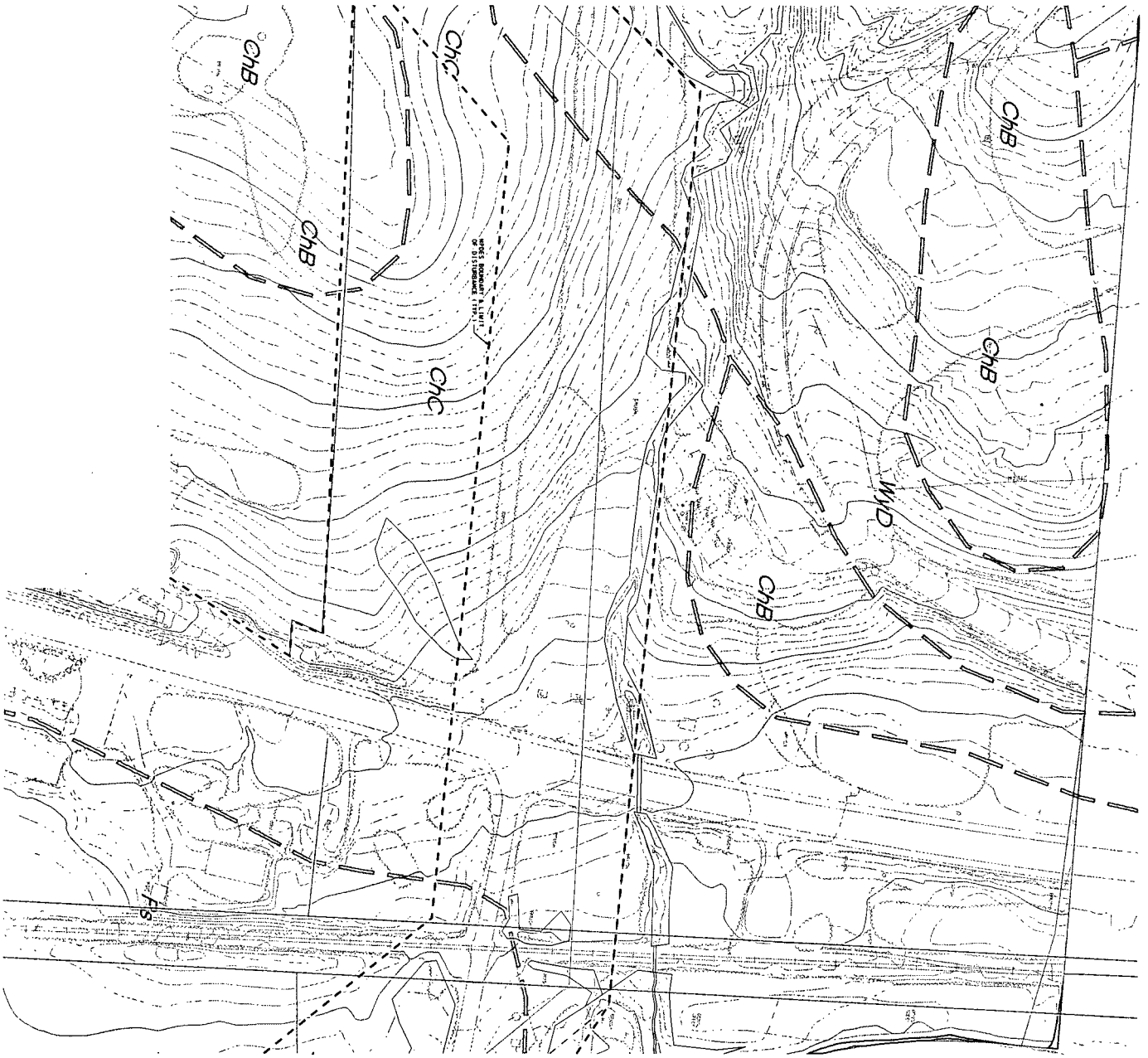

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BELL BEND NUCLEAR POWER PLANT
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EROSION & SEDIMENTATION CONTROL PLANS

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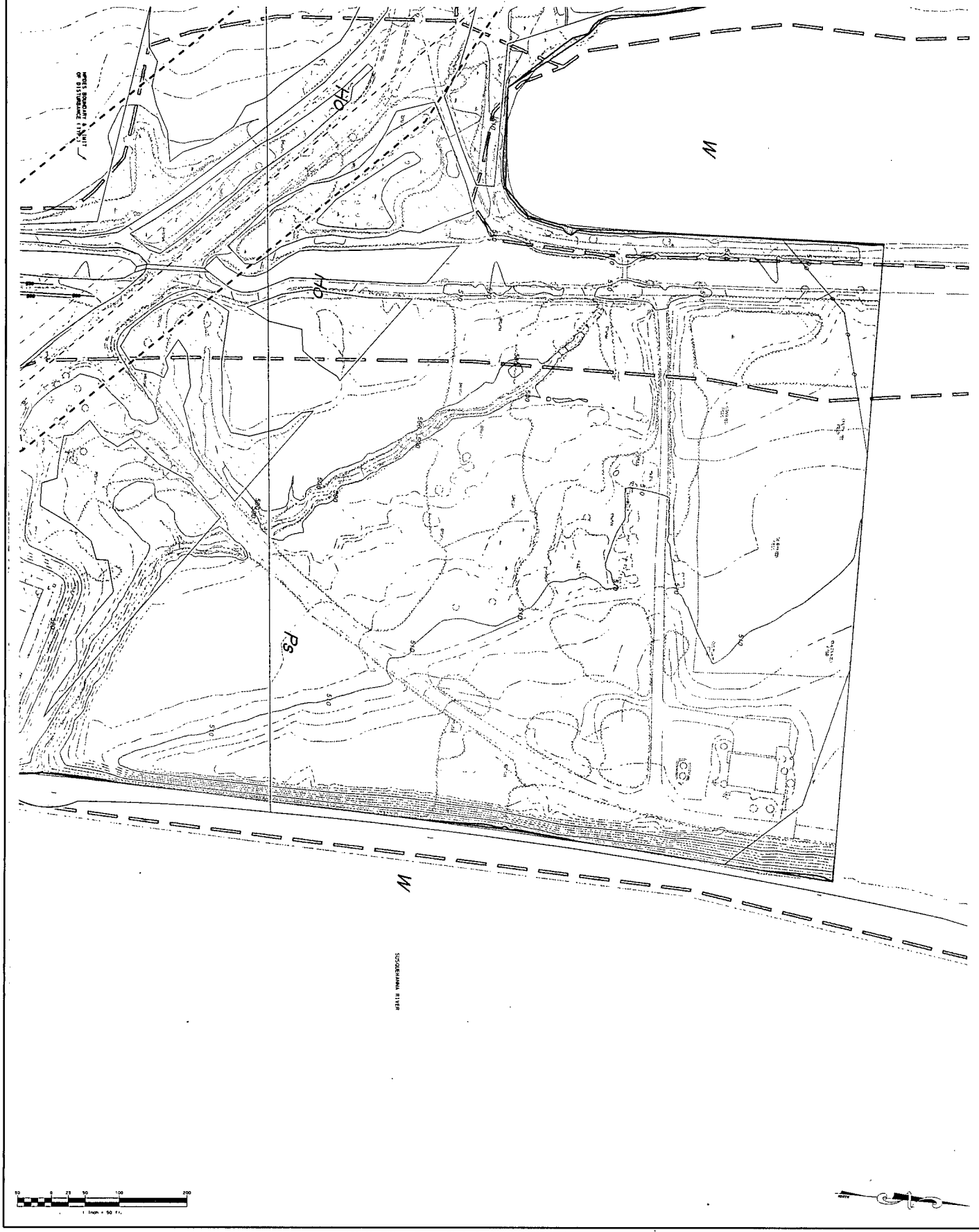
CONSULTING ENGINEERS



Pennoni Associates Inc.

100 N. Wilkes-Barre Blvd, Suite 409, Wilkes-Barre, PA 18702
TEL: 570-824-2200 FAX: 570-824-0800

Engineers • Surveyors • Planners • Landscape Architects

CS 8130

BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

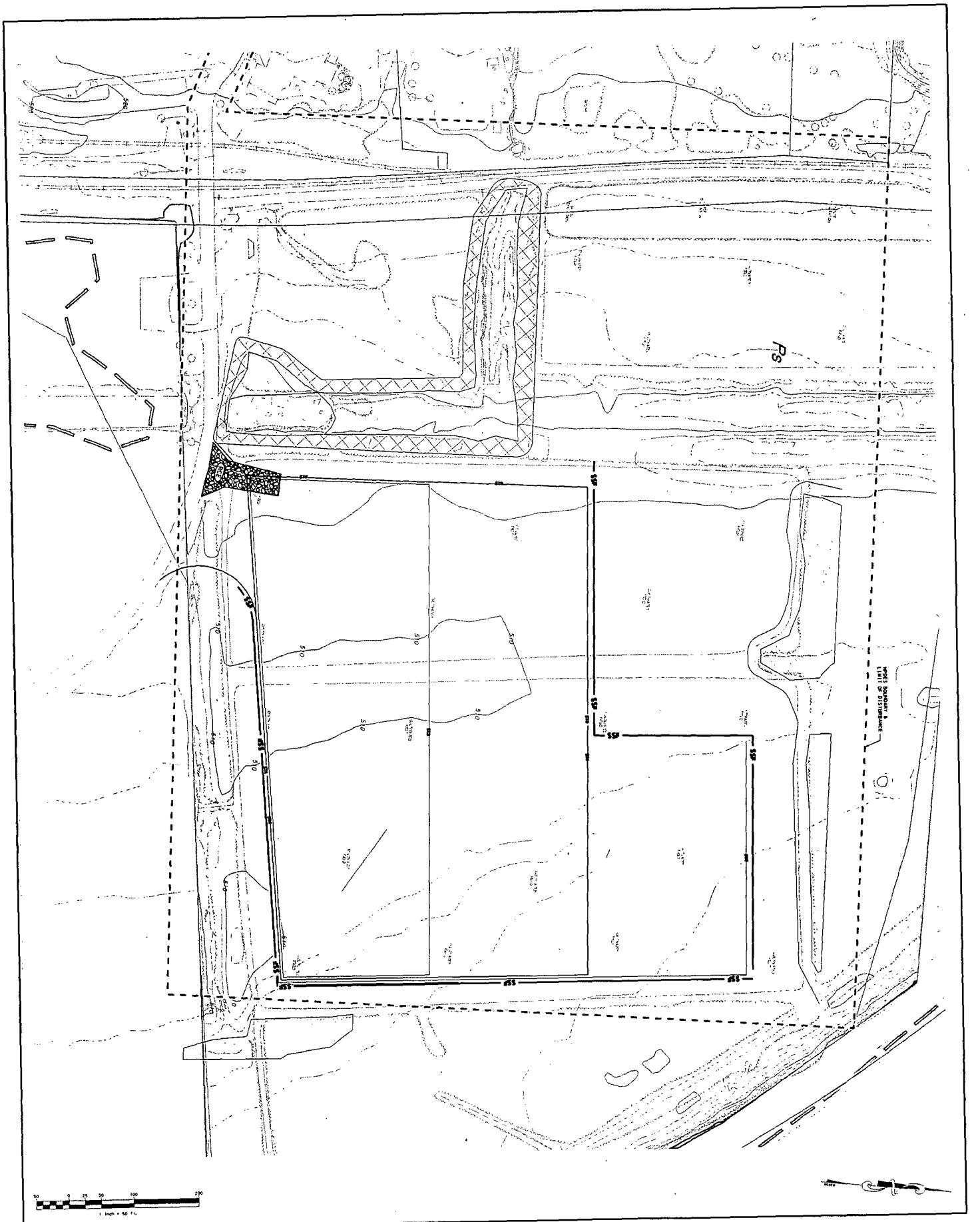
EROSION & SEDIMENTATION CONTROL PLANS

PPL BELL BEND, LLC
38 BOWDOY LANE
SUITE 2
BERWICK, PA 18603

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES, BEFORE PROCEEDING WITH THE WORK

DATE	NO.	REVISIONS	BY

Pennoni ASSOCIATES INC. CONSULTING ENGINEERS



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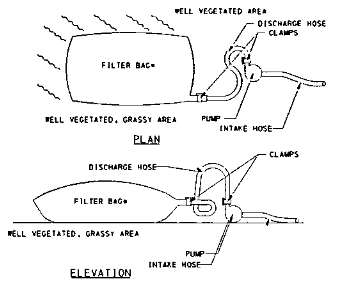


NOTES:
1. FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THE SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS.

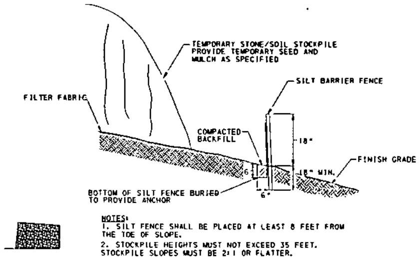
2. A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES MUST BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED.

3. BAGS SHALL BE LOCATED IN A WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE FLOW PATH SHALL BE PROVIDED. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%.

4. THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED.

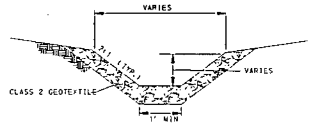
5.* THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHOULD BE FLOATING AND SCREENED.

1 PUMPED WATER FILTER BAG
NO SCALE



NOTES:
1. SILT FENCE SHALL BE PLACED AT LEAST 8 FEET FROM THE TOE OF SLOPE.
2. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

4 TEMPORARTY STOCKPILE CONTROL DETAIL
NO SCALE

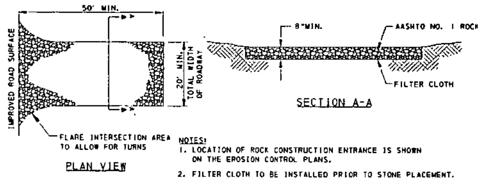


7 ROCK-LINED SWALE DETAIL
NO SCALE

TYPICAL ROCK LINED SWALE INSTALLATION SEQUENCE

1. CLEAR AND GRUB TO LIMIT OF DISTURBANCE.
2. PERFORM EXCAVATION AND GRADING OPERATIONS. IMMEDIATELY PERFORM STEPS 3 AND 4.
3. PLACE GEOTEXTILE AT DESIGNED DEPTH IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. PLACE RIP RAP ON STEEP SLOPES

NOTE:
BEGIN SWALE CONSTRUCTION OPERATIONS AT THE DISCHARGE POINT AND WORK UPHILL. LIMIT SWALE CONSTRUCTION TO THAT AMOUNT WHICH CAN BE CONSTRUCTED AND STABILIZED WITH GEOTEXTILE AND ROCK IN ONE DAY.

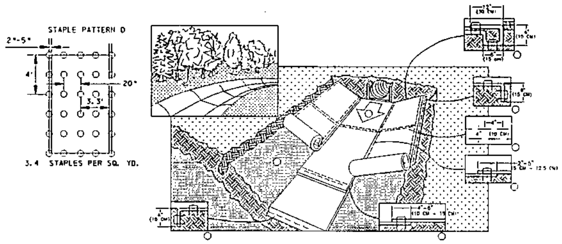


NOTES:
1. LOCATION OF ROCK CONSTRUCTION ENTRANCE IS SHOWN ON THE EROSION CONTROL PLANS.

2. FILTER CLOTH TO BE INSTALLED PRIOR TO STONE PLACEMENT.

3. ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. AT THE END OF EACH CONSTRUCTION DAY, ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE.

8 ROCK CONSTRUCTION ENTRANCE DETAIL
NO SCALE



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.

3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.

4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"-6" (10cm-15cm) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER TO SECURE BLANKETS.
5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (5cm-12.5cm) (DEPENDING ON BLANKET TYPE) AND STAPLED. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE BLANKET BEING OVERLAPPED.

7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9m-12m) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.

8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

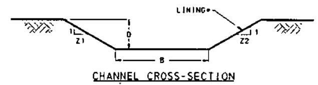
NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED, IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

5 CHANNEL MATTING INSTALLATION DETAIL
NO SCALE

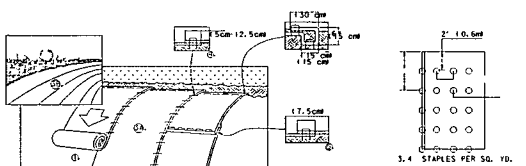


* S75 AND C125 ARE PER MANUFACTURER'S SPECIFICATIONS. SEE MANUFACTURER'S LINING INSTALLATION DETAIL FOR STAPLE PATTERNS, AND VEGETATION STABILIZATION SPECIFICATIONS FOR SOIL AMENDMENTS, SEED MIXTURES, AND MULCHING INFORMATION.

CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	Z1 (FT)	Z2 (FT)	LINING*
E&S 1	ALL	3	1.50	2	2	S75
E&S 2	ALL	3	1.50	2	2	S75
E&S 3	ALL	3	2.00	2	2	S75
E&S 4	ALL	3	2.00	2	2	S75
E&S 5	ALL	3	1.50	2	2	S75
E&S 6	ALL	3	2.00	2	2	S75
E&S 7	ALL	1	1.50	2	2	S75
E&S 8	ALL	1	1.50	2	2	S75
E&S 9	ALL	3	1.00	2	2	S75
E&S 10	ALL	1	1.50	2	2	S75
E&S 11	ALL	1	1.50	2	2	S75
E&S 12	ALL	1	1.50	2	2	S75
E&S 13	ALL	1	1.50	2	2	S75
E&S 14	ALL	1	1.50	2	2	S75
E&S 16	ALL	1	1.50	2	2	S75
E&S 17	ALL	1	1.50	2	2	S75
E&S 19	ALL	1	2.00	2	2	S75
E&S 20	ALL	3	2.50	2	2	S75
E&S 21	ALL	1	1.50	2	2	S75
E&S 22	ALL	1	1.50	2	2	S75
E&S 23	ALL	1	1.50	2	2	S75
E&S 24	ALL	1	1.50	2	2	S75
E&S 26	ALL	1	1.50	2	2	S75
E&S 27	ALL	1	2.00	2	2	S75
E&S 28	ALL	1	1.00	2	2	S75
E&S 29	ALL	3	1.50	2	2	S75
E&S 30	ALL	1	1.50	2	2	S75
E&S 32	ALL	1	2.00	2	2	S75
E&S 33	ALL	3	2.50	2	2	C125
E&S 34	ALL	3	2.50	2	2	C125
E&S 35	ALL	3	2.50	2	2	S75
E&S 36	ALL	5	1.50	2	2	C125
E&S 37	ALL	4	2.00	2	2	S75
E&S 38	ALL	1	2.00	2	2	S75

9 VEGETATED CHANNEL
NO SCALE

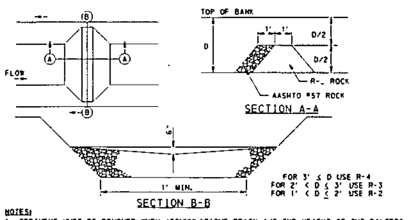
NOTE: SWALE NUMBERS ARE RELATED TO THE POINT OF INTEREST IN WHICH THEY RESIDE



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

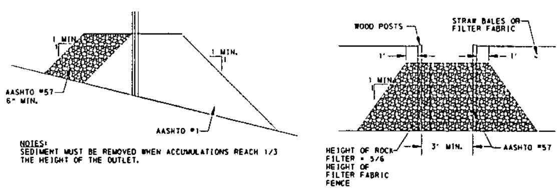
NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

2 SLOPE PROTECTION DETAIL
NO SCALE



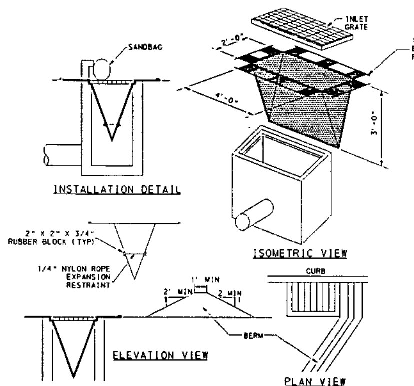
NOTES:
1. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE HEIGHT OF THE FILTERS.
2. IMMEDIATELY UPON STABILIZATION OF EACH CHANNEL, REMOVE ACCUMULATED SEDIMENT, REMOVE ROCK FILTER, AND STABILIZE DISTURBED AREAS.

3 ROCK FILTER BERM DETAIL
NO SCALE



NOTES:
SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE HEIGHT OF THE OUTLET.

6 ROCK FILTER OUTLET DETAIL
NO SCALE



NOTES:
1. MAXIMUM DRAINAGE AREA = 1/2 ACRE. INLET PROTECTION IS NOT REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS REQUIRED FOR ALL INSTALLATIONS.
2. EARTHEN BERM SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED.

3. SIX INCH MINIMUM HEIGHT ASPHALT BERM SHALL BE MAINTAINED UNTIL ROADWAY SURFACE RECEIVES FINAL COAT.

4. DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS

5. INLET FILTER BAGS SHOULD BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT.

6. FILTER BAGS SHOULD BE CLEANED AND/OR REPLACED WHEN BAG IS 1/2 FULL.

7. DAMAGED FILTER BAGS SHOULD BE REPLACED.

8. NEEDED REPAIRS SHOULD BE INITIATED IMMEDIATELY AFTER THE INSPECTION.

10 FILTER BAG INLET PROTECTION DETAIL
NO SCALE

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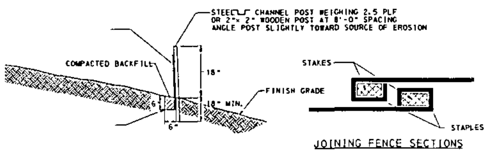
CS 8501

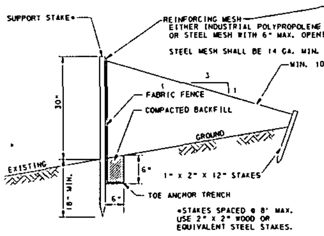


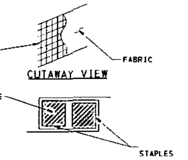
1. SILT BARRIER FENCE MUST BE PLACED AT LEVEL EXISTING GRADE. BOTH ENDS OF THE BARRIER MUST BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT.

2. SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.

3. ANY SECTION OF SILT BARRIER FENCE WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.

1 18" SILT BARRIER FENCE DETAIL
NO SCALE





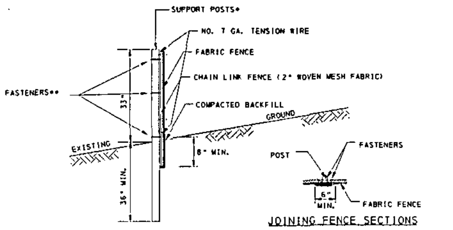
NOTES:

1. FILTER FABRIC FENCE MUST BE INSTALLED AT EXISTING LEVEL GRADE. BOTH ENDS OF EACH FENCE SECTION MUST BE EXTENDED AT LEAST 8 FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.

2. SEDIMENT MUST BE REMOVED WHERE ACCUMULATIONS REACH ½ THE ABOVE GROUND HEIGHT OF THE FENCE.

3. ANY FENCE SECTION WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET.

2 30" SILT BARRIER FENCE DETAIL
NO SCALE



* POSTS SPACED @ 10' MAX. USE 2 1/2" DIA. GALVANIZED OR ALUMINUM POSTS.

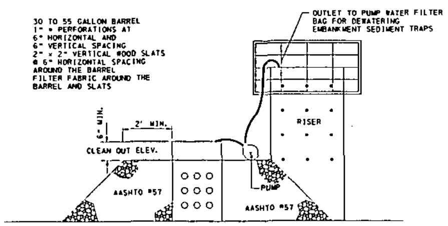
** CHAIN LINK TO POST FASTENERS SPACED @ 14" MAX. USE NO. 6 GA. ALUMINUM WIRE OR NO. 9 GALVANIZED STEEL PRE-FORMED CLIPS. CHAIN LINK TO TENSION WIRE FASTENERS SPACED @ 60" MAX. USE NO. 10 GA. GALVANIZED STEEL WIRE. FABRIC TO CHAIN FASTENERS SPACED @ 24" MAX. C TO C.

NO. 7 GA. TENSION WIRE INSTALLED HORIZONTALLY AT TOP AND BOTTOM OF CHAIN-LINK FENCE.

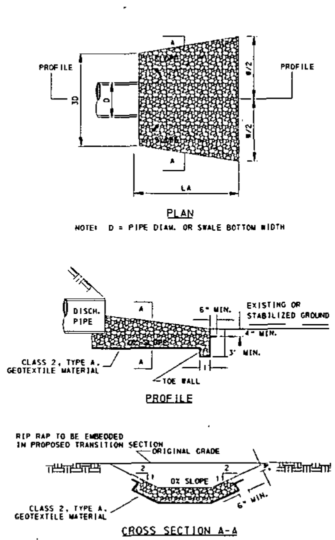
FILTER FABRIC FENCE MUST BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER MUST BE EXTENDED AT LEAST 8 FEET UPSLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT.

SEDIMENT MUST BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.

3 SUPER FILTER FABRIC FENCE DETAIL
NO SCALE



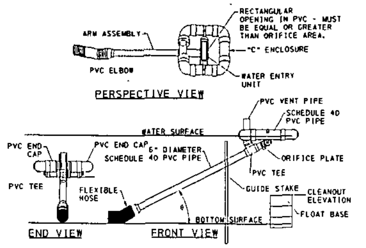
4 SEDIMENT BASIN/TRAP DEWATERING FACILITY
NO SCALE



OUTLET PROTECTION TABLE				
OUTLET PROTECTION	LA	W	D	RIP RAP TYPE AND THICKNESS
SED TRAP 1A	8'	11.75'	1.25'	R-4 @ 18" THICK
SED TRAP 2A	8'	11.75'	1.25'	R-4 @ 18" THICK
SED BASIN 1	20'	27.5'	2.5'	R-5 @ 27" THICK
SED BASIN 3	20'	27.5'	2.5'	R-5 @ 27" THICK
SED BASIN 6	16'	23.5'	2.5'	R-5 @ 27" THICK
SED BASIN 8	22'	29.5'	2.5'	R-5 @ 27" THICK
SED BASIN 9	10'	17.5'	2.5'	R-4 @ 18" THICK
SED BASIN 10	21'	27.0'	2.0'	R-7 @ 45" THICK
SED BASIN 10A	16'	23.5'	2.5'	R-5 @ 27" THICK
SED BASIN 12	18'	24.0'	2.0'	R-7 @ 45" THICK
SED BASIN 15	16'	20.5'	1.5'	R-5 @ 27" THICK
SED BASIN 15A	12'	19.5'	2.5'	R-4 @ 18" THICK
SED BASIN 15B	12'	19.5'	2.5'	R-4 @ 18" THICK
SED BASIN 18	16'	23.5'	2.5'	R-5 @ 27" THICK
SED BASIN 20	20'	29.0'	3.0'	R-5 @ 27" THICK
SED BASIN 21	22'	31.0'	3.0'	R-6 @ 36" THICK

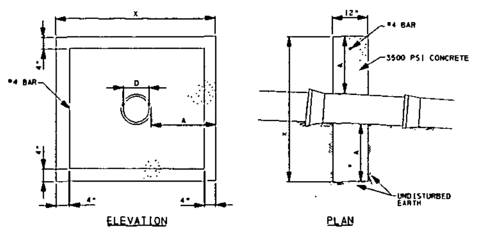
ROCK SIZE DISTRIBUTION TABLE			
	GRADED ROCK SIZE (IN)		
NSA NO.	MAX.	D50	MIN.
R-1	1.5	.75	NO. 8
R-2	3	1.50	1
R-3	6	3	2
R-4	12	6	3
R-5	18	9	5
R-6	24	12	7
R-7	30	15	12

5 ROCK OUTLET PROTECTION DETAIL
NO SCALE



NOTE:
(1.) GUIDE STAKES SHOULD BE INSTALLED TO PREVENT THE SKIMMER FROM MOVING FROM SIDE TO
(2.) SIDE.
A DEVICE (CONCRETE BLOCK OR EQUIVALENT) TO PREVENT THE SKIMMER FROM SETTLING
(3.) BELOW THE TOP OF THE SEDIMENT STORAGE ZONE SHOULD BE INSTALLED.
(4.) SKIMMER ORIFICE DIAMETER SHALL EQUAL 4.03 IN.
(5.) PROVIDE A MINIMUM AREA OF 12.78 SQ. IN. ON THE WATER ENTRY UNIT.
ARM LENGTH SHALL BE 14' MIN.

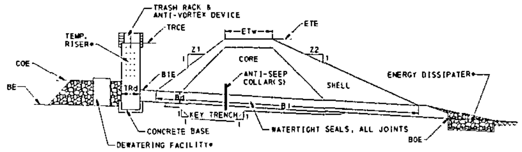
6 BASIN FAIRCLOTH SKIMMER DETAIL
NO SCALE



BASIN	D (IN)	A (FT)	Y (FT)	SPACING (FT)

NOTE:
SPACE AS SHOWN ON DETENTION BASIN OUTLET CONTROL DETAILS.

7 CONCRETE ANTI-SEEP COLLAR DETAIL
NO SCALE



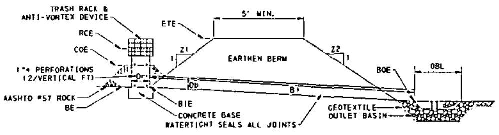
EMBANKMENT SECTION ALONG PRINCIPAL SPILLWAY*

BASIN NO.	Z1 (FT)	Z2 (FT)	TEMPORARY RISER: TRd (FT)	TEMPORARY RISER: CREST ELEV TRCE (FT)	TEMPORARY RISER: MAT'L	BARREL: DIA Bd (IN)	BARREL: INLET ELEV BIE (FT)	BARREL: MAT'L	BARREL: LENGTH Bl (FT)	BARREL: OUTLET ELEV BOE (FT)	EMBANKMENT: TOP ELEV ETE (FT)	EMBANKMENT: TOP WIDTH ETw (FT)	CLEAN OUT ELEV COE (FT)	BOTTOM ELEV BE (FT)
1	2	3	2x4	668.68	RCP	30	665.00	PE	45	664.55	672.00	8	665.70	665.00
3	2	3	2x4	654.00	RCP	30	650.50	PE	52	649.98	659.00	8	650.90	650.50
6	2	3	2x4	638.00	RCP	24	635.00	PE	33	634.67	641.00	8	635.31	635.00
						30	632.15	PE	15	632.00				
8	2	3	2x4	666.77	RCP	30	663.40	PE	40	663.00	670.00	8	664.49	663.00
9	2	3	4x4	680.44	RCP	24	678.00	PE	21	677.79	683.00	8	678.47	678.00
							674.24	PE	24	674.00				
10	2	3	2x4	666.42	RCP	24	662.00	PE	80	660.00	670.00	8	663.61	663.00
10A	2	3	2x4	690.50	RCP	24	688.00	PE	39	687.61	695.00	8	688.36	688.00
							682.80	PE	40.5	682.50				
15	2	3	2x4	961.23	RCP	18	956.00	PE	51	954.98	964.00	8	957.27	956.00
15A	2	3	2x4	991.55	RCP	24	985.00	PE	39	984.61	994.00	8	986.86	985.00
15B	2	3	4x4	1001.96	RCP	30	998.00	PE	50	997.50	1004.50	8	998.83	998.00
12	2	3	2x4	669.43	RCP	24	667.00	PE	40	666.00	673.00	8	667.83	666.00
18	2	3	2x4	624.00	RCP	30	620.00	PE	58	619.42	630.00	8	620.39	620.00
20	2	3	4x4	653.00	RCP	36	649.00	PE	40	648.60	656.00	8	650.51	650.00
21	2	3	4x4	610.66	RCP	30	605.00	PE	41	604.39	614.00	8	606.09	605.00
						36	599.30	PE	30	599.00				

* ALSO REFER TO SEDIMENT BASIN TEMPORARY RISER, EMERGENCY SPILLWAY, ENERGY DISSIPATER, TRASH RACK & ANTI-VORTEX DEVICE, AND SEDIMENT STORAGE DEWATERING FACILITY DETAILS.

A CLEAN OUT STAKE SHALL BE PLACED NEAR THE CENTER OF EACH BASIN. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED THE CLEAN OUT ELEVATION ON THE STAKE.

8 SEDIMENT BASIN DETAIL
NO SCALE



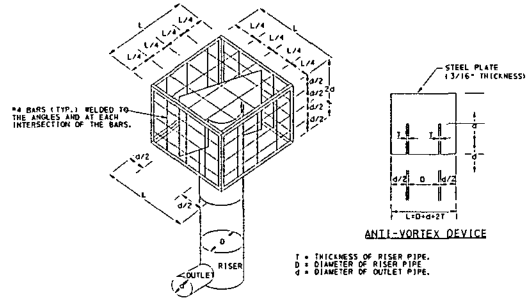
TRAP NO.	Z1 (FT)	Z2 (FT)	RISER: MAT'L	RISER: DIA Dr (IN)	RISER: CREST ELEV RCE (FT)	RISER: BOT PERF ELEV (FT)	BARREL: MAT'L	BARREL: DIA Db (IN)	BARREL: INLET ELEV BIE (FT)	BARREL: LENGTH Bl (FT)	BARREL: OUTLET ELEV BOE (FT)	EMBANK TOP ELEV ETE (FT)	CLEAN OUT ELEV COE (FT)	BOTTOM ELEV BE (FT)
1A	2	2	PE	24	662.0	661.0	PE	15	660.0	21	659.79	664.0	661.0	660.0
2A	2	2	PE	24	659.0	658.0	PE	15	657.0	21	656.79	661.0	658.0	657.0

TRAP NO.	CONCRETE BASE: LENGTH CBl (IN)	CONCRETE BASE: WIDTH CBw (IN)	CONCRETE BASE: THICKNESS CBt (IN)	OUTLET BASIN: RIPRAP SIZE (R-_)	OUTLET BASIN: DEPTH D (IN)	OUTLET BASIN: WIDTH OBW (FT)	OUTLET BASIN: LENGTH OBL (FT)
1A	36	36	12	4	18	8	11.75
2A	36	36	12	4	18	8	11.75

CLEAN OUT STAKES SHALL BE PLACED NEAR CENTER OF TRAP. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES THE CLEAN OUT MARK ON THE STAKE.

AT A MINIMUM, OUTLET PROTECTION SHOULD CONSIST OF A ROCK OUTLET BASIN WITH DIMENSIONS CONFORMING TO THOSE SHOWN IN FIGURE 15.

9 BARREL/RISER SEDIMENT TRAP
NO SCALE



T = THICKNESS OF RISER PIPE.
D = DIAMETER OF RISER PIPE.
d = DIAMETER OF OUTLET PIPE.

10 TRASH RACK AND ANTI-VORTEX DEVICE
NO SCALE

Pennoni Associates Inc.
100 N. Wilkes-Barre Blvd, Suite 409, Wilkes-Barre, PA 18702
TEL: 570-824-2200 FAX: 570-824-0800
Engineers • Surveyors • Planners • Landscape Architects

Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

DATE	NO.	REVISIONS	BY
09/22/2010	0	XXXXXXX XXXXXXXXXX	XXX

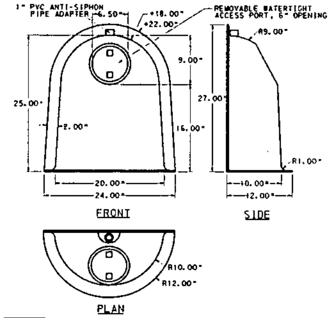
ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK

BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

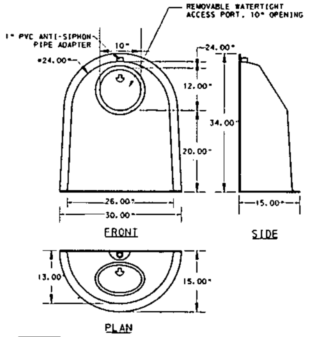
EROSION & SEDIMENTATION DETAILS

PPL BELL BEND, LLC
38 BOMBOY LANE
SUITE 2
BERWICK, PA 18603

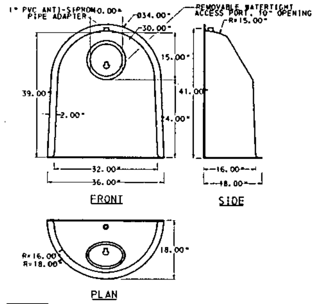
SCALE: 1" = 50
DRAWN BY: MJF
DATE: 11/12/2010
APPROVED: JPM
SHEET 37 OF 39
DRAWING NO. CS 8502



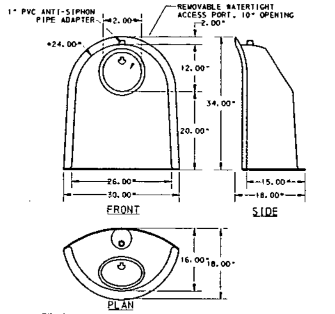
1 18F OIL & DEBRIS SNOUT DETAIL
NO SCALE



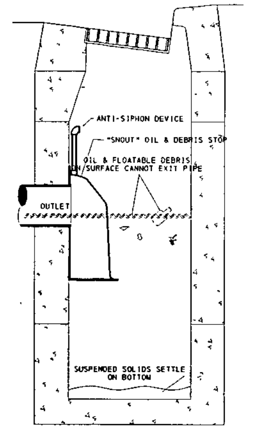
2 24F OIL & DEBRIS SNOUT DETAIL
NO SCALE



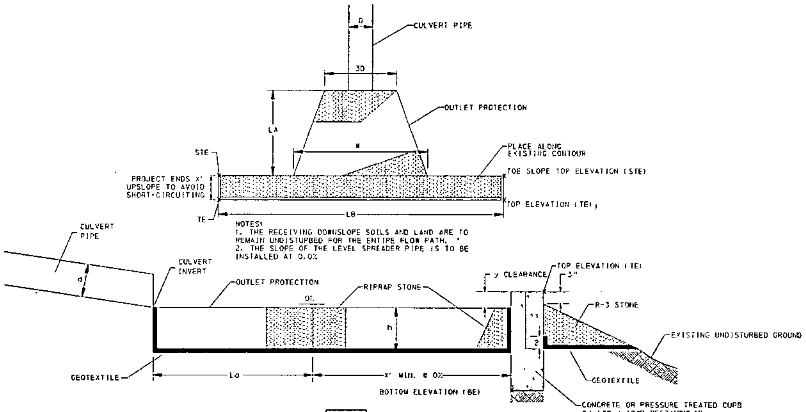
3 30F OIL & DEBRIS SNOUT DETAIL
NO SCALE



4 24R OIL & DEBRIS SNOUT DETAIL
NO SCALE



5 "SNOUT" INLET INSERT DETAIL
NO SCALE



6 LEVEL SPREADER
NO SCALE

	CULVERT PIPE		OUTLET PROTECTION			PLUNGE POOL		LEVEL SPREADER				
BASIN OUTLET	SIZE D (IN)	INVERT EL.	WIDTH W (FT)	LENGTH La (FT)	RIP-RAP SIZE	DEPTH H (IN)	BOTTOM EL. BE	CLEARANCE Y (IN)	WIDTH X (FT)	LENGTH Lb (FT)	TOP EL. TE	TOE SLOPE TOP EL. STE
1.0.A	24	662.00	10.00	10.00	R-4	24	658.50	12	6.00	65	661.50	661.65
1.0.B	24	660.00	10.00	10.00	R-4	24	656.00	12	6.00	150	659.00	659.15
2	24	669.00	10.00	10.00	R-4	24	665.00	12	6.00	123	668.00	668.15
3.1	24	672.50	10.00	10.00	R-6	36	669.50	12	6.00	186	673.50	673.65
3.2	24	650.00	10.00	10.00	R-4	24	646.50	12	6.00	89	649.50	649.65
6.0.A	24	621.00	18.00	30.00	R-7	45	617.25	12	6.00	165	622.00	622.15
6.0.B	24	621.00	18.00	30.00	R-7	45	617.25	12	6.00	165	622.00	622.15
8	24	656.00	10.00	10.00	R-4	24	654.00	12	6.00	110	657.00	657.15
9	24	662.00	10.00	10.00	R-4	24	660.00	12	6.00	22	663.00	663.15
10.1	30	684.00	20.30	32.00	R-5	30	681.50	15	7.50	161	685.25	685.44
10.2	24	712.20	10.00	10.00	R-4	24	678.00	12	6.00	17	681.00	681.15
10.3	24	712.20	10.00	10.00	R-4	24	656.00	12	6.00	93	659.00	659.15
10.4.A	24	655.00	10.00	10.00	R-4	24	653.00	12	6.00	123	656.00	656.15
10.4.B	24	655.00	10.00	10.00	R-4	24	653.00	12	6.00	123	656.00	656.15
12	24	680.00	10.00	10.00	R-4	24	678.00	12	6.00	13	681.00	681.15
13.1	24	715.00	18.00	30.00	R-4	24	713.00	12	6.00	53	716.00	716.15
13.2.A	24	710.00	18.00	30.00	R-5	27	691.25	12	6.00	187	694.50	694.65
13.2.B	24	710.00	18.00	30.00	R-5	27	691.25	12	6.00	187	694.50	694.65
15.1	24	980.00	10.00	10.00	R-5	27	977.75	12	6.00	180	981.00	981.15
15.2.A	24	980.00	10.00	10.00	R-5	27	977.75	12	6.00	163	981.00	981.15
15.2.B	24	980.00	10.00	10.00	R-6	27	977.75	12	6.00	163	981.00	981.15
18	36	617.00	13.00	10.00	R-5	36	614.00	18	9.00	56	618.50	618.73
20	24	647.60	10.00	10.00	R-4	24	645.60	12	6.00	24	648.60	648.75
21	24	601.00	10.00	10.00	R-5	27	598.75	12	6.00	29	602.00	602.15

Engineers • Surveyors • Planners • Landscape Architects
100 N. Wilkes-Barre Blvd, Suite 409, Wilkes-Barre, PA 18702
TEL: 570-824-2200 FAX: 570-824-0800
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CONSULTING ENGINEERS

BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

EROSION & SEDIMENTATION DETAILS

PPL BELL BEND, LLC

CS 8503

EROSION AND SEDIMENT CONTROL NOTES

1. EROSION AND SEDIMENTATION CONTROLS MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE WITHIN THE TRIBUTARY AREAS OF THOSE CONTROLS.
2. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE CONTROLS MUST BE STABILIZED IMMEDIATELY.
3. AT THE END OF EACH WORKING DAY, ANY SEDIMENT TRACKED OR CONVEYED ONTO A PUBLIC ROADWAY WILL BE REMOVED AND REDEPOSITIED ONTO THE CONSTRUCTION SITE. REMOVAL CAN BE COMPLETED THROUGH THE USE OF MECHANICAL OR HAND TOOLS, BUT MUST NOT BE WASHED OFF OF THE ROAD BY USE OF WATER.
4. SEDIMENT REMOVAL FROM E&S CONTROLS & FACILITIES SHALL BE DISPOSED OF IN LANDSCAPE AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOOD PLAINS, OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED OR PLACED IN TOPSOIL STOCKPILES.
5. ALL PUMPING OF SEDIMENT-LADEN WATER SHALL BE THROUGH A DIRT BAG FILTRATION DEVICE, OR EQUIVALENT SEDIMENT REMOVAL FACILITY, OVER A NON-DISTURBED VEGETATED AREA. DISCHARGE POINTS SHOULD BE ESTABLISHED TO PROVIDE FOR A MAXIMUM DISTANCE TO ACTIVE WATERWAYS.
6. ALL EXCAVATION FOR UTILITY LINE INSTALLATION SHALL BE LIMITED TO THE AMOUNT THAT CAN BE EXCAVATED, INSTALLED, BACKFILLED, AND STABILIZED WITHIN ONE WORKING DAY. ALL EXCAVATED MATERIAL SHALL BE DEPOSITED ON THE UPSLOPE SIDE OF THE TRENCH.
7. SHOULD UNFORESEEN EROSIVE CONDITIONS DEVELOP DURING CONSTRUCTION, THE CONTRACTOR SHALL TAKE ACTION TO REMEDY SUCH CONDITIONS AND TO PREVENT DAMAGE TO ADJACENT PROPERTIES AS A RESULT OF INCREASED RUNOFF AND/OR SEDIMENT DISPLACEMENT. STOCKPILES OF WOOD CHIPS, HAY BALES, CRUSHED STONE, AND MULCHES SHALL BE HELD IN READINESS TO DEAL IMMEDIATELY WITH EMERGENCY PROBLEMS OF EROSION.
8. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.
9. THE OPERATOR SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.

GENERAL NOTES

1. ADDITIONAL EROSION CONTROL MEASURES OR SILT BARRIERS TO BE PLACED AS SHOWN AND/OR DIRECTED BY THE PROJECT ENGINEER AND/OR LOCAL JURISDICTIONAL INSPECTOR.
2. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
3. CONSTRUCT SILT FENCE ALONG THE DOWNSTREAM SIDE OF ALL PROPOSED CUT AND FILL CONSTRUCTION.
4. THE LOCATION OF SOME OF THE EROSION CONTROL DEVICES MAY HAVE TO BE ALTERED FROM THAT SHOWN ON THE APPROVED PLANS IF DRAINAGE PATTERNS DURING CONSTRUCTION ARE DIFFERENT FROM THE FINAL PROPOSED DRAINAGE PATTERNS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES DURING CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
5. CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES UNTIL PERMANENT VEGETATION HAS BEEN ESTABLISHED. CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
6. THE CONTRACTOR SHALL REMOVE ACCUMULATED SILT WHEN THE SILT IS WITHIN 12" OF THE TOP OF THE SILT FENCE UTILIZED FOR EROSION CONTROL.
7. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY BARRICADES AROUND THE WORK AND SHALL PROVIDE PROTECTION AGAINST WATER DAMAGE AND SOIL EROSION.
8. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM REQUIRED MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL DEVICES TO ENSURE THEIR FUNCTION AT ALL TIMES.
9. THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIAL AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS ACT 25 PA. CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 287.1 ET SEQ. THE CONTRACTOR SHALL NOT BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL WASTES AT THE SITE.
10. BEFORE INITIATING ANY REVISION TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED E & S CONTROL PLAN, THE OPERATOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE LOCAL COUNTY CONSERVATION DISTRICT.
11. THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS OF THE APPENDIX 64, EROSION CONTROL RULES AND REGULATIONS, TITLE 25, PART 1, DEPARTMENT OF ENVIRONMENTAL PROTECTION, SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE III, WATER RESOURCES, CHAPTER 102, EROSION CONTROL.
12. THE NPDES BOUNDARY IS EQUAL TO THE OUTER PERIMETER BOUNDARY OF THE SITE, AND ANY OFF-SITE AREAS WITHIN THE LIMITS OF DISTURBANCE THAT ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL. OFF-SITE FACILITIES SUCH AS: UTILITIES AND ROADWAY IMPROVEMENTS.
13. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

TYPICAL PIPE INSTALLATION SEQUENCE

1. EXCAVATE PIPE TRENCH FOR NEW INSTALLATION. EXCAVATED MATERIAL FOR NEW PIPE INSTALLATION SHALL BE PLACED ON THE UPSLOPE SIDE OF THE TRENCH. ALL EXCAVATED MATERIAL SHALL BE STOCK PILED A MINIMUM OF 3 FEET AWAY FROM THE EXCAVATED TRENCH.
2. PLACE AND COMPACT PIPE BEDDING MATERIAL.
3. PLACE PIPE AS INDICATED.
4. BACKFILL PIPE TRENCH.
5. PLACE SEED, SOIL SUPPLEMENTS AND MULCH IN ADJACENT DISTURBED AREAS, MAKING SURE THAT MULCH IS ANCHORED ON STEEP SLOPES.

NOTE: LIMIT PIPE INSTALLATION TO THAT AMOUNT WHICH CAN BE BACKFILLED, TESTED FOR COMPACTION AND STABILIZED IN ONE WORKING DAY.

TYPICAL GRASS LINED SWALE INSTALLATION SEQUENCE

1. CLEAR AND GRUB TO LIMITS OF THE SWALE.
2. PERFORM EXCAVATION AND GRADING OPERATIONS.
3. PLACE EROSION CONTROL BLANKET IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. PLACE SEED, SOIL SUPPLEMENTS, AND MULCH IN ADJACENT DISTURBED AREAS, MAKING SURE THAT MULCH IS ANCHORED ON STEEP SLOPES. (SEE SLOPE STABILIZATION NOTES THIS PAGE)

NOTE: BEGIN SWALE CONSTRUCTION OPERATIONS AT THE DISCHARGE POINT AND WORK UPHILL. LIMIT SWALE CONSTRUCTION TO THAT AMOUNT WHICH CAN BE CONSTRUCTED AND STABILIZED WITH EROSION CONTROL BLANKET IN ONE DAY.

SLOPE STABILIZATION

ALL DISTURBED SLOPES AT A GRADE OF 3:1 OR STEEPER AND NOT IN SOLID ROCK SHALL BE TEMPORARILY STABILIZED BY MULCHING WITH HAY OR STRAW AND BINDING THE MULCH WITH ONE OF THE FOLLOWING MATERIALS:

A. NORTH AMERICAN GREEN SC250 PERMANENT LINING (AS SHOWN ON PLANS) NOT LESS THAN 90 POUNDS PER 100 S.Y. UNLESS OTHERWISE SPECIFIED.

MAINTENANCE PROGRAM AND/OR RECYCLING OF MATERIALS

1. DURING THE LIFE OF THE PROJECT, ALL EROSION AND SEDIMENTATION CONTROL DEVICES MUST BE PROPERLY MAINTAINED. MAINTENANCE SHALL INCLUDE THEINSPECTION OF EROSION CONTROL FACILITIES AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. IMMEDIATELY PERFORM CLEANOUT, REPAIR AND REPLACEMENT OF THE FACILITIES AS NEEDED. (REGRADE, RESEED AND MULCH WASHED OUT AREAS).
2. SEEDED AREAS THAT HAVE WASHED AWAY SHALL BE FILLED AND GRADED, AS NECESSARY, AND THEN RESEEDED. A STRAW COVER SHALL BE APPLIED TO RETAIN THE SEED ALONG WITH AN ANCHORING METHOD DESCRIBED ON THE ATTACHED MULCH ANCHORING GUIDE, UNTIL IT HAS A CHANCE TO ROOT PROPERLY.
3. UNTIL THE SITE IS STABILIZED ALL EROSION AND SEDIMENTATION BMP'S MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENTATION BMP'S AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL SITE INSPECTIONS WILL BE DOCUMENTED IN AN INSPECTION LOG KEPT FOR THIS PURPOSE. THE COMPLIANCE ACTIONS AND THE DATE, TIME AND NAME OF THE PERSON CONDUCTING THE INSPECTION. THE INSPECTION LOG WILL BE KEPT ON SITE AT ALL TIMES AND MADE AVAILABLE TO THE DISTRICT UPON REQUEST.
4. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENTATION BMP'S FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMP'S OR MODIFICATIONS OF THOSE INSTALLED WILL BE NEEDED.
5. WHERE BMP'S ARE FOUND TO FAIL, TO ALLEVIATE EROSION OR SEDIMENT POLLUTION THE PERMITTEE OR CO-PERMITTEE SHALL INCLUDE THE FOLLOWING INFORMATION:
   A. THE LOCATION AND SEVERITY OF THE BMP'S FAILURE AND ANY POLLUTION EVENTS.
   B. ALL STEPS TAKEN TO, REDUCE, ELIMINATE AND PREVENT THE RECURRENCE OF THE NON-COMPLIANCE.
   C. THE TIME FRAME TO CORRECT THE NONCOMPLIANCE, INCLUDING THE EXACT DATES WHEN THE ACTIVITY WILL RETURN TO COMPLIANCE.
6. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE, THE OPERATOR SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.
7. SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.
8. THE OPERATOR SHALL ASSURE THAT AN EROSION AND SEIMENT CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE LUZERNE CONSERVATION DISTRICT, AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL AND/OR ROCK SPOIL AND BORROW AREAS, REGARDLESS OF THEIR LOCATIONS.
9. THE SITE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL EROSION AND SEDIMENT BMPS. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROL BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING, AND RENETTING, MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
10. THE CONTRACTOR SHALL REMOVE FROM THE SITE, RECYCLE OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENTS SOLID WASTE MANAGEMENT REGULATIONS AT 35 PA CODE 2601 ET. SEQ., AND 271.1 ET. SEQ.
11. UNTIL SITE ACHIEVES FINAL STABLILIZATION, THE OPERATOR SHALL ASSURE THAT THE BEST MANAGEMENT PRACTICES ARE IMPLEMENTED, OPERATED, AND MAINTAINED PROPERLY AND COMPLETELY. MAINTAINANCE SHALL INCLUDE INSPECTIONS OF ALL BEST MANAGEMENT PRACTICE FACLITIES AND MAINTAIN AND MAKE AVAILABLE TO THE LUZERNE CONSERVATION DISTRICT COMPLETE, WRITTEN INSPECTION LOGS OF ALL THOSE INSPECTIONS. ALL MAINTAINANCE WORK, INCLUDING CLEANING, REPAIR, REPLACEMENT, REGRADING, AND RESTABLIZATION SHALL BE PERFORMED IMMEDIATELY.

SUGGESTED SEEDING MIXTURES

FOR TEMPORARY MEASURES
SEED FORMULA: PENNDOT FORMULA E
100% ANNUAL RYEGRASS

1. APPLY GROUND LIMESTONE AT 1 TON PER ACRE.
2. APPLY FORMULA E SEED AT 48 LBS PER ACRE.
3. APPLY HAY OR STRAW MULCH AT 3 TONS PER ACRE.
4. PERFORM SEEDING BETWEEN MARCH 15 AND OCTOBER 15.

FOR FINAL MEASURES
FOR SLOPES 3:1 OR FLATTER-
SEED FORMULA: PENNDOT FORMULA B
20% PERENNIAL RYEGRASS MIXTURE
30% CREEPING RED FESCUE OR CHEWINGS FESCUE
40% KENTUCKY BLUEGRASS MIXURE

1. APPLY GROUND LIMESTONE AT 10 TONS PER ACRE.
2. APPLY FERTILIZER (100 LBS OF N, 200 LBS P205 AND 200 LBS OF K20) AT 500 LBS PER ACRE
3. APPLY FORMULA B SEED AT 101.6 LBS PER ACRE.
4. APPLY HAY OR STRAW MULCH AT 3 TONS PER ACRE.
5. PERFORM SEEDING BETWEEN MARCH 15 AND JUNE 1, AND AUGUST 1 AND OCTOBER 15.

FOR SLOPES GREATER THAN 3:1-
SEED FORMULA: PENNDOT FORMULA D
70% TALL FESCUE
30% CREEPING RED FESCUE OR CHEWINGS FESCUE

1. APPLY GROUND LIMESTONE AT 10 TONS PER ACRE.
2. APPLY FERTILIZER (100 LBS OF N, 200 LBS P205 AND 200 LBS OF K20) AT 500 LBS PER ACRE
3. APPLY FORMULA B SEED AT 101.6 LBS PER ACRE.
4. APPLY HAY OR STRAW MULCH AT 3 TONS PER ACRE.
5. PERFORM SEEDING BETWEEN MARCH 15 AND JUNE 1, AND AUGUST 1 AND OCTOBER 15.

PERMANENT SEEDING SITE PREPARATION

PERMANENT STABILIZATION OF ALL EXPOSED EARTH SURFACES AFTER THE COMPLETION OF THE SITE GRADING AND IMPROVEMENTS SHALL BE ACCOMPLISHED BY THE FOLLOWING METHODS AND MATERIALS:

1. AFTER INSTALLATION OF THE NEEDED SURFACE WATER CONTROL MEASURES, PERFORM ALL CULTURAL OPERATIONS AT RIGHT ANGLES TO THE SLOPE.
2. APPLY LIME AT THE RATE OF FOUR TONS GROUND LIMESTONE PER ACRE (184 LBS. PER 1,000 SQUARE FEET).
3. WORK IN FERTILIZER AT THE RATE OF 915 LBS. OF 10-20-20 OR EQUIVALENT PER ACRE.
4. SMOOTH AND FIRM SEEDED AREAS WITH CULTIPACKER, OR OTHER SIMILAR EQUIPMENT, PRIOR TO SEEDING.
5. APPLY SEED.
6. COVER GRASS SEEDS WITH ¼ INCH OF TOPSOIL WITH SUITABLE EQUIPMENT.
7. APPLY STRAW MULCH AT A RATE OF 3.0 TON PER ACRE.
8. USE SOD WHERE THERE IS A HEAVY CONCENTRATION OF WATER AND IT IS MPORTANT TO GET A QUICK VEGETATIVE COVER IN ORDER TO PREVENT GULLYING. USE SOD AT THE DIRECTION OF THE TOWNSHIP ENGINEER OR HIS AUTHORIZED REPRESENTATIVE.
9. HYDROSEEDING SHALL BE AN ACCEPTABLE ALTERNATIVE TO THE ABOVE SEEDING WHEN PERFORMED IN ACCORDANCE WITH PENNDOT PUB. 408 SECTIONS 804 AND 805 AND APPROVED BY THE SITE ENGINEER.

SEEDING NOTES - TREE LAWN AREAS

1. SPREAD AND FINE GRADE 4" TOPSOIL ON ALL AREAS TO BE PERMANENTLY SEEDED.
2. BEFORE SEEDING, APPLY GROUND LIMESTONE AT THE RATE OF 50 LBS. PER 1,000 S.F. AND BASIC FERTILIZER (10-10-10) AT THE RATE OF 25 LBS. PER 1,000 S.F AND WORK INTO THE TOP 4" OF SOIL. AT THE TIME OF PERMANENT SEEDING APPLY STARTER FERTILIZER (10-5-5) AT RATE OF 25 LBS. PER 1,000 S.F. AND WORK LIGHTLY INTO SOIL WITH SEED.
3. INSTALL EROSION/SEED BLANKET WHERE NEEDED.
4. WATER AND MAINTAIN ALL LAWN AREAS.
5. RESEED BARE OR THIN AREAS AS DIRECTED BY THE LANDSCAPE ARCHITECT.
6. SEED MIXTURE:
   40% TALL FESCUE
   40% KENTUCKY BLUEGRASS
   20% PERENNIAL RYEGRASS
   100% @ 4 LBS. 1,000 S.F.
7. PLANTING DATE:
   SEPTEMBER 1 TO OCTOBER 15 OR IN SPRING BEFORE APRIL 1

TEMPORARY EROSION AND SEDIMENTATION CONTROL

1. INLET PROTECTION SHALL BE APPLIED, AS DETAILED ON THE PLAN, TO EVERY INLET WHICH HAS BEEN CONSTRUCTED TO THE ROADWAY SUBBASE ELEVATION.
2. SILT FENCES SHALL BE INSTALLED DOWNSLOPE OF ALL AREAS TO BE DISTURBED BEFORE ANY WORK BEGINS. SILT FENCE AND ROCK FILTERS SHALL BE INSTALLED AS NEAR AS POSSIBLE TO THE LOCATIONS SHOWN ON THE PLAN.
3. STOCKPILED TOPSOIL MOUNDS SHALL BE STABILIZED BY APPLYING TEMPORARY SEED AND A PERIMETER SILT FENCE SHALL BE INSTALLED AROUND EACH MOUND. TEMPORARY SEEDING SHALL BE PER PENNDOT FORM 408, SECTION 804(B).
4. ALL STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS NEAR AS POSSIBLE TO THE LOCATION SHOWN ON THE PLAN. PRIOR TO FINAL ROADWAY CONSTRUCTION, THE AGGREGATE SHALL BE REMOVED, AND THE ROADWAY PREPARED AND INSTALLED ACCORDING TO SPECIFICATIONS.
5. ALL SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH AN EROSION CONTROL BLANKET.
6. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE, THE OPERATOR SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS. DISTURBED AREAS WHICH ARE AT FINISHED GRADE OR WHICH WILL NOT BE REDISTURBED WITHIN IN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.
7. HAY OR STRAW MULCH MUST BE APPLIED AT 3.0 TONS PER ACRE.
8. STRAW MULCH SHALL BE APPLIED IN LONG STRANDS, NOT CHOPPED OR FINELY BROKEN.

UNFORESEEN EROSIVE CONDITIONS NOTES

1. SHOULD UNFORESEEN EROSIVE CONDITIONS DEVELOP DURING CONSTRUCTION, THE CONTRACTOR SHALL TAKE ACTION TO REMEDY SUCH CONDITIONS AND TO PREVENT DAMAGE TO ADJACENT PROPERTIES AS A RESULT OF INCREASED RUNOFF AND/OR SEDIMENT DISPLACEMENT. STOCKPILES OF WOOD CHIPS, HAY BALES, CRUSHED STONE AND OTHER MULCHES SHALL BE HELD IN READINESS TO DEAL IMMEDIATELY WITH EMERGENCY PROBLEMS OF EROSION.
2. THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS OF APPENDIX 64, EROSION CONTROL RULES AND REGULATIONS, TITLE 25, PART 1, D.E.P., SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE III, WATER RESOURCES, CHAPTER 102, EROSION CONTROL.
3. PROTECTION TO EXISTING TREES AND SHRUBS SHALL BE TAKEN BY THE CONTRACTOR TO ELIMINATE UNNECESSARY DAMAGE.
4. ALL PUMPING OF SEDIMENT LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP, SUCH AS A PUMPED WATER FILTER BAG DISCHARGING OVER NON-DISTURBED AREAS.

PREPAREDNESS, PREVENTION AND CONTINGENCY (PPC) PLAN

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PREPARE A PREPAREDNESS, PREVENTION AND CONTINGENCY (PPC) PLAN FOR THE PROPOSED CONSTRUCTION ACTIVITIES TO CONTROL THE POTENTIAL DISCHARGE OF POLLUTANTS CARRIED IN STORM WATER.
2. BOTH THE E&S PLAN AND THE PPC PLAN ARE TO BE MAINTAINED ONSITE FOR THE DURATION OF THE PERMIT.
3. A PPC PLAN IS REQUIRED IF CHEMICALS, SOLVENTS, HAZARDOUS WASTES, OR ANY MATERIAL WITH THE POTENTIAL FOR CAUSING ACCIDENTAL POLLUTION OF AIR, LAND, OR WATER, ARE STORED OR UTILIZED ON THE SITE.
4. FOLLOW THIS FORMAT AND INCLUDE THESE ELEMENTS FOR THE PPC PLAN:

A. GENERAL DESCRIPTION OF THE CONSTRUCTION ACTIVITY:

- INCLUDE DRAWINGS SHOWING GENERAL LAYOUT OF SITE, PROPERTY BOUNDARIES, MATERIALS STORAGE AREAS, LOADING AND UNLOADING OPERATION SITES, TRUCK WASHING AREAS, IN ADDITION TO THE FEATURES OF THE E&S PLANS.

B. EMERGENCY RESPONSE PROGRAM:

- DESCRIBE THE ORGANIZATIONAL STRUCTURE, CHAIN OF COMMAND, EMERGENCY COORDINATORS AND CONTACTS. INCLUDE DESCRIPTIONS OF EACH INDIVIDUAL'S DUTIES AND RESPONSIBILITIES WITHIN THE CHAIN OF COMMAND FOR IMPLEMENTATION OF THE PPC PLAN.
- IDENTIFY ON THE ORGANIZATIONAL CHART A LIST OF EMERGENCY COORDINATORS THAT MUST BE CONTACTED IN THE EVENT OF AN EMERGENCY OR SPILL.
- DESCRIBE THE DUTIES AND RESPONSIBILITIES OF THE EMERGENCY COORDINATOR SPECIFIC TO THE SITE OR ACTIVITY IN THE EVENT OF AN EMINENT OR ACTUAL EMERGENCY.
- INCLUDE ON THE ORGANIZATIONAL CHART OR ON AN ATTACHMENT, A LIST OF AGENCIES AND PHONE NUMBERS THAT MUST BE CONTACTED IN THE EVENT OF AN EMERGENCY OR SPILL.

SUCH A LIST INCLUDES AS APPLICABLE:

PA. DEP
PA. EMERGENCY MANAGEMENT AGENCY
COUNTY HEALTH DEPARTMENT
PA. FISH COMMISSION
THE NATIONAL RESPONSE CENTER (U.S. EPA AND U.S. COAST GUARD)
LOCAL POLICE AND FIRE DEPARTMENTS
LOCAL SEWAGE TREATMENT PLANT
DOWN STREAM PUBLIC WATER SUPPLIES
INDUSTRIAL WATER USERS
RECREATION AREAS

- INTERNAL AND EXTERNAL COMMUNICATIONS AND ALARM SYSTEMS.
- EMPLOYEE TRAINING PROGRAM.
- LIST OF EMERGENCY EQUIPMENT. INCLUDE THE LOCATION, PHYSICAL DESCRIPTION, INTENDED USE AND CAPABILITIES OF EACH ITEM.
- MAINTENANCE PROCEDURES AND DECONTAMINATION PROCEDURES OF EMERGENCY EQUIPMENT.
- EVACUATION PLAN FOR INSTALLATION PERSONNEL (IF DEEMED NECESSARY).
- ARRANGEMENTS WITH EMERGENCY RESPONSE CONTRACTORS. PROVIDE LIST WITH PHONE NUMBERS AND THE SERVICES EACH CONTRACTOR WILL PROVIDE.
- INFORM LOCAL EMERGENCY RESPONSE AGENCIES AND HOSPITALS CONCERNING THE TYPE OF POTENTIAL EMERGENCIES THAT MAY OCCUR AND THE NEED FOR SERVICES.
- FAMILIARIZE LOCAL POLICE, FIRE DEPARTMENTS, EMERGENCY RESPONSE TEAMS AND THE COUNTY EMERGENCY MANAGEMENT COORDINATOR WITH THE LAYOUT OF THE CONSTRUCTION SITE, THE PROPERTIES AND DANGERS ASSOCIATED WITH THE HAZARDOUS MATERIALS (IF ANY) HANDLED, PLACES WHERE PERSONNEL WOULD BE NORMALLY WORKING, ENTRANCES TO ACCESS ROADS INSIDE THE FACILITY, AND ANY POSSIBLE EVACUATION ROUTES.

C. MATERIAL AND WASTE INVENTORY:

- IDENTIFY BY COMMON CHEMICAL NAME AND TRADE NAME TO INCLUDE LOCATIONS, SOURCES, AND QUANTITIES USED OR STORED ON THE SITE.
- FOR EACH HAZARDOUS CHEMICAL STORED AT THE CONSTRUCTION SITE, THE LOCATION AND MATERIAL SAFETY DATA SHEET OR SIMILAR INFORMATION IS TO BE CLEARLY CITED IN THE PPC PLAN.

D. SPILL AND LEAK PREVENTION AND RESPONSE:

- DESCRIBE THE SOURCE AND AREAS FOR POTENTIAL LEAKS AND SPILLS, THE PROBABLE DIRECTION OF FLOW OF SPILLED MATERIALS AND THE POLLUTION INCIDENT MEASURE SPECIFIC TO THE SOURCE OR AREA.
- PROVIDE SEPARATE DRAWINGS OR PLOT PLANS TO SUPPLEMENT THE ABOVE.

E. INSPECTION PROGRAM:

- DESCRIBE THE INSPECTION PROGRAM AND MONITORING PROCEDURES TO ASSESS THE INTEGRITY OF EQUIPMENT, STORAGE AREAS AND SIMILAR AREAS.

F. HOUSEKEEPING PROGRAM:

- IDENTIFY THE AREAS AND THE ASSOCIATED TYPE OF HOUSEKEEPING PRACTICES TO MINIMIZE THE POSSIBILITY OF ACCIDENTAL SPILLS AND SAFETY HAZARDS TO PERSONNEL.

G. SECURITY MEASURES:

- DESCRIBE SECURITY PROCEDURES AND SYSTEMS AT THE SITE TO PREVENT ACCIDENTAL OR INTENTIONAL ENTRY THAT COULD RESULT IN A VIOLATION OF DEPARTMENTAL REGULATIONS, AND/OR INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

H. EXTERNAL FACTORS:

- DESCRIBE THE POSSIBLE AFFECTS OF EXTERNAL FACTORS SUCH AS POWER OUTAGES, STRIKES, FLOODS, SNOWSTORMS ETC. AND ANY ACTION TO BE TAKEN TO ALLEVIATE ANY RESULTING EFFECTS TO PUBLIC HEALTH AND SAFETY OR THE ENVIRONMENT.

ENVIRONMENTAL DUE DILIGENCE

1. ENVIRONMENTAL DUE DILIGENCE IS DEFINED AS: "INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS." IF A FILL MATERIAL IS SUSPECTED OF BEING AFFECTED BY A SPILL OR THE RELEASE OF A REGULATED SUBSTANCE, IT MUST BE TESTED TO DETERMINE IF IT QUALIFIES AS CLEAN FILL.

CLEAN FILL

1. "CLEAN FILL IS DEFINED AS: UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, INERT, SOLID MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT, AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM OTHER WASTE AND IS RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE AUTHORIZED. (THE TERM "USED ASPHALT" DOES NOT INCLUDE MILLED ASPHALT OR ASPHALT THAT HAS BEEN PROCESSED FOR RE-USE.)"
2. "FILL MATERIALS AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE STILL QUALIFIES AS CLEAN FILL PROVIDED THE TESTING REVEALS THAT THE FILL MATERIAL CONTAINS CONCENTRATIONS OF REGULATED SUBSTANCES THAT ARE BELOW THE RESIDENTIAL LIMITS IN TALE FP-1A AND FP-1B FOUND IN THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL"."
3. FILL MATERIAL THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL. REGULATED FILL IS WASTE AND MUST BE MANAGED ACCORDING TO THE DEPARTMENT'S MUNICIPAL OR RESIDUAL WASTE REGULATIONS BASED ON 25 PA CODE, CHAPTER 287 - RESIDUAL WASTE MANAGEMENT OR CHAPTER 271 - MUNICIPAL WASTE MANAGEMENT.

EROSION & SEDIMENT CONTROL MAITENANCE PROGRAM:

CONTROL MEASURE:	PROBLEMS TO LOOK FOR:	REMEDIES:
SWALE	GULLY ON SLOPE BELOW SWALE	REPAIR BREACHES
	WHEEL TRACK: LOW POINT	BUILD UP LOW POINTS WITH COMPACTED SOIL OR SANDBAGS OR REBUILD SWALES WITH POSITIVE DRAINAGE.
	SEDIMENT OR DEBRIS IN SWALE	REMOVE OBSTRUCTIONS AND/OR SEDIMENT.
	EROSION OF UNLINED CHANNEL SURFACE	SEED AND MULCH SWALE AND ANCHOR WITH NETTING: OR LINE SWALE WITH CRUSHED ROCK: OR INSTALL CHECK DAMS: OR REALIGN SWALE ON GENTLER GRADIENT.
	EROSION OF CHANNEL LINING	INSTALL LARGER RIPRAP: OR RESEED, MULCH, AND ANCHOR
	BARE AREAS	RESEED, MULCH, AND ANCHOR WITH NETTING. DIVERT FLOWS, IF POSSIBLE, DURING ESTABLISHMENT PERIOD. WITH NETTING: OR INSTALL CHECK DAMS.
	CHANNEL CAPACITY REDUCED	MOW GRASS.
	UNDERCUTTING OF FENCE	REPLACE WITH ROCK FILTER OUTLET.
SILT FENCE	FENCE COLLAPSING	REPLACE WITH ROCK FILTER OUTLET.
	SEDIMENT >1/2 FENCE HEIGHT	REMOVE SEDIMENT FROM THE FENCE.
	RILLS OR GULLIES FORMING	CHECK FOR TOP-OF-SLOPE DIVERSION AND INSTALL IF NEEDED.
VEGETATION	CLOGGED OUTLET	REMOVE DEBRIS.
	TRAP NOT DEWATERING BETWEEN STORMS	REMOVE DEBRIS.
SEDIMENT TRAPS	DAMAGED EMBANKMENTS	REBUILD AND COMPACT DAMAGED AREAS.
	SEDIMENT TO CLEAN OUT LEVEL	EXCAVATE EXCESS SEDIMENT FROM TRAP.
	SEDIMENT TO CLEAN OUT LEVEL	EXCAVATE EXCESS SEDIMENT FROM TRAP.
SEDIMENT BASIN	DAMAGED EMBANKMENTS	REBUILD AND COMPACT DAMAGED AREAS.
	SEDIMENT TO CLEAN OUT LEVEL	EXCAVATE EXCESS SEDIMENT FROM BASIN.
	SEDIMENT TO CLEAN OUT LEVEL	EXCAVATE EXCESS SEDIMENT FROM BASIN.

NOTES:

1. THE SITE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL EROSION AND SEDIMENT BMPS. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROL BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING, AND RENETTING, MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
2. SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.

Pennoni Associates Inc.
Engineers • Surveyors • Planners • Landscape Architects
100 N. Wilkes-Barre Blvd, Suite 409, Wilkes-Barre, PA 18702
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PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

EROSION & SEDIMENTATION DETAILS

PPL BELL BEND, LLC

CS 8504

GENERAL NOTES

1. BOUNDARY INFORMATION SHOWN HEREON WAS OBTAINED BY A BOUNDARY SURVEY PERFORMED BY PENNONI ASSOCIATES, INC., WHICH TOOK PLACE DURING MAY 2010 AND AUGUST 2010.
2. PENNONI ASSOCIATES, INC. DOES NOT GUARANTEE THE LOCATION OF SUB-SURFACE STRUCTURES OR SURFACE STRUCTURES THAT ARE NOT VISIBLE AT THE TIME OF THE SURVEY.
3. CONTOUR INTERVAL SHOWN IS 2' AND IS BASED ON NAVD88 DATUM.
4. TOPOGRAPHIC AND PLANIMETRIC INFORMATION SHOWN IS FROM A SURVEY PERFORMED BY AEROCON PHOTOGRAMMETRIC SERVICES, INC. IN NOVEMBER 2007, JANUARY 2008 AND 2010.
5. IMPROVEMENTS SHOWN ON THIS PLAN ARE SUBJECT TO THE RULES AND REGULATIONS CONTAINED IN THE SALEM TOWNSHIP ZONING ORDINANCE.
6. HIGHWAY OCCUPANCY PERMITS FOR ACCESS TO ROADS UNDER THE JURISDICTION OF SALEM TOWNSHIP.
7. ACCORDING TO THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP FOR THE SALEM TOWNSHIP - COMMUNITY PANEL NUMBER 420625 0020 B, PANEL 20 OF 20, EFFECTIVE DATE MARCH 18, 1980.

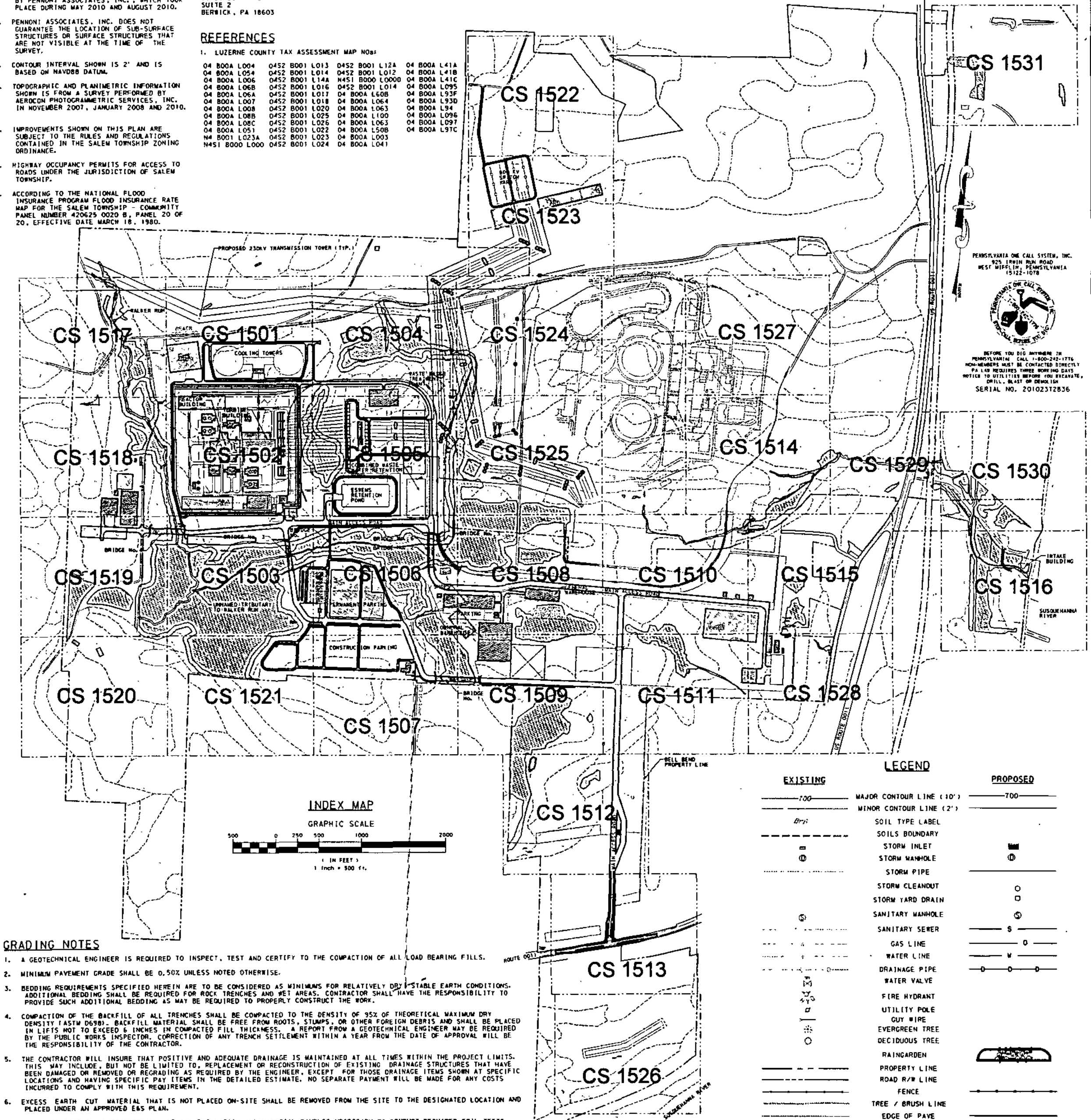
DEVELOPER / OWNER

PPL BELL BEND, LLC.
38 BOMBOY LANE
SUITE 2
BERWICK, PA 18603

REFERENCES

1. LUZERNE COUNTY TAX ASSESSMENT MAP NOs:

04 B00A L004	04S2 B001 L013	04S2 B001 L12A	04 B00A L41A
04 B00A L054	04S2 B001 L014	04S2 B001 L012	04 B00A L41B
04 B00A L006	04S2 B001 L14A	N4S1 B000 L0000	04 B00A L41C
04 B00A L06B	04S2 B001 L016	04S2 B001 L014	04 B00A L095
04 B00A L06A	04S2 B001 L017	04 B00A L60B	04 B00A L93F
04 B00A L007	04S2 B001 L018	04 B00A L064	04 B00A L93D
04 B00A L008	04S2 B001 L020	04 B00A L063	04 B00A L94
04 B00A L08B	04S2 B001 L025	04 B00A L100	04 B00A L096
04 B00A L08C	04S2 B001 L026	04 B00A L063	04 B00A L097
04 B00A L051	04S2 B001 L022	04 B00A L50B	04 B00A L97C
N4 B001 L023A	04S2 B001 L023	04 B00A L003	
N4S1 B000 L000	04S2 B001 L024	04 B00A L041	



LEGEND

EXISTING		PROPOSED
700	MAJOR CONTOUR LINE (10')	700
	MINOR CONTOUR LINE (2')	
	SOIL TYPE LABEL	
	SOILS BOUNDARY	
	STORM INLET	
	STORM MANHOLE	
	STORM PIPE	
	STORM CLEANOUT	
	STORM YARD DRAIN	
	SANITARY MANHOLE	
	SANITARY SEWER	S
	GAS LINE	G
	WATER LINE	W
	DRAINAGE PIPE	
	WATER VALVE	
	FIRE HYDRANT	
	UTILITY POLE	
	GUY WIRE	
	EVERGREEN TREE	
	DECIDUOUS TREE	
	RAINGARDEN	
	PROPERTY LINE	
	ROAD R/W LINE	
	FENCE	
	TREE / BRUSH LINE	
	EDGE OF PAVE	
	RAILROAD	
	WETLANDS BUFFER	
	WETLANDS	
	INFILTRATION TEST LOCATION	

GRADING NOTES

1. A GEOTECHNICAL ENGINEER IS REQUIRED TO INSPECT, TEST AND CERTIFY TO THE COMPACTION OF ALL LOAD BEARING FILLS.
2. MINIMUM PAVEMENT GRADE SHALL BE 0.50% UNLESS NOTED OTHERWISE.
3. BEDDING REQUIREMENTS SPECIFIED HEREIN ARE TO BE CONSIDERED AS MINIMUMS FOR RELATIVELY DRY STABLE EARTH CONDITIONS. ADDITIONAL BEDDING SHALL BE REQUIRED FOR ROCK TRENCHES AND WET AREAS. CONTRACTOR SHALL HAVE THE RESPONSIBILITY TO PROVIDE SUCH ADDITIONAL BEDDING AS MAY BE REQUIRED TO PROPERLY CONSTRUCT THE WORK.
4. COMPACTION OF THE BACKFILL OF ALL TRENCHES SHALL BE COMPACTED TO THE DENSITY OF 95% OF THEORETICAL MAXIMUM DRY DENSITY (ASTM D698). BACKFILL MATERIAL SHALL BE FREE FROM ROOTS, STUMPS, OR OTHER FOREIGN DEBRIS AND SHALL BE PLACED IN LIFTS NOT TO EXCEED 6 INCHES IN COMPACTED FILL THICKNESS. A REPORT FROM A GEOTECHNICAL ENGINEER MAY BE REQUIRED BY THE PUBLIC WORKS INSPECTOR. CORRECTION OF ANY TRENCH SETTLEMENT WITHIN A YEAR FROM THE DATE OF APPROVAL WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE CONTRACTOR WILL INSURE THAT POSITIVE AND ADEQUATE DRAINAGE IS MAINTAINED AT ALL TIMES WITHIN THE PROJECT LIMITS. THIS MAY INCLUDE, BUT NOT BE LIMITED TO, REPLACEMENT OR RECONSTRUCTION OF EXISTING DRAINAGE STRUCTURES THAT HAVE BEEN DAMAGED OR REMOVED OR REGRADING AS REQUIRED BY THE ENGINEER, EXCEPT FOR THOSE DRAINAGE ITEMS SHOWN AT SPECIFIC LOCATIONS AND HAVING SPECIFIC PAY ITEMS IN THE DETAILED ESTIMATE. NO SEPARATE PAYMENT WILL BE MADE FOR ANY COSTS INCURRED TO COMPLY WITH THIS REQUIREMENT.
6. EXCESS EARTH CUT MATERIAL THAT IS NOT PLACED ON-SITE SHALL BE REMOVED FROM THE SITE TO THE DESIGNATED LOCATION AND PLACED UNDER AN APPROVED E&S PLAN.
7. THE CONTRACTOR SHALL PROVIDE ANY AND ALL EXCAVATION AND MATERIAL SAMPLES NECESSARY TO CONDUCT REQUIRED SOIL TESTS. ALL ARRANGEMENTS AND SCHEDULING FOR THE TESTING SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
8. SOILS TESTING AND ON-SITE INSPECTION SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER. THE SOILS ENGINEER SHALL PROVIDE COPIES OF TEST REPORTS TO THE CONTRACTOR, THE OWNER AND THE OWNER'S REPRESENTATIVE AND SHALL PROMPTLY NOTIFY THE OWNER, HIS REPRESENTATIVE AND THE CONTRACTOR, SHOULD WORK PERFORMED BY THE CONTRACTOR FAIL TO MEET THESE SPECIFICATIONS.
9. CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECCESSARY BARACADES AROUND THE WORK AREA AND SHALL PROVIDE PROTECTION AGAINST WATER DAMAGE AND SOIL EROSION.

PHYSICAL SOIL CHARACTERISTICS & LEGEND

Symbol	Name	Group	Slopes	Capability Subclass	Hazard of Erosion
ASF	Arnot-Rock outcrop complex	C/D	steep	VIIs	Slight
At	Atherton silt loam	B/D	-	IVw	Slight
BrA	Braceville gravelly loam	C	0% to 3% slopes	IIw	Slight
BrB	Braceville gravelly loam	C	3% to 8% slopes	IIw	Moderate
BrC	Braceville gravelly loam	C	8% to 15% slopes	IIIe	Moderate
ChA	Chenango gravelly loam	A	0% to 3% slopes	IIs	Slight
ChB	Chenango gravelly loam	A	3% to 8% slopes	IIe	Moderate
ChC	Chanango gravelly loam	A	8% to 15% slopes	IIIe	Moderate
Ho	Holly silt loam	B/D	0% to 3% slopes	IIIw	Slight
OIB	Oquaga and Lordstown channery silt loams	C	3% to 8% slopes	IIe	Moderate
OIC	Oquaga and Lordstown channery silt loams	C	8% to 15% slopes	IIIe	Moderate
OID	Oquaga and Lordstown channery silt loams	C	15% to 25% slopes	IVe	Moderate
OpB	Oquaga and Lordstown extremely stony silt loams	C	3% to 8% slopes	VIIs	Slight
OpD	Oquaga and Lordstown extremely stony silt loams	C	8% to 25% slopes	VIIs	Slight
OXF	Oquaga and Lordstown extremely stony silt loams	C	steep	VIIs	Slight
Po	Pope Soils	B	0% to 5% slopes	I	None to Slight
RdA	Rexford loam	C	0% to 3% slopes	IIIw	None to Slight
RdB	Rexford loam	C	3% to 8% slopes	IIIw	Slight
WeB	Weikert and Klinesville channery loam	C/D	3% to 8% slopes	IIIe	Moderate
WeC	Weikert and Klinesville channery loam	C/D	8% to 15% slopes	IVe	Moderate
WeD	Weikert and Klinesville channery silt loams	C/D	15% to 25% slopes	VIe	Moderate
WmB	Wellsboro very stony silt loam	C	3% to 8% slopes	VIs	Slight
WyD	Wyoming gravelly loam	A	15% to 25% slopes	IVe	Moderate
WyF	Wyoming gravelly loam	A	25% to 60% slopes	VIIe	Moderate

INITIAL TESTS
INFILTRATION TEST PITS

TEST No.	TEST ELEV.	EXISTING ELEV.	TEST DEPTH
1A.1	713.2	760	46.8'
1A.2	713.2	791.4	78.2'
1B.1	713.6	675	-38.6'
1B.2	713.6	680	-33.6
2.1	713.6	785	71.4'
2.2	713.6	750	36.4'
3.1	685	690	5'
3.2	685	687	2'
4.1	657	665	8'
4.2	657	660	3'
5.1	706.4	720	13.6'
5.2	706.4	715	8.6'
6.1	714	722.5	8.5'
6.2	714	721	7'
7.1	712.3	715	2.7'
7.2	712.3	715	2.7'
8.1	687	695	8'
8.2	687	N/A	N/A
9.1	663	670	7'
9.2	663	665.7	2.7'
10.1	669	672.6	3.6'
10.2	669	673.5	4.5'
11.1	660	670	10'
11.2	660	665	5'
12A.1	676	680	4'
12A.2	676	680	4'
12B.1	678.4	670.6	-7.8
12B.2	678.4	670	-8.4
13.1	667	659.3	-7.7
13.2	667	651.9	-15.1
14.1	652	655	3'
14.2	652	655	3'
15.1	630	635	5'
15.2	630	635	5'
16.1	663	668.3	5.3'
16.2	663	668.3	5.3'
17.1	657	665	8'
17.2	657	665	8'
18.1	-	-	-

FOLLOW UP TESTS
INFILTRATION TEST PITS

TEST No.	TEST ELEV.	EXISTING ELEV.	TEST DEPTH
18.2	-	-	-
201.A	663	668.7	5.7'
201.B	663	671	8'
202.A	670	678	8'
202.B	670	676	6'
203.1.A	674	679	5
203.1.B	674	678	4'
203.2.A	648.5	649	0.5'
203.2.B	648.5	653.5	5'
204.2.A	671.4	-	-
204.2.B	671.4	-	-
206.A	630	-	-
206.B	630	-	-
208.A	660	665	5'
208.B	660	666	6'
209.A	663	-	-
209.B	663	-	-
210.1.A	685	-	-
210.1.B	685	-	-
210.4.A	660	667	7'
210.4.B	660	665	5'
212.A	685	712	27'
212.B	685	715	30'
213.1.A	714	718	4'
213.1.B	714	723	9'
213.2.A	-	-	-
213.2.B	-	-	-
215.1.A	990	1011	21'
215.1.B	990	1011	21'
215.2.A	990	1004	14'
215.2.B	990	1004	14'
215.C	990	999	9'
251.D	990	999	9'
218.A	619	625	6'
218.B	619	622	3'
220.A	648	651	3'
220.B	648	649.3	1.3'
221.A	603	607	4'
221.B	603	608	5'

INFILTRATION NUMBERING:

THE INITIAL TEST NUMBERS CORRELATE TO A PRELIMINARY CONCEPT PLAN BASIN NUMBERING SCHEME. THE FOLLOW UP ROUND OF TESTING WAS COMPLETED AFTER ALL POINTS OF INTEREST WERE IDENTIFIED. THE NUMBERING SCHEME FOR THIS ROUND WAS ORGANIZED IN THE 200 SERIES TO SIGNIFY THE SECOND ROUND. ALL TENS AND ONES UNITS RELATE TO THE BASIN NUMBER, AND EACH BASIN NUMBER IS RELATED TO THE POINT OF INTEREST IN WHICH IT IS LOCATED. ANY TENTHS UNITS DIFFERENTIATE BETWEEN MULTIPLE BASINS WITHIN THE SAME POINT OF INTEREST. ANY ALPHA DIGITS IN THE TEST NUMBER ARE USED TO NOTE ADDITIONAL TESTS WITHIN THE SAME BASIN.
Tex 203.1.A SIGNIFIES THE FIRST TEST IN THE FOLLOW UP ROUND OF INFILTRATION TESTING, IN POINT OF INTEREST 3, IN BASIN 3.1.

LEGEND (CONT'D)

EXISTING		PROPOSED
	BUILDING / STRUCTURE	
	LEVEL SPREADER	
	STORMWATER BASIN	
	BRIDGE	
	LOOSE STONE	
	ROADWAY	

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SALEM TOWNSHIP, PENNSYLVANIA

PCSM INDEX PLAN
PPL BELL BEND, LLC
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CS1401
PCSM

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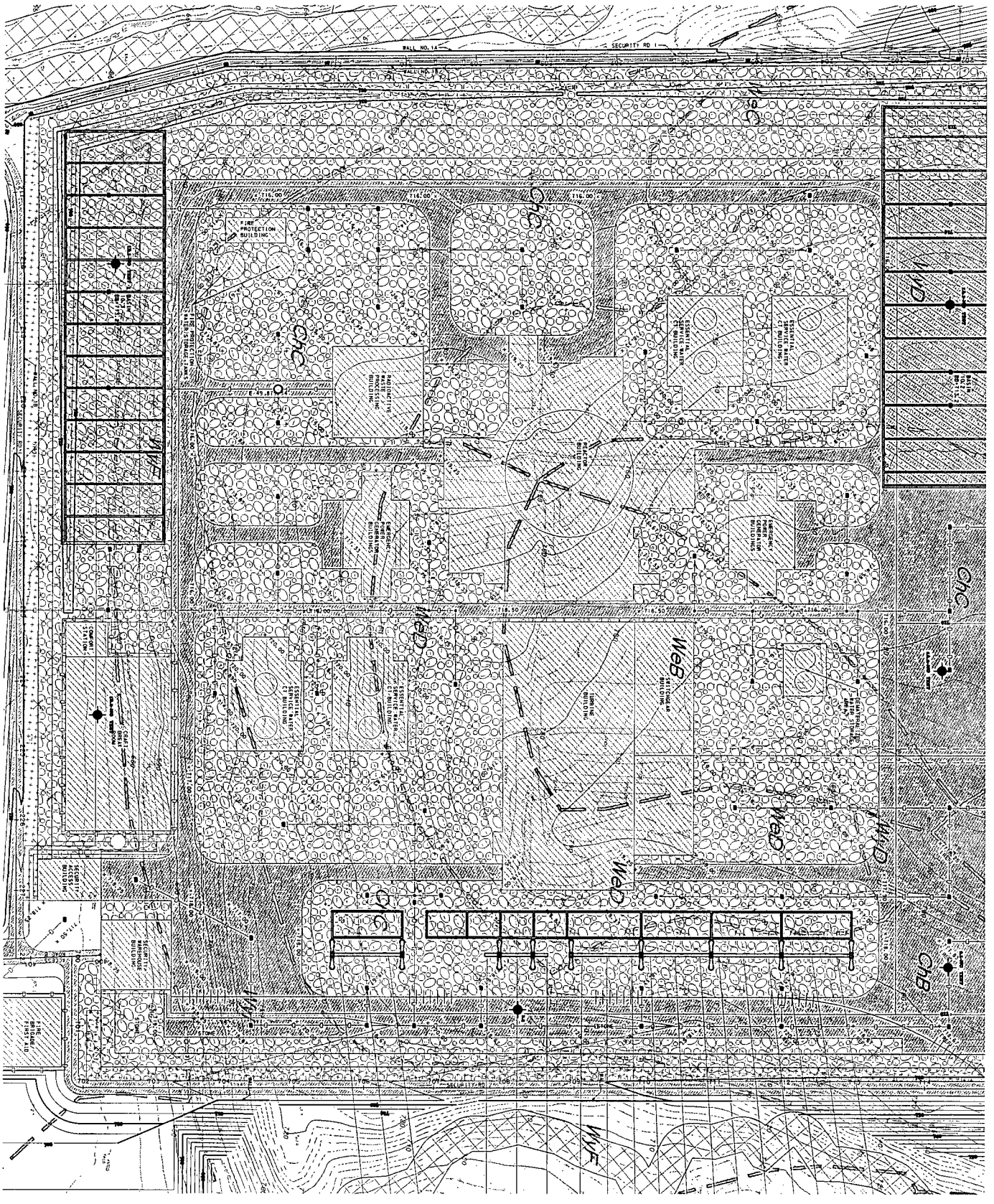
PCSM



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DATE	NO	REVISIONS	BY
08/2019	0	XXXXXXX XXXXXXXXX	XXX

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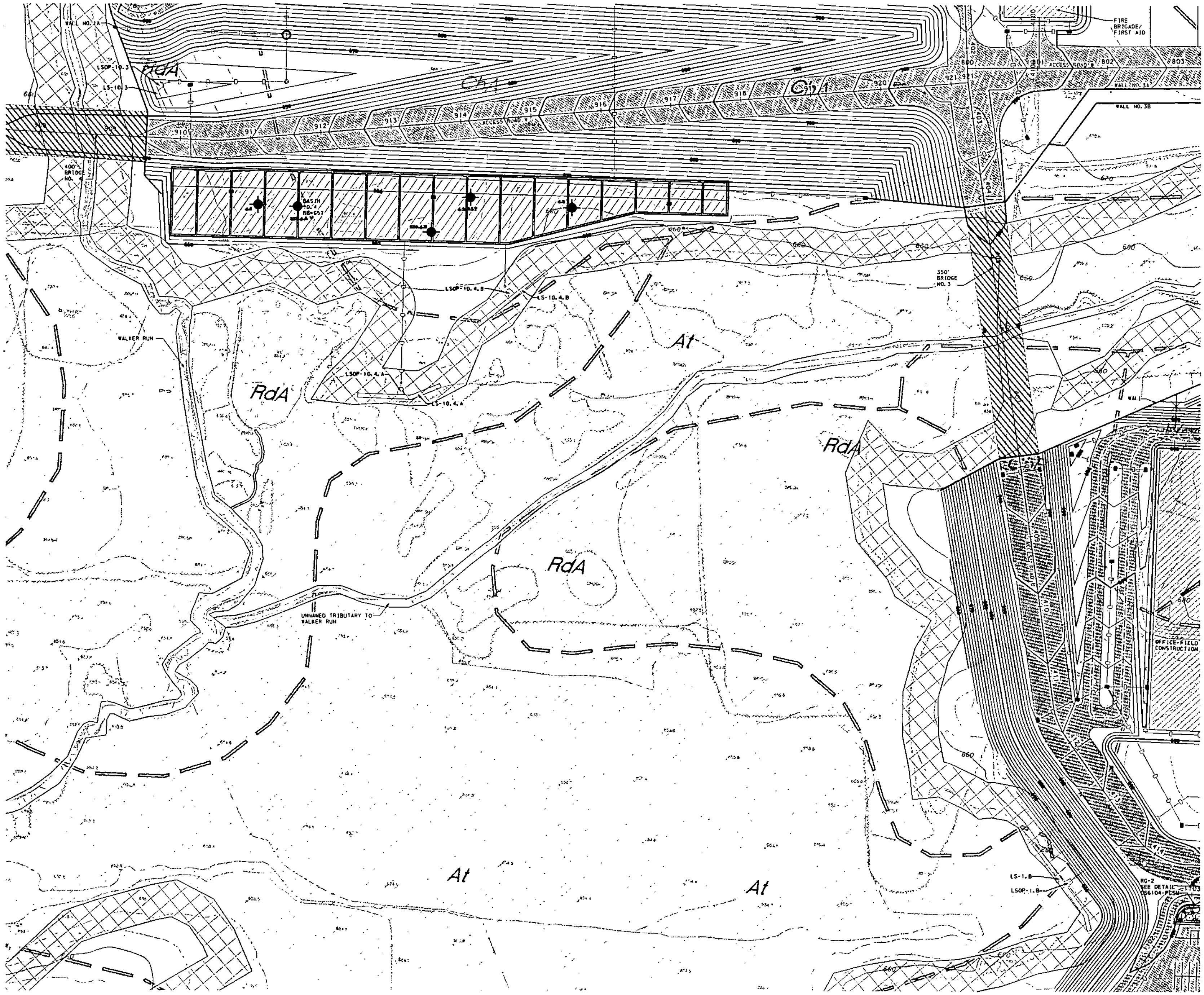

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PCSM PLANS
PPL BELL BEND, LLC

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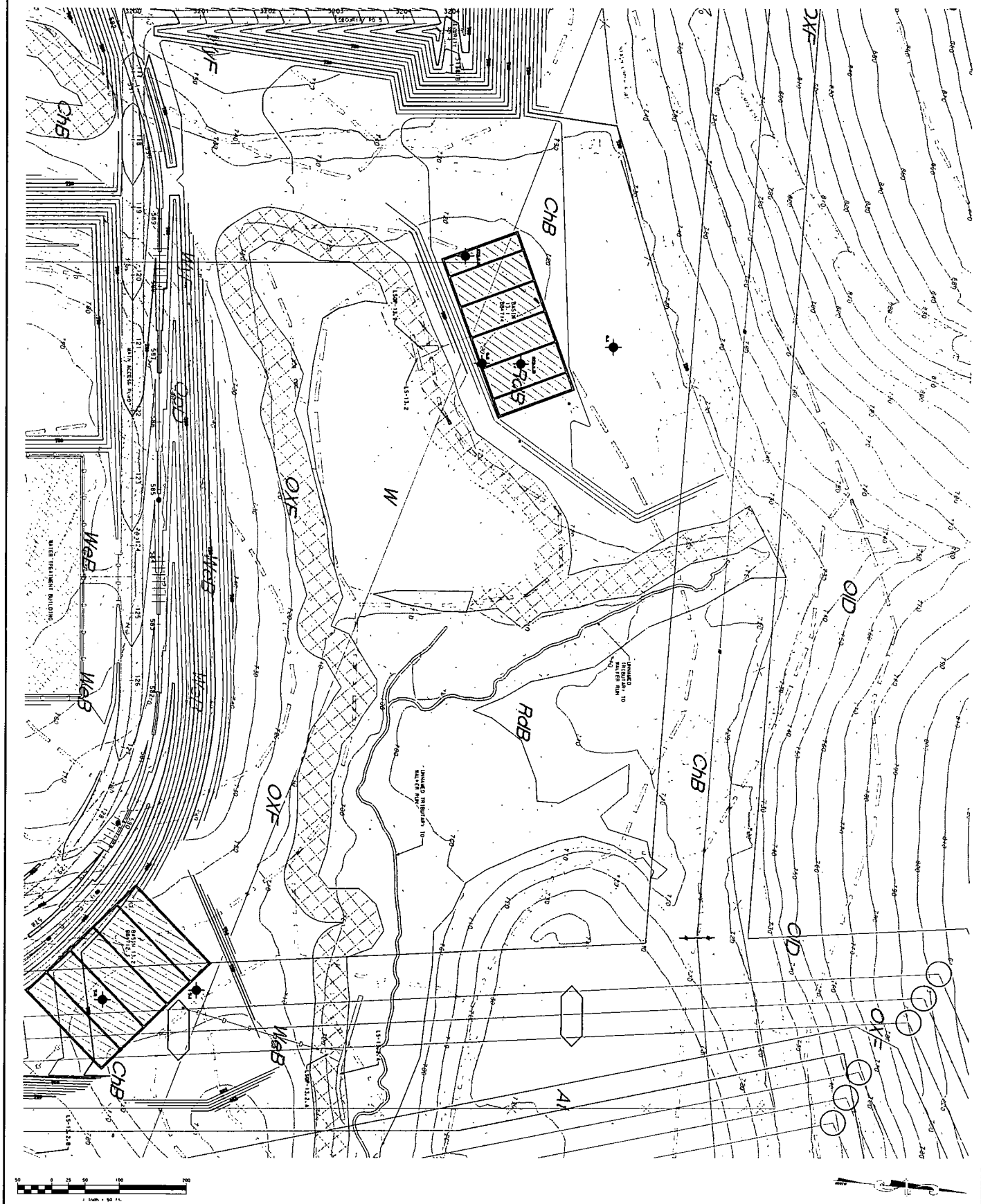
CS 1503
PCSM



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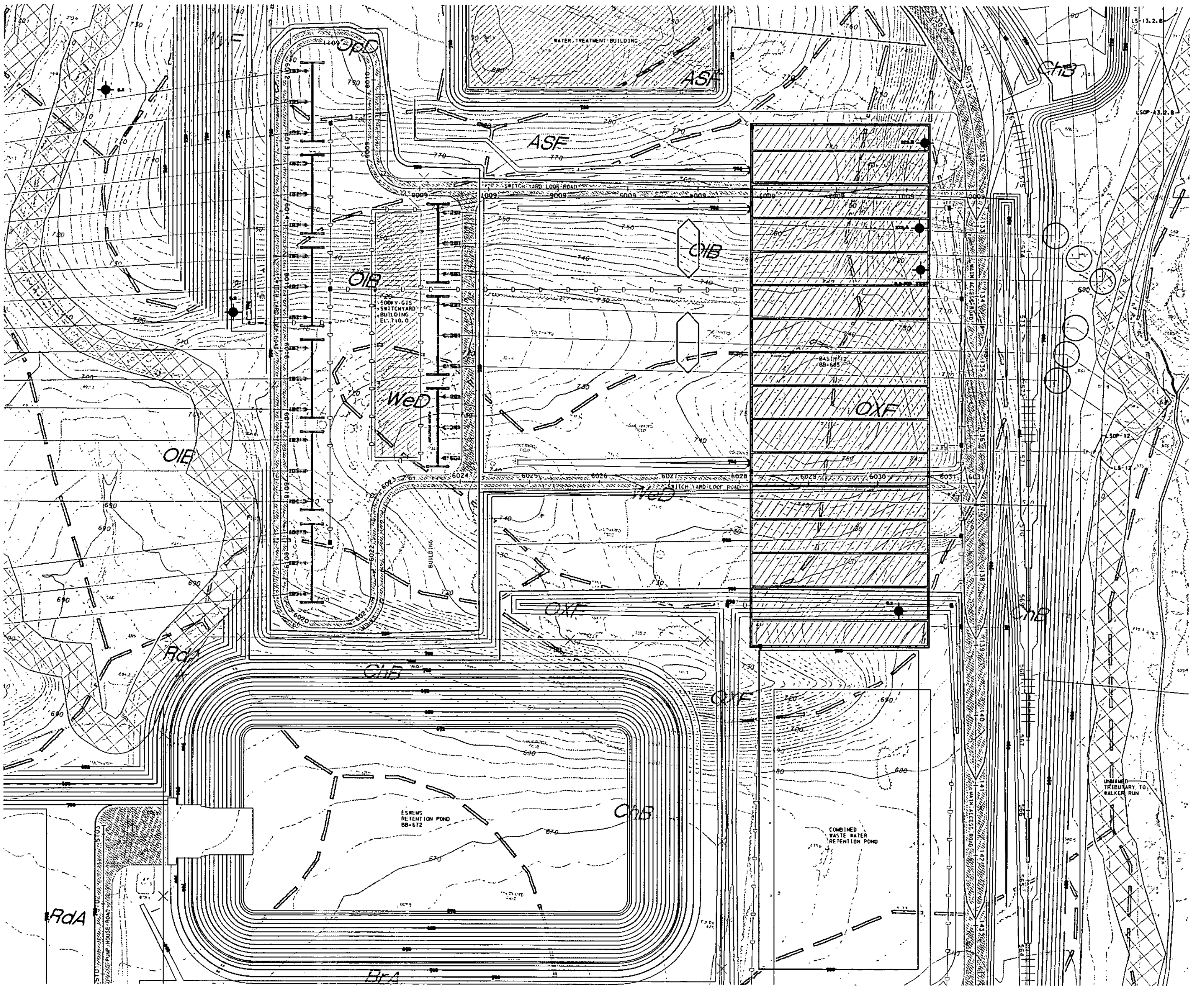

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08/20/2010	0	XXXXXXX XXXXXXXXXX	XXX

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08/30/2010	0	XXXXXXXX XXXXXXXXXX	XXX

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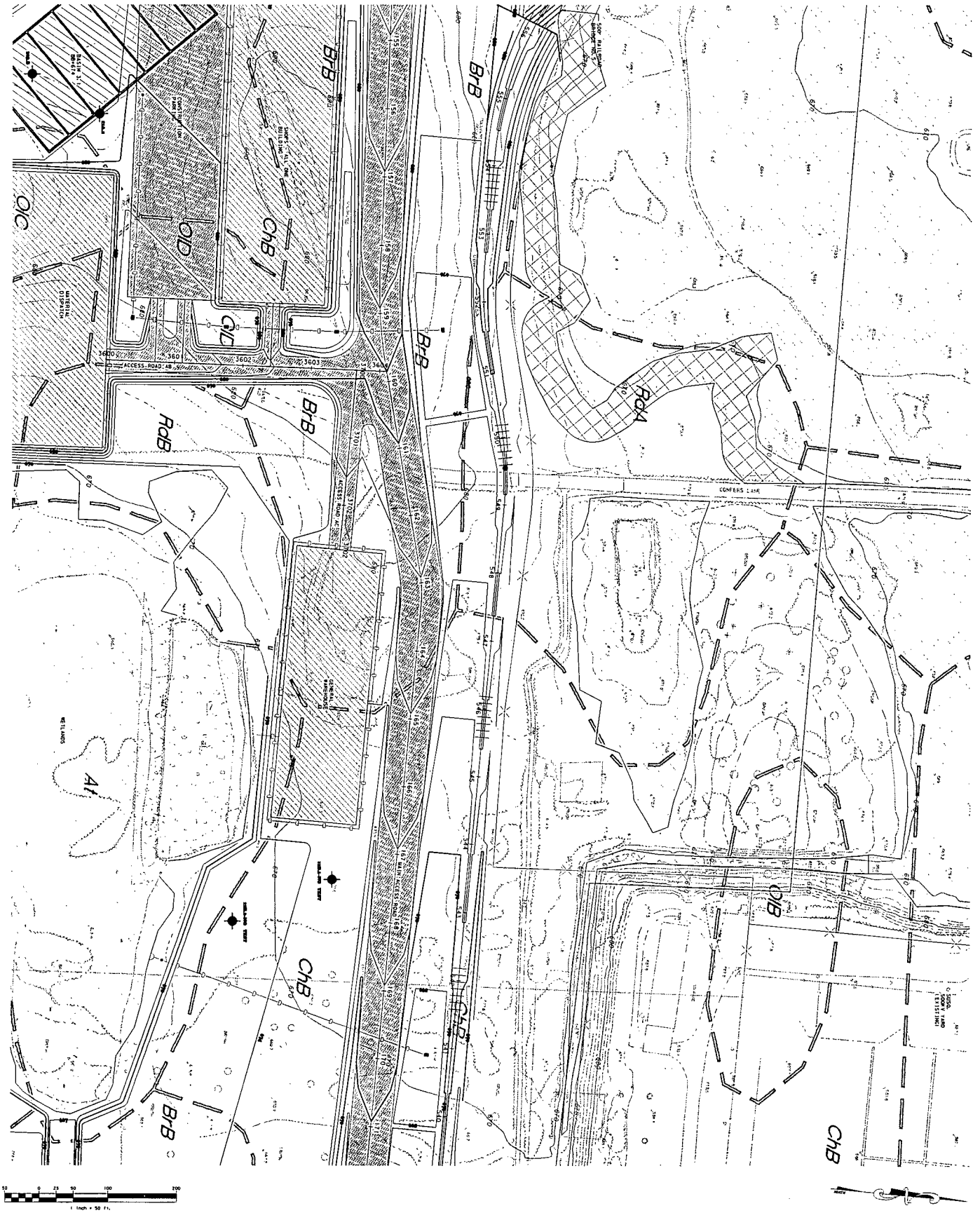

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DATE	NO.	REVISIONS	BY
09/05/2010	0	XXXXXXXX XXXXXXXXXX	XXX

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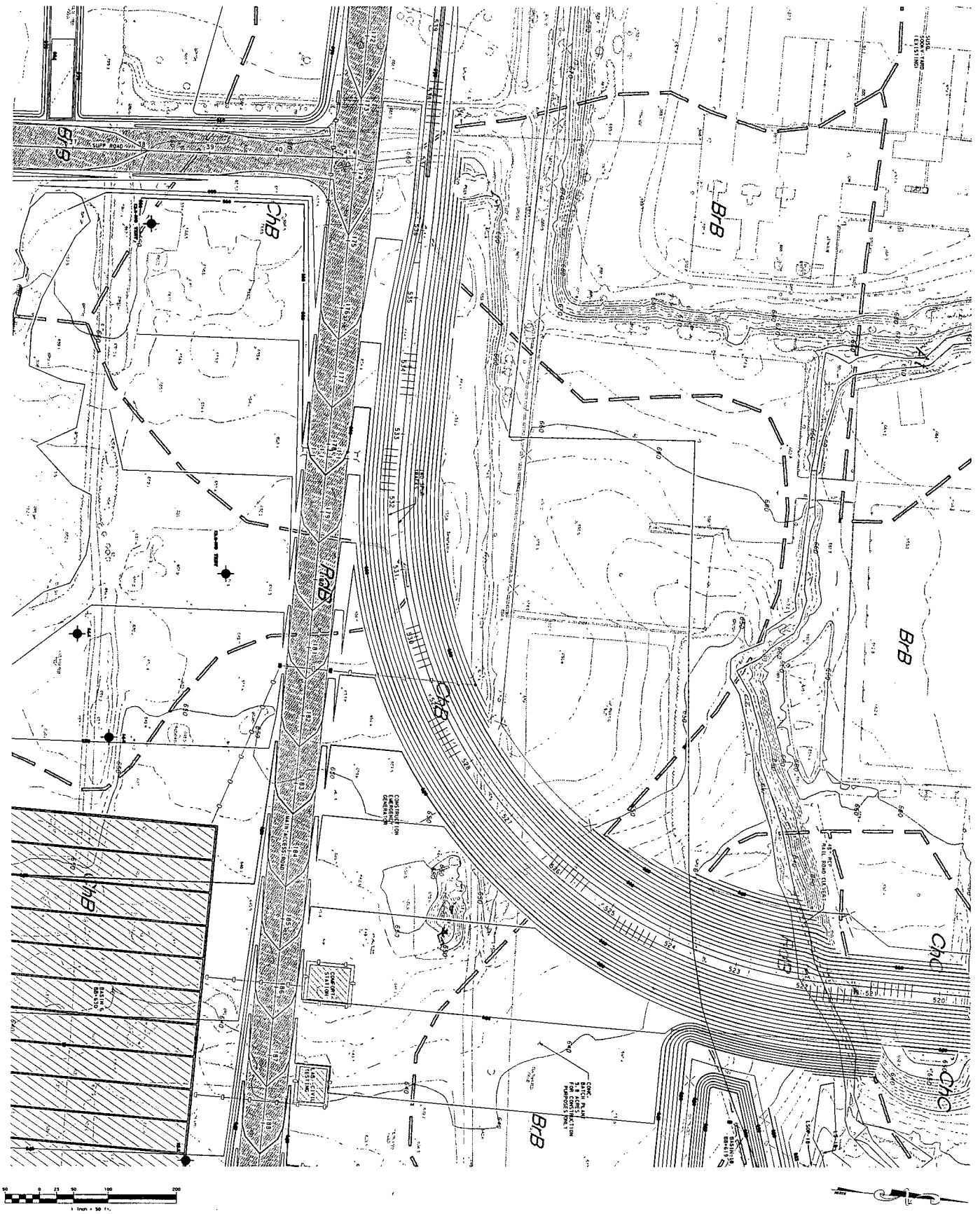

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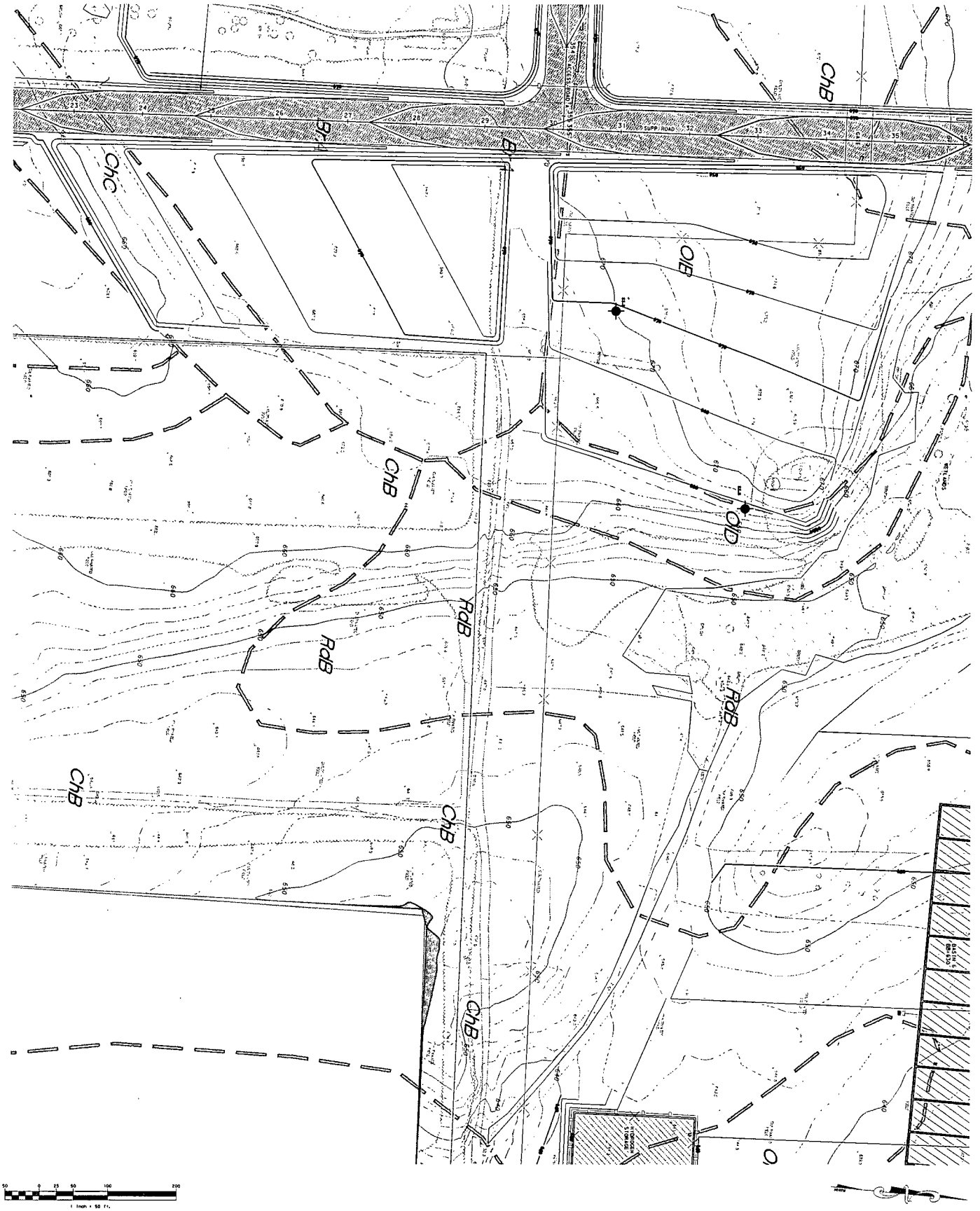

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DATE	NO.	REVISIONS	BY
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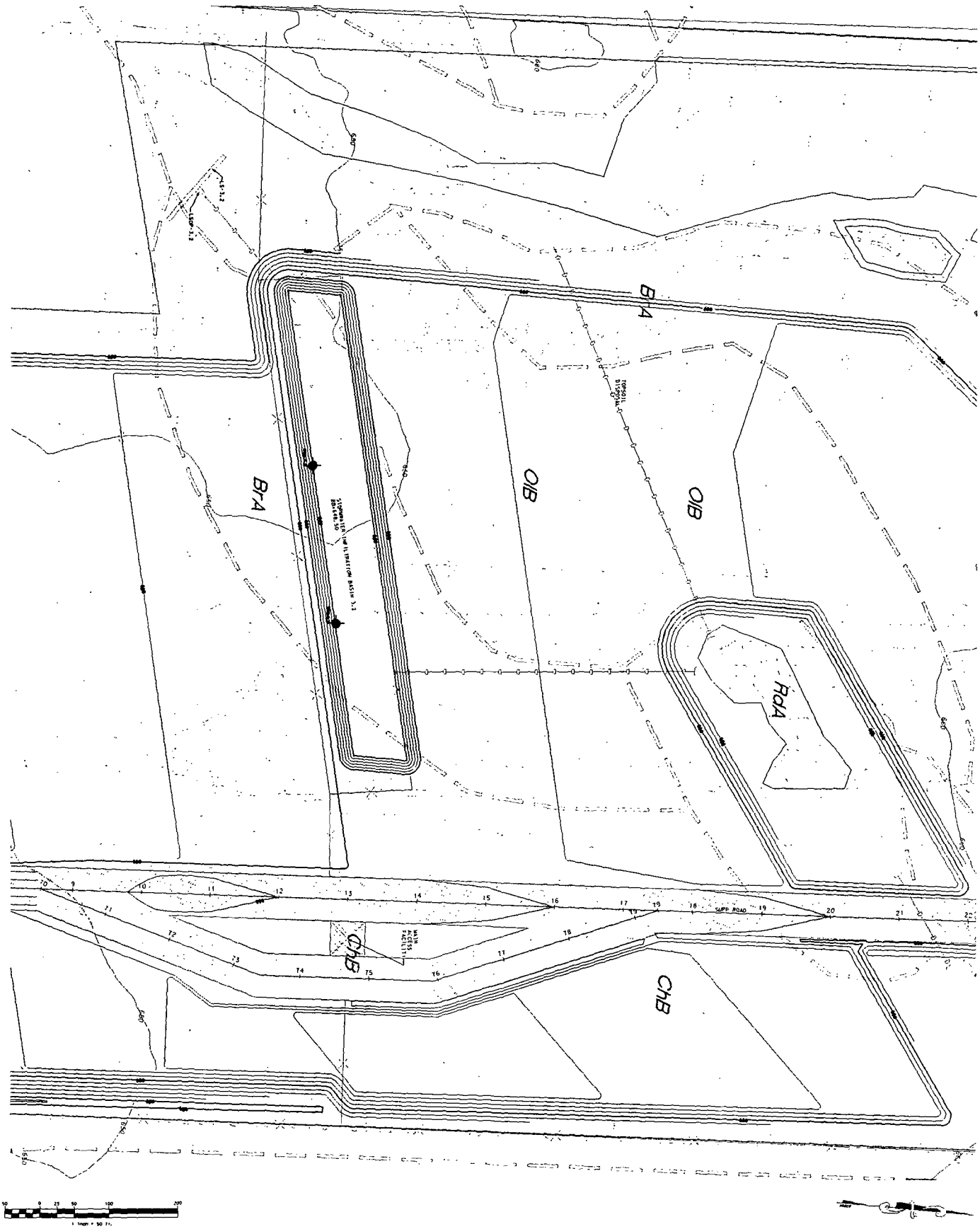

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8/20/2010	0	XXXXXXX XXXXXXXXXX	XXX

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PCSM	CS 1514	

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PCSM PLANS

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DATE	NO.	REVISIONS	BY
8/22/2010	0	XXXXXXXX XXXXXXXXX	XXX

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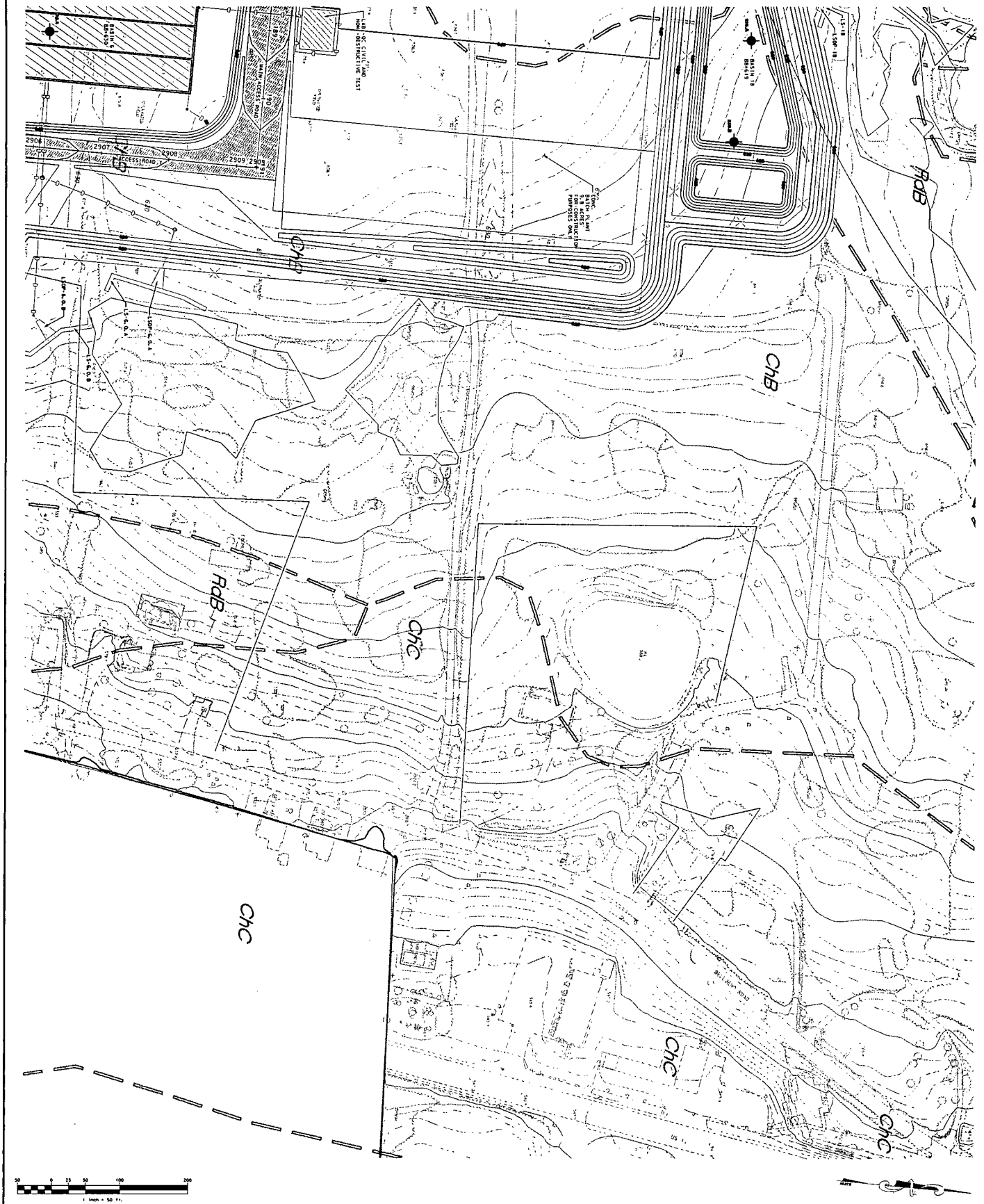

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SALEM TOWNSHIP, PENNSYLVANIA

PCSM PLANS

PPL BELL BEND, LLC
38 BOWDOY LANE
SUITE 2
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DATE	NO.	REVISIONS	BY
06/20/2010	0	XXXXXXX XXXXXXXXXX	XXX

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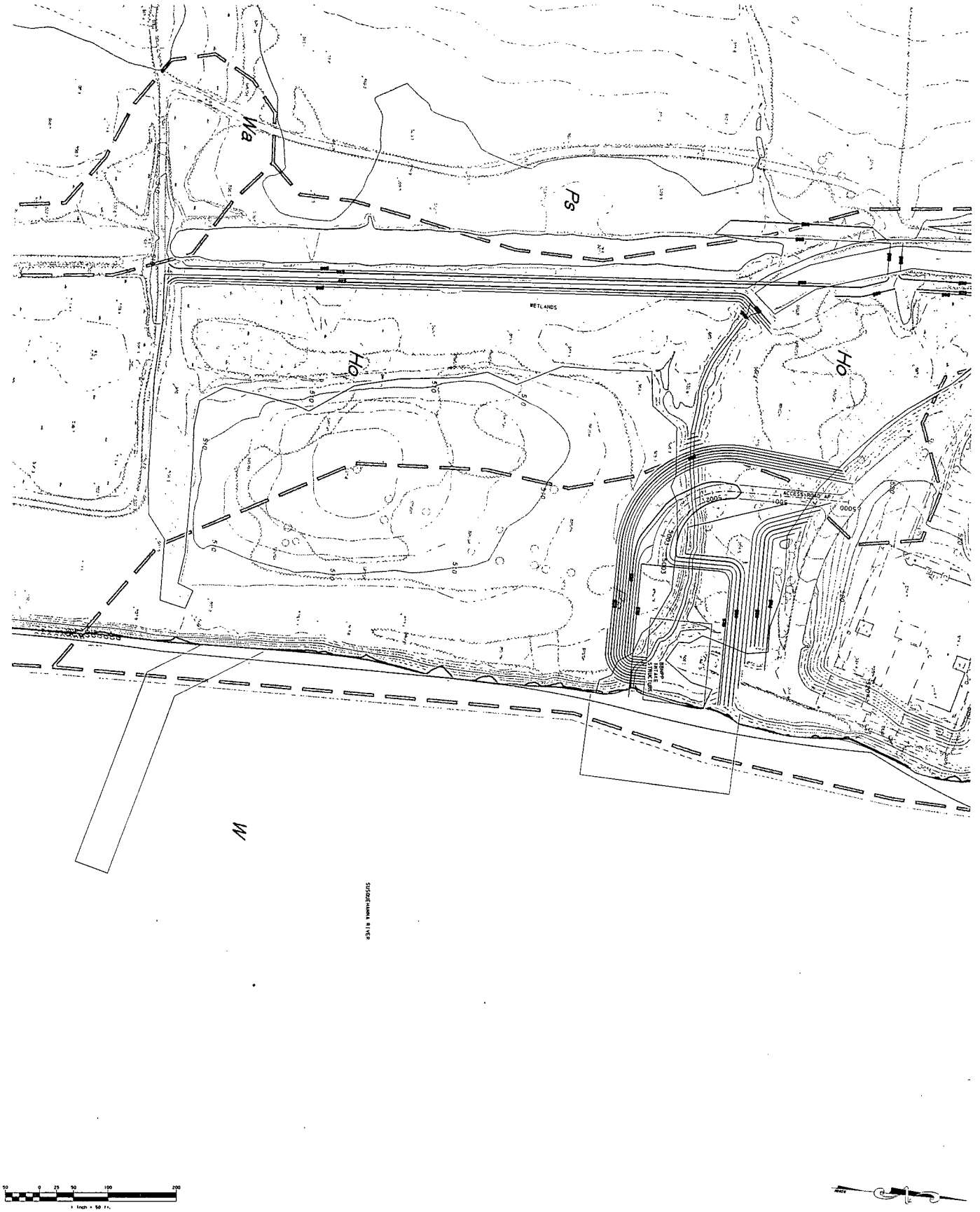
CONSULTING ENGINEERS

CS 1515
PCSM



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CS 1516
PCSM

BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

PCSM PLANS

PPL BELL BEND, LLC
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SUITE 2
BERWICK, PA 18603

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DATE	NO.	REVISIONS	BY
08/30/10	0	XXXXXXX XXXXXXXXXX	XXX

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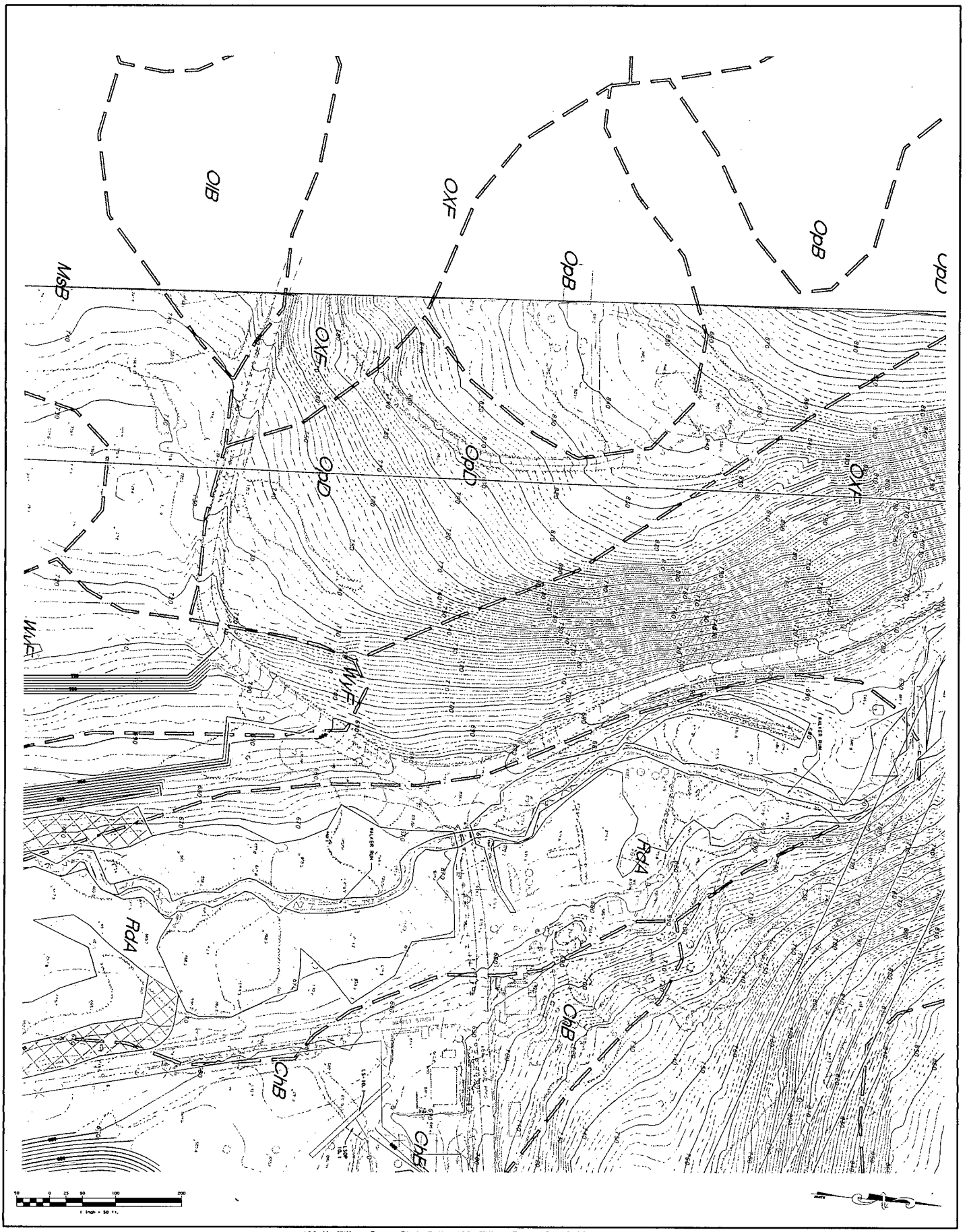

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PCSM CS 1517

BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

PCSM PLANS

PPL BELL BEND, LLC
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SUITE 2
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DATE	NO.	REVISIONS	BY
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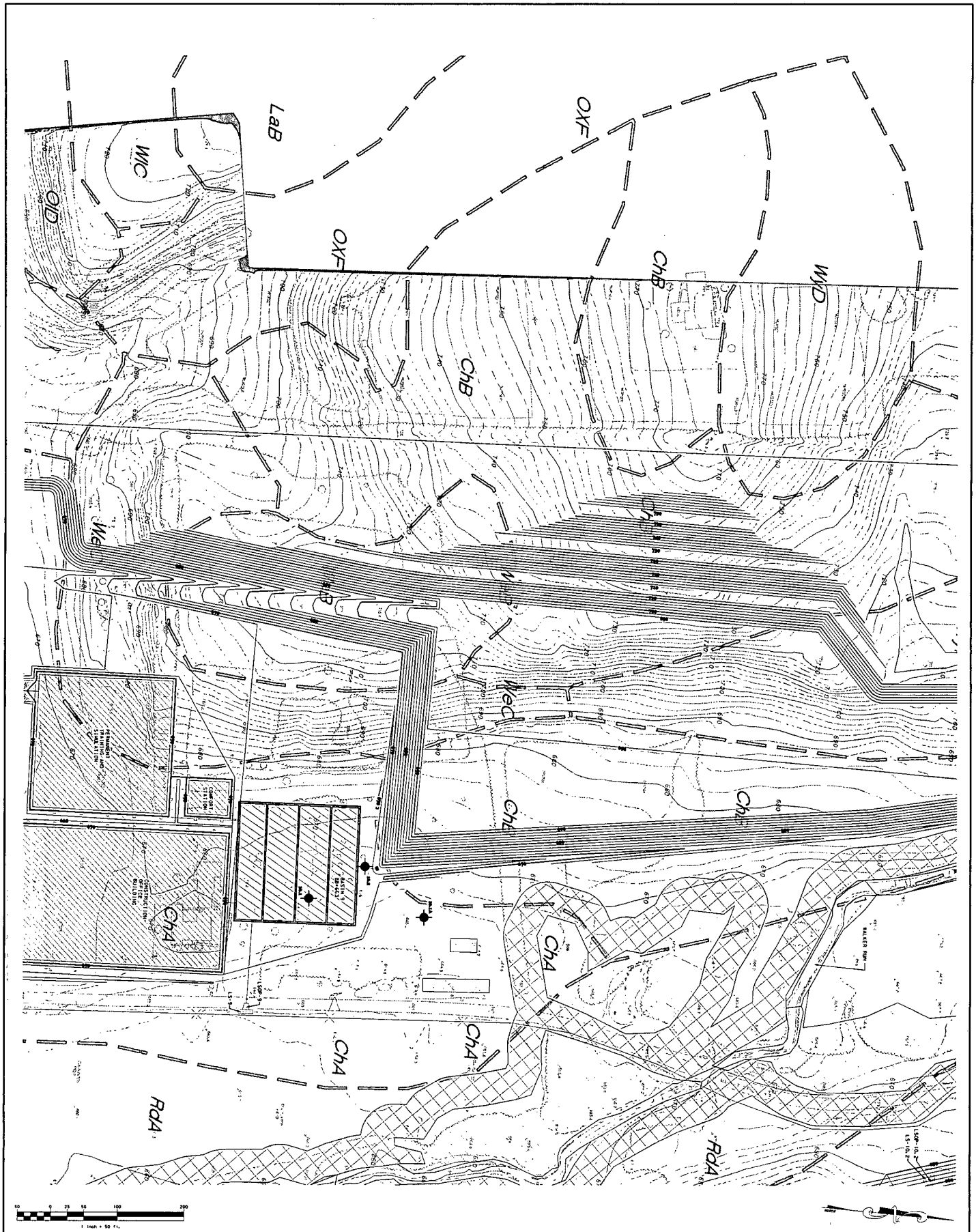

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SALEM TOWNSHIP, PENNSYLVANIA

PCSM PLANS

PPL BELL BEND, LLC
38 BOWLBOY LANE
SUITE 2
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PCSM PLANS

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CS 1519
PCSM

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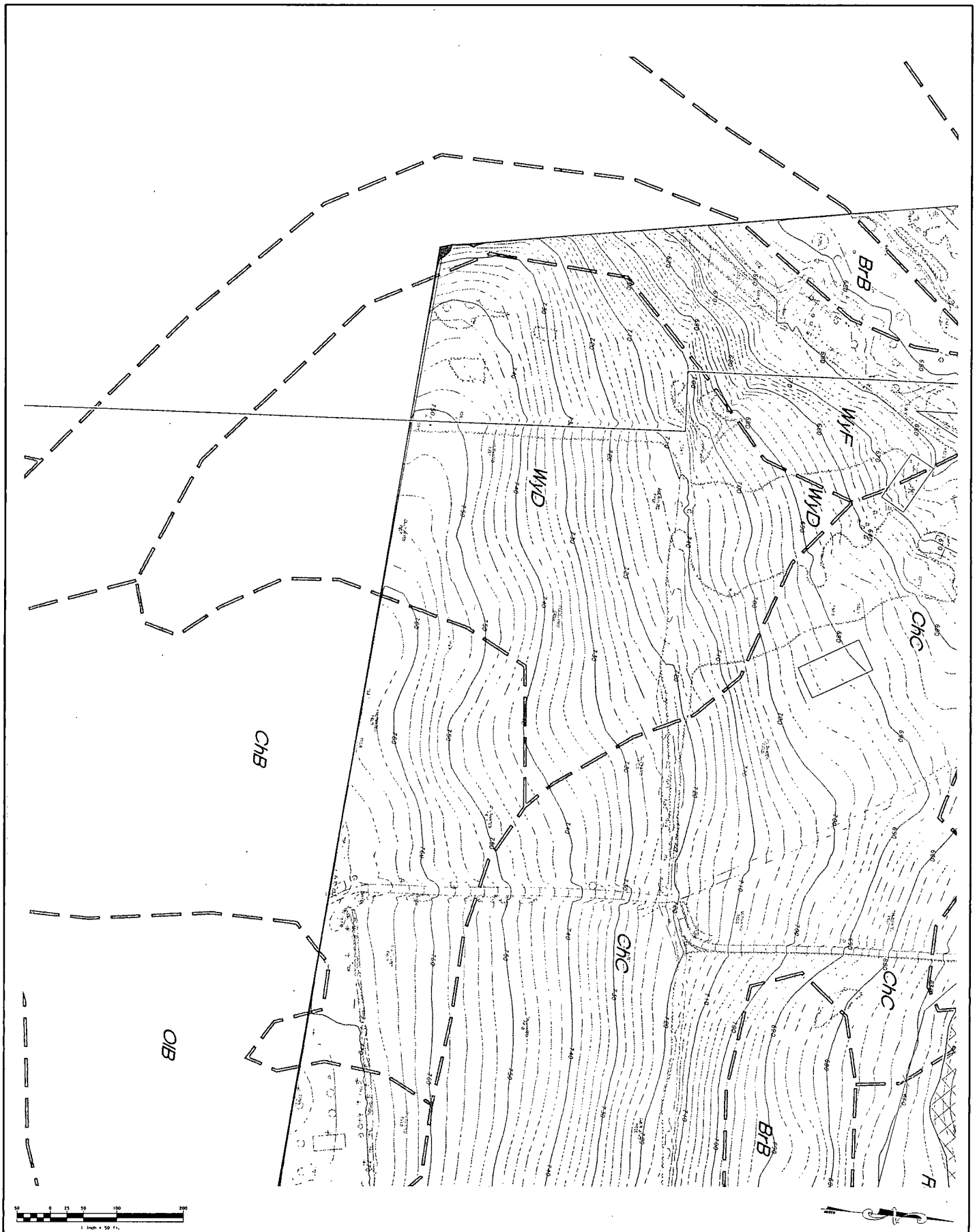

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CS 1520
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BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

PCSM PLANS

PPL BELL BEND, LLC
38 BOWBOY LANE
SUITE 2
BERWICK, PA 18603

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

DATE	NO.	REVISIONS	BY
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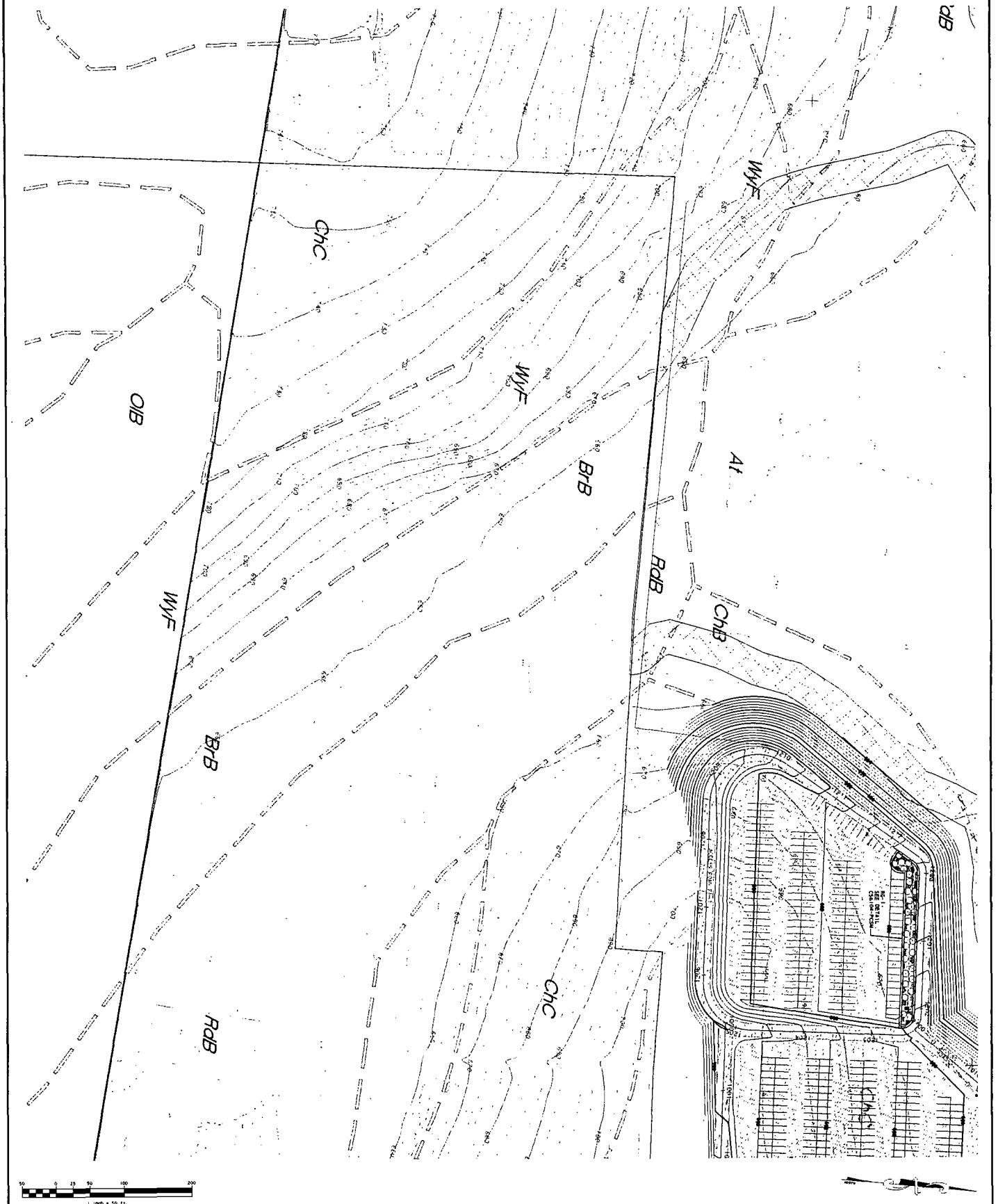

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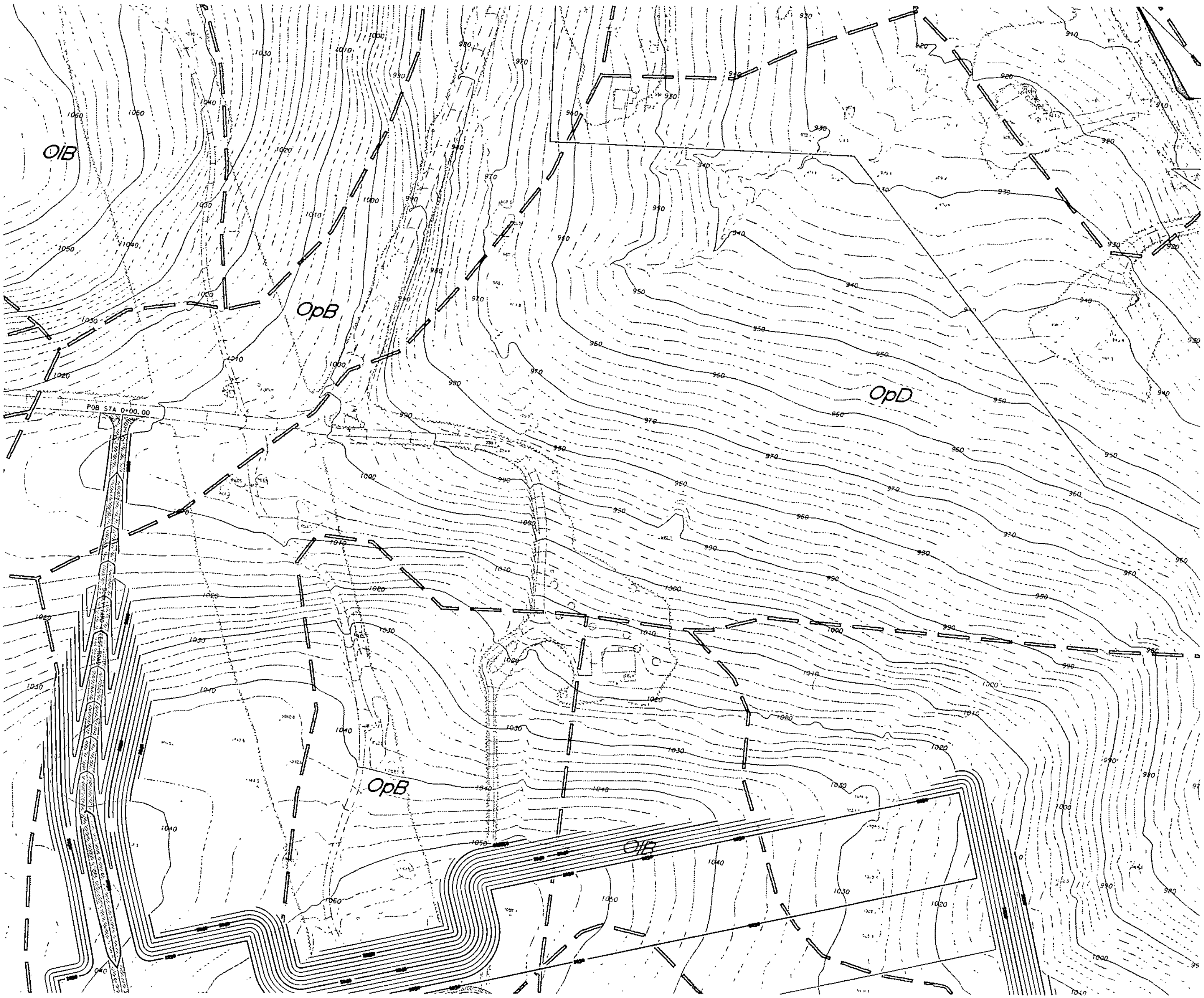

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CS 1522
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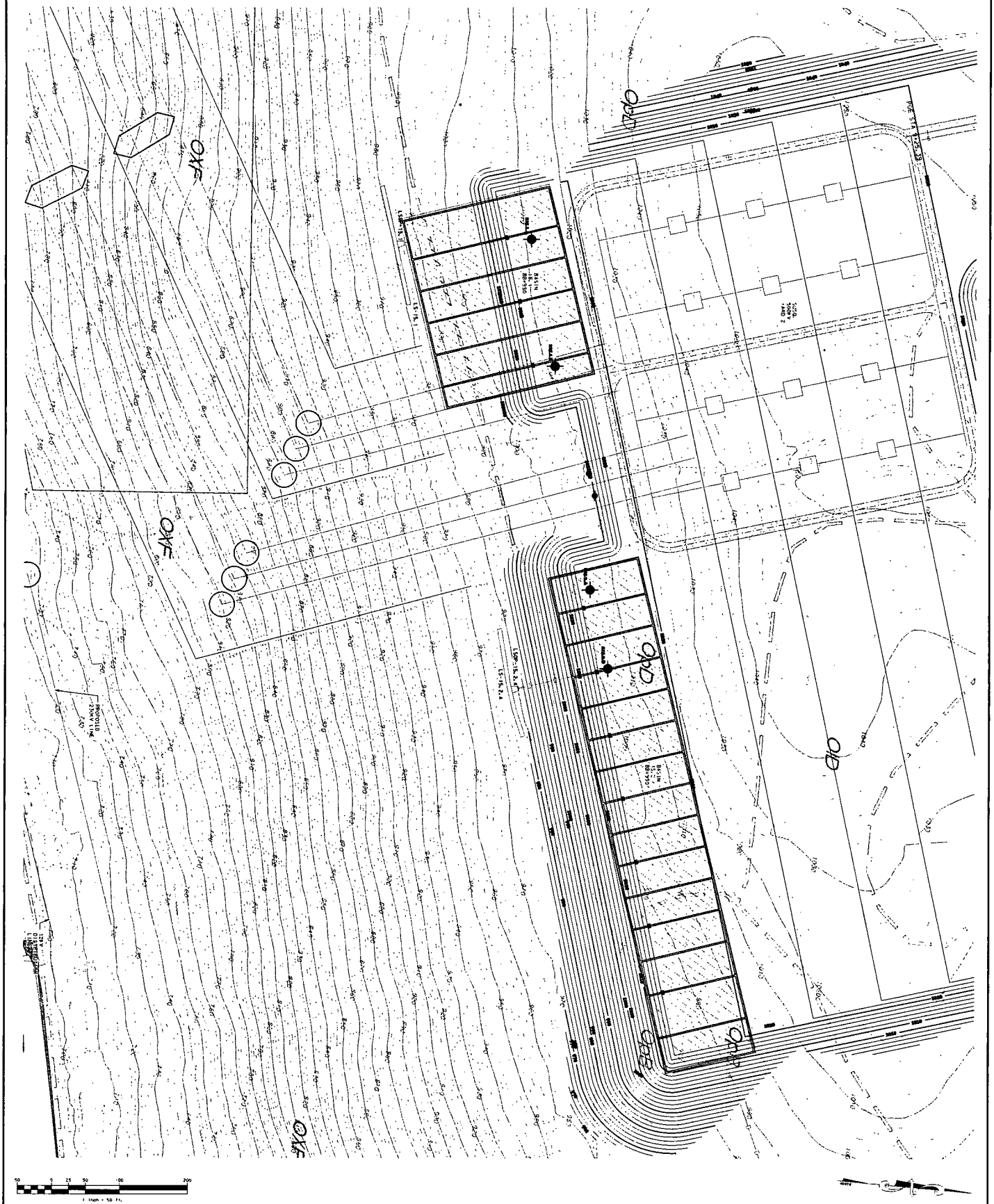

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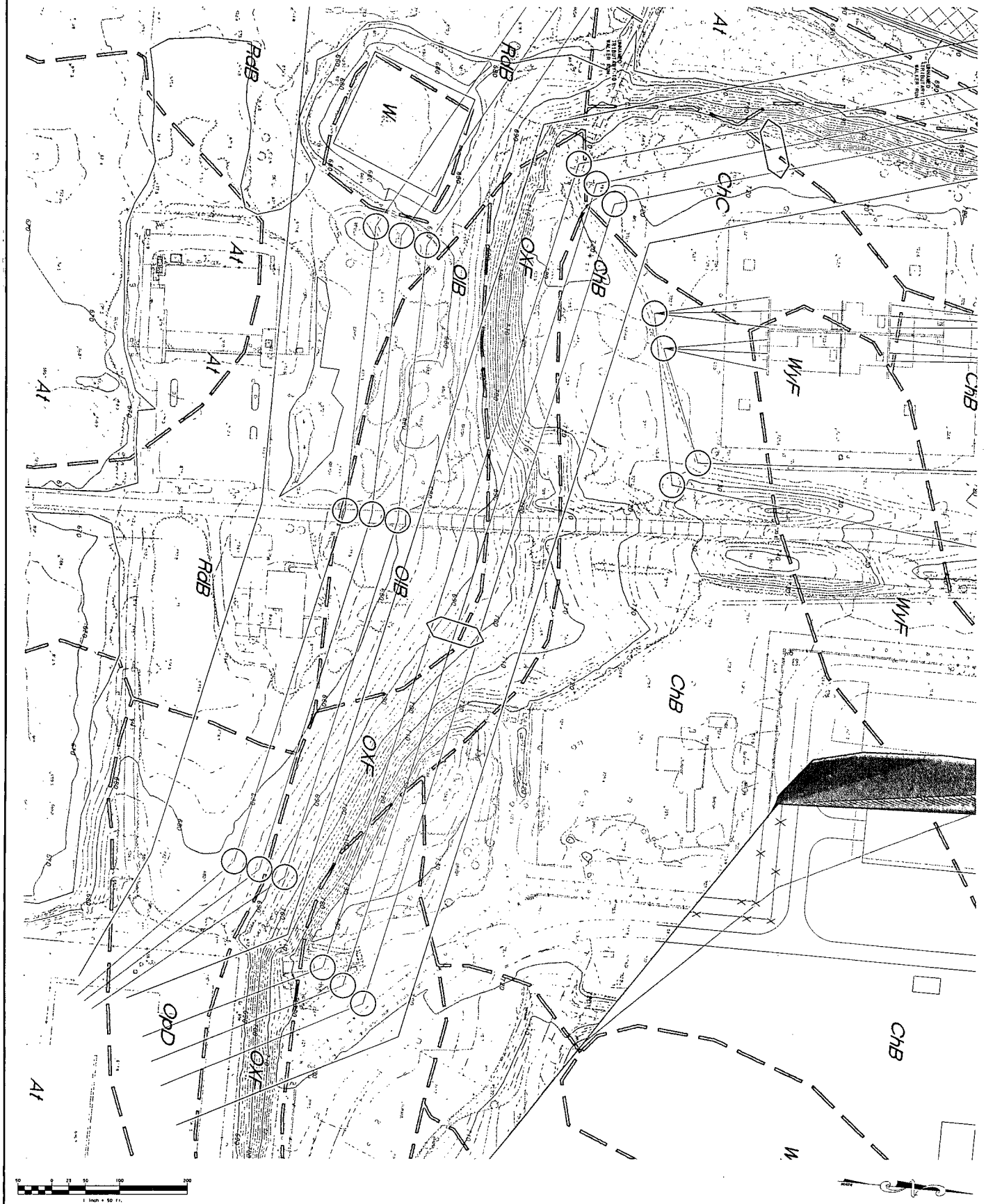

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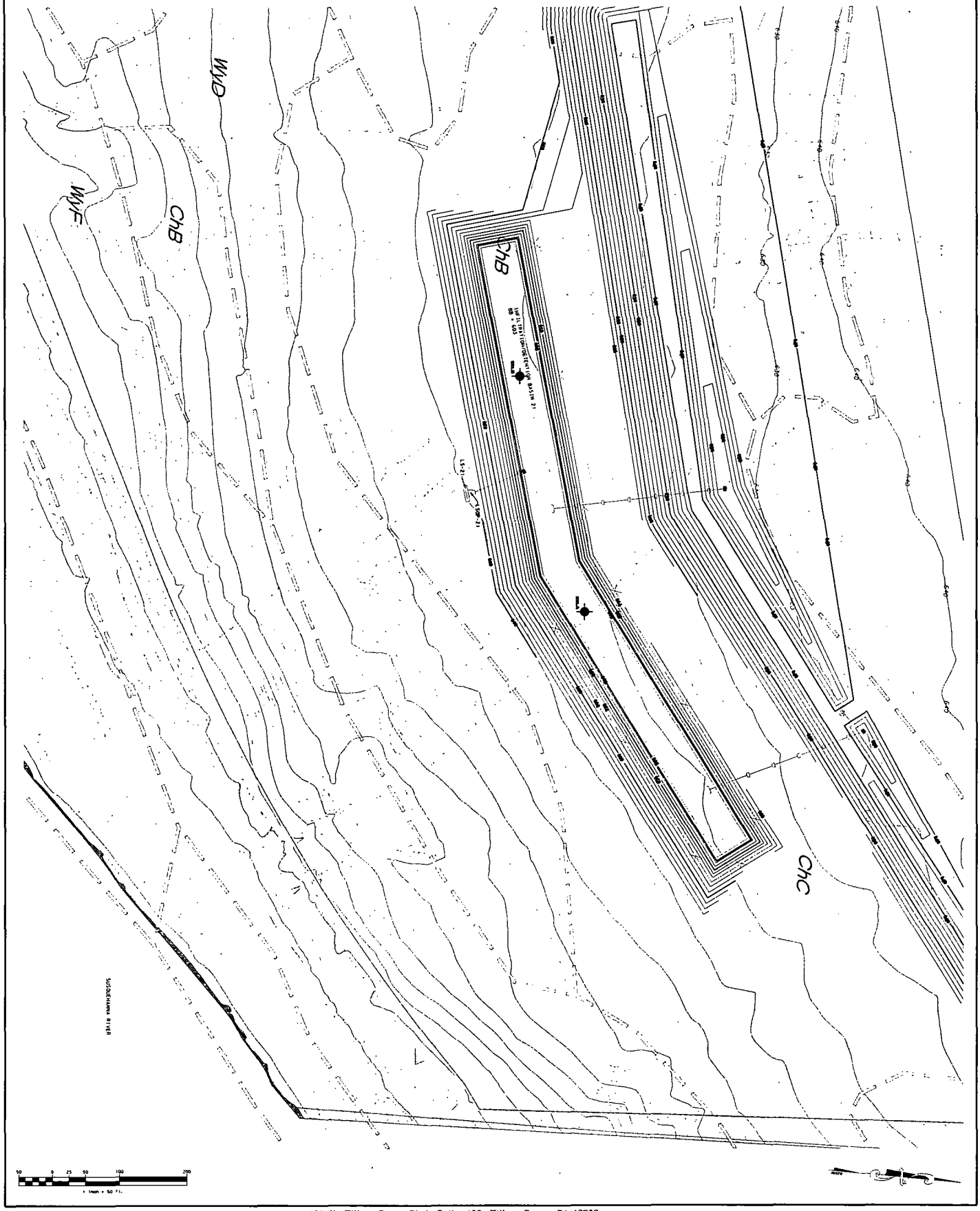

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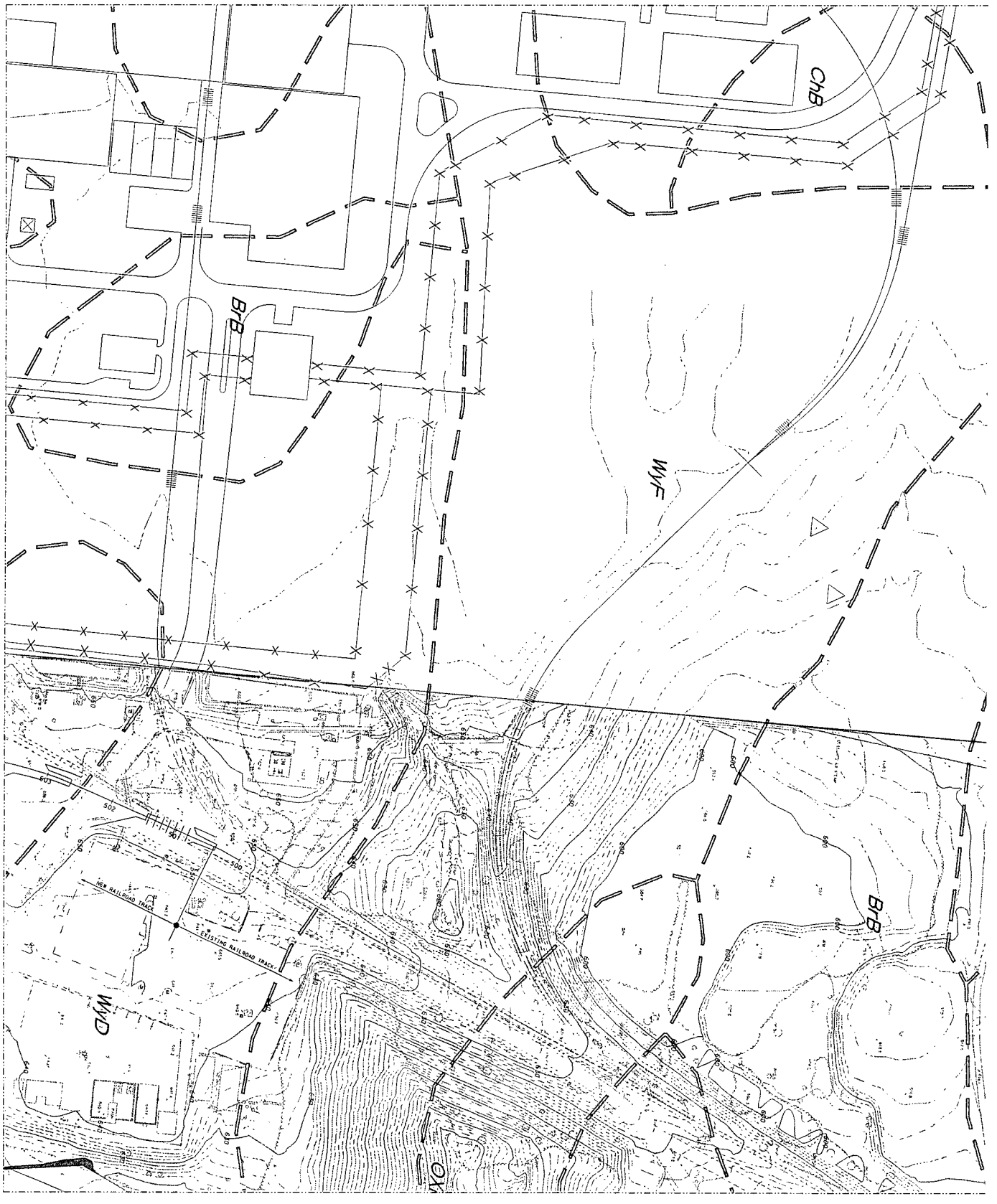

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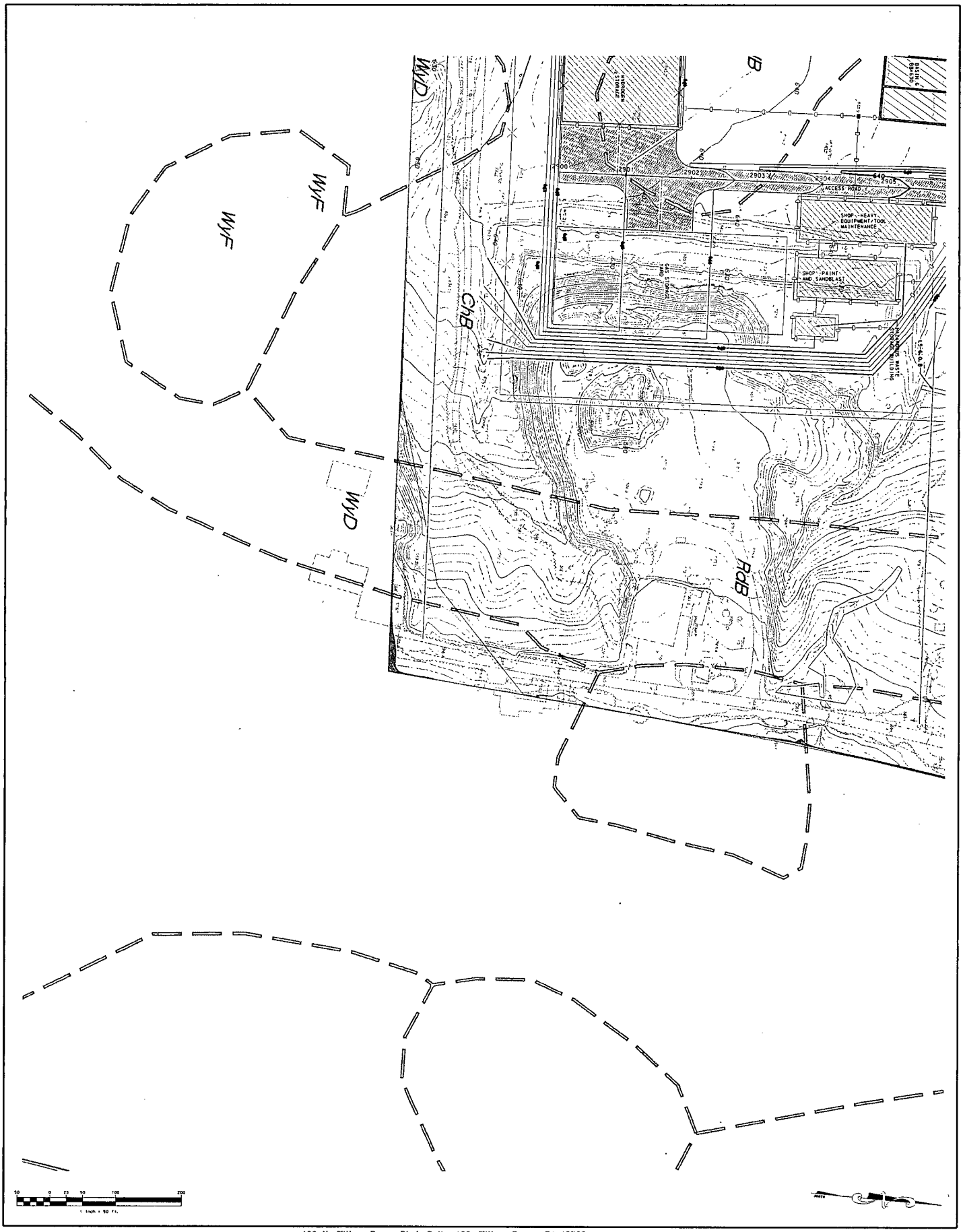

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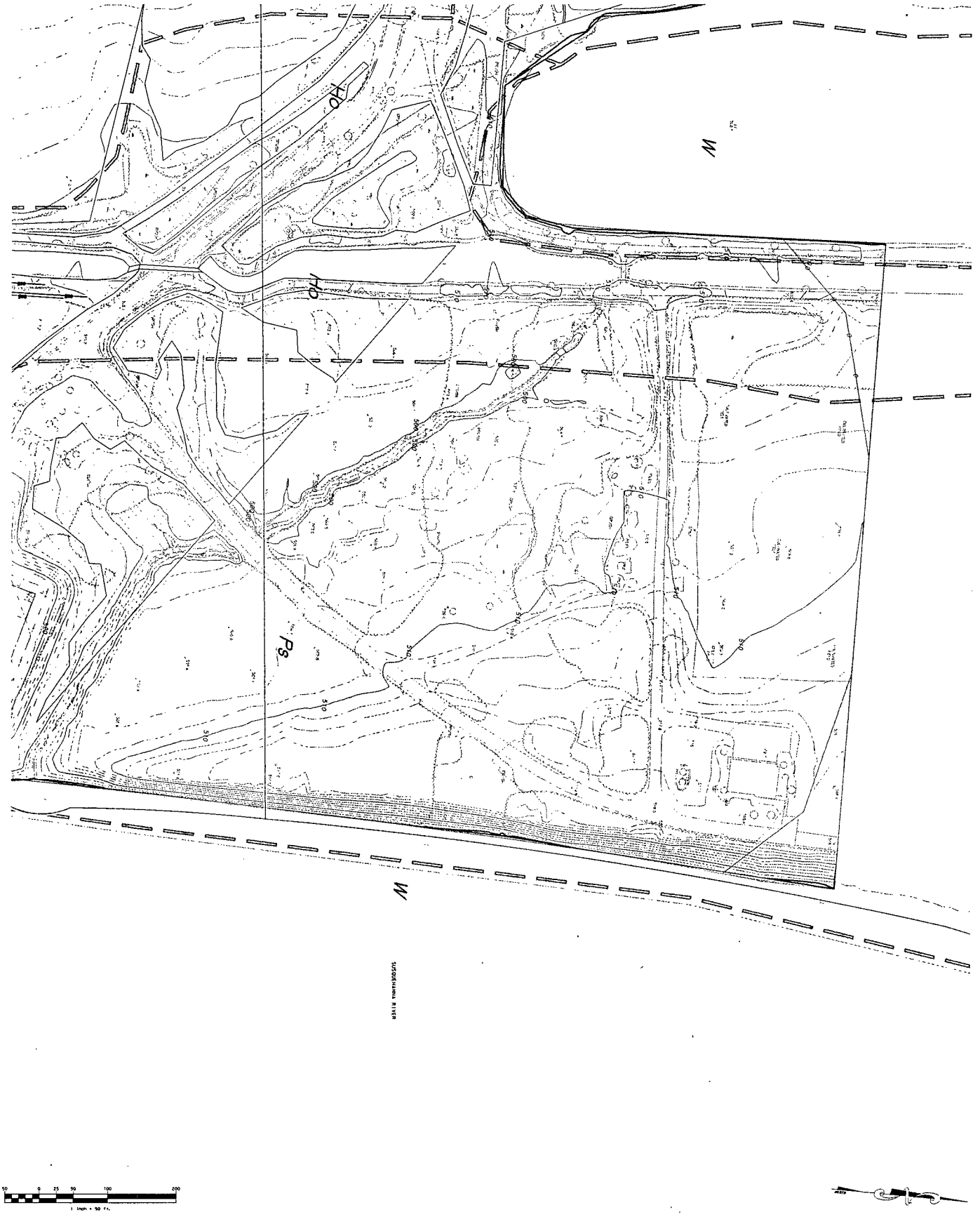

50 0 25 50 100 200

1 inch = 50 ft.

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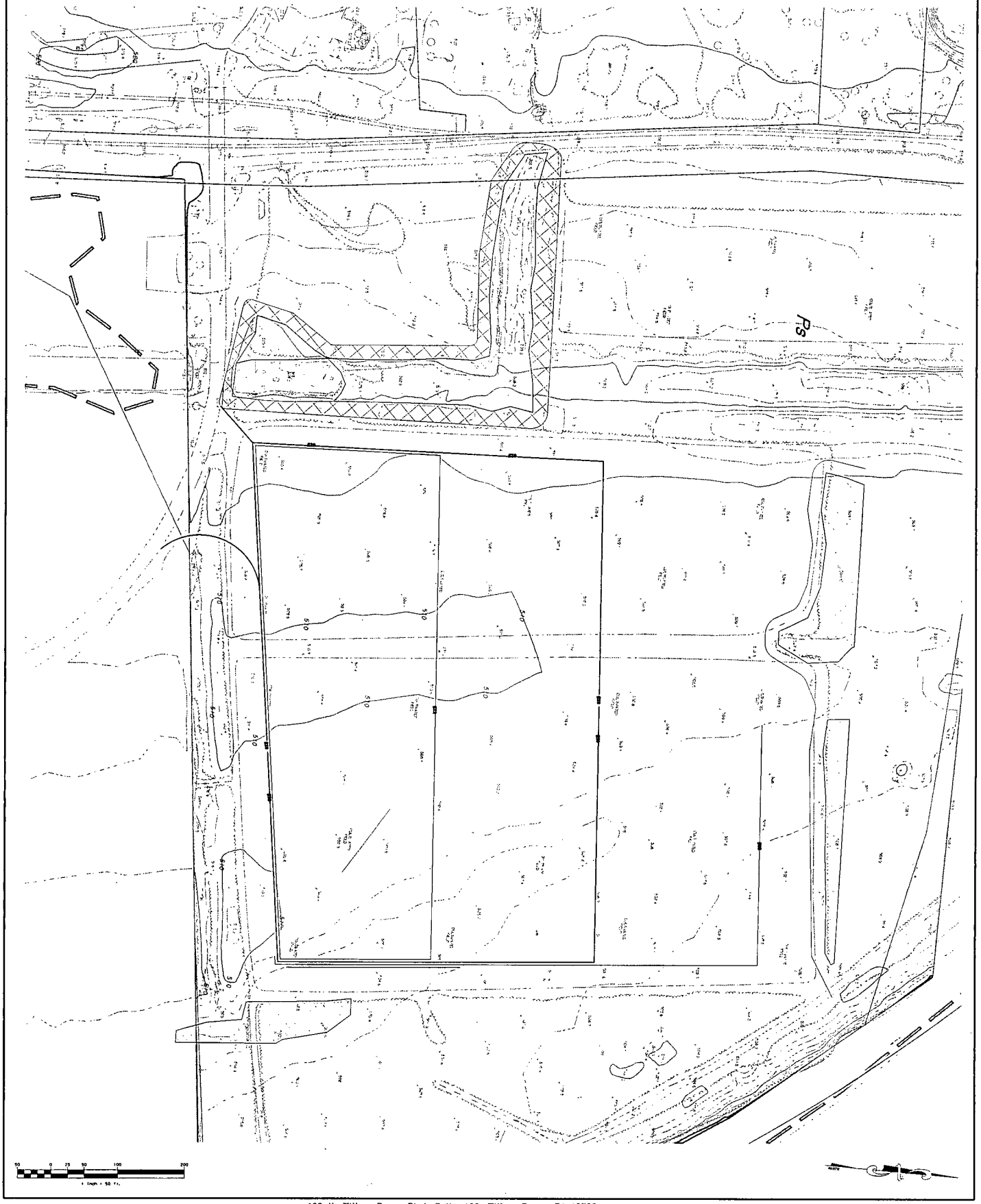

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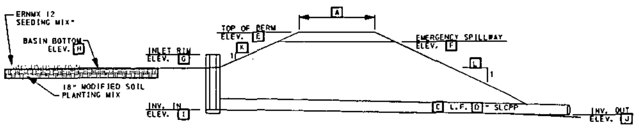


SECTION VIEW

1 TYPICAL ABOVE GROUND INFILTRATION/DETENTION BASIN DETAIL

NO SCALE

NOTES:

1. BASIN SHALL BE MAINTAINED BY THE OWNER
2. MODIFIED SOIL PLANTING MIX SHALL CONTAIN 20% TO 30% ORGANIC MATERIAL (COMPOST) AND 70% TO 80% TOPSOIL. SOIL PH SHOULD BE BETWEEN 5.5 AND 6.5 AND HAVE A CLAY CONTENT LESS THAN 10%.

CONSTRUCTION SEQUENCE:

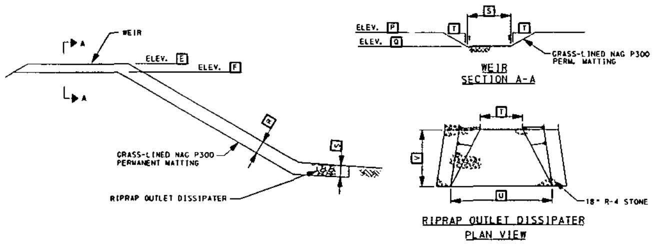
1. PROTECT BASIN AREA FROM COMPACTION PRIOR TO INSTALLATION.
2. IF POSSIBLE, INSTALL BASIN DURING LATER PHASES OF SITE CONSTRUCTION TO PREVENT SEDIMENTATION AND/OR DAMAGE FROM CONSTRUCTION ACTIVITY. AFTER INSTALLATION, PREVENT SEDIMENT LADEN WATER FROM ENTERING INLETS AND PIPES.
3. INSTALL AND MAINTAIN PROPER EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.
4. IF NECESSARY, EXCAVATE BASIN BOTTOM TO AN UNCOMPACTED SUBGRADE FREE FROM ROCKS AND DEBRIS. DO NOT COMPACT SUBGRADE.
5. INSTALL OUTLET CONTROL STRUCTURES.
6. SEED AND STABILIZE TOPSOIL. (VEGETATE IF APPROPRIATE WITH NATIVE PLANTINGS.)
7. DO NOT REMOVE INLET PROTECTION OR OTHER EROSION AND SEDIMENT CONTROL MEASURES UNTIL SITE IS FULLY STABILIZED.

SEEDING MIXTURE

RETENTION BASIN FLOORING MIX: ERNMX-12 OR EQUAL

Elymus virginicus	Virginia Wild Rye
Poa palustris	Fowl Bluegrass
Carex vulpinoides	Fox Sedge
Verbena hastata	Blue Vervain
Juncus effusus	Soft Rush
Scirpus atrovirens	Green Bulrush
Juncus tenuis	Path Rush
Agrostis perennans	Autumn Bentgrass
Glyceria striata	Fowl Mannagrass
Mimulus ringens	Square Stemmed Monkey Grass
Scirpus cyperinus	Wool Grass
Scirpus polyphyllus	Many Leaved Bulrush
Bidens cernua	Nodding Bur Marigold
Carex scoparia	Blunt Broom sedge

SEEDING RATE: 15 BULK LBS. PER ACRE OR 1/3-2/3 LBS PER 1,000 FT.



3 BASIN EMERGENCY SPILLWAY DETAIL

NO SCALE

DETENTION BASIN #	ABOVE GROUND INFILTRATION/DETENTION BASIN DETAIL											12" SAND LAYER	EMERGENCY SPILLWAY DETAIL						
	A	B	C	D	E	F	G	H	I	J	K	L	YES/NO	E	F	R	S	T	U	V
3.2	6	NA	100.0	24	658.00	656.00	657.00	648.50	651.00	650.00	3	3	NO	658.00	648.50	18"	18"	- 6.0	10.0	10.0
4.1	6	NA	-	-	668.00	666.00	668.00	666.00	-	-	3	3	NO	668.00	666.00	18"	18"	-	-	-
18	6	NA	100.0	36	629.00	627.00	625.50	619.00	619.00	617.00	3	3	NO	629.00	619.00	18"	18"	9.0	13.0	10.0
20	6	NA	50.0	18	658.00	656.00	655.50	648.00	648.00	647.60	3	3	NO	658.00	648.00	18"	18"	4.5	10.0	10.0
21	6	NA	358.0	24	614.00	612.00	612.50	603.00	603.00	556.00	3	3	YES	614.00	603.00	18"	18"	-	10.0	10.0

STRUCTURAL BMP's

1. VEGETATED SWALES
   - A. INSPECT AND CORRECT EROSION PROBLEMS, DAMAGE TO VEGETATION, AND SEDIMENT AND DEBRIS ACCUMULATION.
     - I. ADDRESS WHEN GREATER THAN 3-IN. AT ANY SPOT OR WHEN COVERING VEGETATION.
   - B. INSPECT VEGETATION ON SIDE SLOPES FOR EROSION AND FORMATION OF RILLS OR GULLIES, CORRECT AS NEEDED.
   - C. INSPECT FOR POOLS OF STANDING WATER
     - I. DEWATER AND DISCHARGE TO AN APPROVED LOCATION AND RESTORE TO DESIGN GRADE.
   - D. MOW AND TRIM VEGETATION TO ENSURE SAFETY, AESTHETICS, PROPER SWALE OPERATION, OR TO SUPPRESS WEEDS AND INVASIVE VEGETATION
     - I. DISPOSE OF CUTTINGS IN A LOCAL COMPOSTING FACILITY.
     - II. MOW ONLY WHEN SWALE IS DRY TO AVOID RUTTING.
   - E. INSPECT FOR LITTER
     - I. REMOVE PRIOR TO MOWING.
   - F. INSPECT FOR UNIFORMITY IN CROSS-SECTION AND LONGITUDINAL SLOPE, CORRECT AS NEEDED.
   - G. INSPECT SWALE INLET (CURB CUTS, PIPES, ETC.) AND OUTLET FOR SIGNS OR EROSION OR BLOCKAGE.
     - I. CORRECT AS NEEDED.
   - H. PLANT ALTERNATIVE GRASS SPECIES IN THE EVENT OF UNSUCCESSFUL ESTABLISHMENT
     - I. RESEED BARE AREA; INSTALL APPROPRIATE EROSION CONTROL MEASURES WHEN NATIVE SOILS ARE EXPOSED OR EROSION CHANNELS ARE FORMING.
   - J. ROTOTILL AND REPLANT SWALE IF DRAWDOWN TIME IS MORE THAN 48 HOURS.
   - K. WATER DURING DRY PERIODS, FERTILIZE AND APPLY PESTICIDE ONLY WHEN ABSOLUTELY NEEDED
   - L. INSPECT SWALE IMMEDIATELY AFTER SPRING MELT, REMOVE RESIDUALS AND REPLACE DAMAGED VEGETATION WITHOUT DISTURBING REMAINING VEGETATION
   - M. IF ROADSIDE OR PARKING LOT RUNOFF IS DIRECTED TO SWALE, MULCHING AND/OR SOIL AERATION/MANIPULATION MAY BE REQUIRED IN THE SPRING TO RESTORE SOIL STRUCTURE AND MOISTURE CAPACITY AND TO REDUCE THE IMPACTS OF DEICING AGENTS.
   - N. USE NON-TOXIC, ORGANIC DEICING AGENTS, APPLIED EITHER AS BLENDED, MAGNESIUM CHLORIDE-BASED LIQUID PRODUCTS OR AS PRETREATED SALT.
   - O. USE SALT TOLERANT VEGETATION IN SWALES.
2. RAINGARDENS
   - A. WHILE VEGETATION IS BEING ESTABLISHED, PRUNING AND WEEDING MAY BE REQUIRED.
   - B. DETRITUS MAY ALSO NEED TO BE REMOVED EVERY YEAR.
     - 1. PERENNIAL PLANTINGS MAY BE CUT DOWN AT END OF THE GROWING SEASON.
   - C. MULCH SHOULD BE RE-SPREAD WHEN EROSION IS EVIDENT AND BE REPLENISHED AS NEEDED.
     - 1. ONCE EVERY 2 TO 3 YEARS, THE ENTIRE AREA MAY REQUIRE MULCH REPLACEMENT.
   - D. RAINGARDENS SHOULD BE INSPECTED AS REQUIRED FOR SEDIMENT BUILDUP, EROSION, VEGETATIVE. CONDITIONS, ETC.
   - E. DURING PERIODS OF EXTENDED DROUGHT, RAINGARDENS MAY REQUIRE WATERING.
   - F. TREES AND SHRUBS SHOULD BE INSPECTED AS REQUIRED TO EVALUATE HEALTH.
3. SUBSURFACE INFILTRATION BASINS
   - A. ALL CATCH BASINS AND INLETS SHOULD BE INSPECTED AND CLEANED AS REQUIRED AND AFTER EACH MAJOR RAIN STORM.
   - B. THE OVERLYING VEGETATION OF SUBSURFACE INFILTRATION BASIN FEATURES SHOULD BE MAINTAINED IN GOOD CONDITION, AND ANY BARE SPOTS RE-VEGETATED AS SOON AS POSSIBLE.
   - C. REMOVE ACCUMULATED SEDIMENT FROM BASIN AS REQUIRED. RESTORE ORIGINAL CROSS SECTION AND INFILTRATION RATE. PROPERLY DISPOSE OF SEDIMENT.
   - D. CONTACT AN ENGINEERING CONSULTANT FAMILIAR WITH BMP DESIGN IF THE BASIN HAS BEEN CLEANED BUT STANDING WATER CONTINUES TO POOL AROUND THE INLETS ASSOCIATED WITH THE BASIN, AND/OR DOES NOT FUNTIONAL PROPERLY.
4. SNOUT INLET INSERTS
   - A. NORMAL YEARLY MAINTENANCE CONSISTS OF:
     - I. ROUTINE INSPECTION AND RINSING WITH A HOSE OR PRESSURE WASHER DURING THE CLEANING SEQUENCE OFTHE CATCH BASIN AND AFTER A MAJOR STORM EVENT.
     - II. FLUSHING THE ANTI-SIPHON WITH WATER OR AIR TO VERIFY THAT IT IS CLEAR.
     - III VACUUMING THE SNOUT INLET AND PROPERLY DISPOSING OF SEDIMENT.
   - B. CONTACT AND ENGINEERING CONSULTANT FAMILIAR WITH BMP DESIGN IF THE INLET IS CLEAN OF SEDIMENT AND DEBRIS AND DOES NOT DRAIN PROPERLY.
5. STREET SWEEPING
   - A. BI-YEARLY STREET SWEEPING OF ALL PARKING LOTS AND ACCESS DRIVES WILL BE MANDATORY IN THE SPRING AND FALL.
   - B. A MECHANICAL BROOM, REGENERATIVE AIR, DRY VACUUM FILTER, WET VACUUM FILTER OR EQUIVALENT PROCESS SHALL BE USED.
6. ABOVE GROUND INFILTRATION BASIN
   - A. THE VEGETATION ALONG THE SURFACE OF THE BASIN SHOULD BE MAINTAINED IN GOOD CONDITION AND ANY BARE SPOTS BE REVEGETATED AS SOON AS POSSIBLE.
   - B. VEHICLES SHOULD NOT BE PARKED OR DRIVEN ON AN INFILTRATION BASIN AND CARE SHOULD BE TAKEN TO AVOID EXCESSIVE COMPACTION BY MOWERS.
   - C. INSPECT BASIN AFTER RUNOFF EVENTS AND MAKE SURE THAT RUNOFF DRAINS DOWN WITHIN 72 HOURS.
   - D. INSPECT FOR ACCUMULATION OF SEDIMENT, DAMAGE TO OUTLET CONTROL STRUCTURES, EROSION CONTROL MEASURES, SIGNS OF WATER CONTAMINATION/SPILLS, AND SLOPE STABILITY OF THE BERMS.
   - E. MOW ONLY AS APPROPRIATE FOR VEGETATIVE COVER SPECIES.
   - F. REMOVE ACCUMULATED SEDIMENT FROM BASIN AS REQUIRED. RESTORE CROSS SECTION AND INFILTRATION RATE. PROPERLY DISPOSE OF SEDIMENT.
7. LEVEL SPREADER
   - A. THE RECEIVING LAND AREA SHOULD BE IMMEDIATELY RESTORED TO DESIGN CONDITIONS AFTER ANY DISTURBANCE.
     - 1. VEGETATED AREAS SHOULD BE SEEDED AND BLANKETED.
   - B. SHEET FLOW CONDITIONS MUST BE SUSTAINED THROUGHOUT THE LIFE OF THE LEVEL SPREADER.
     - 1. THEIR EFFECTIVENESS CAN DETERIORATE DUE TO LACK OF MAINTENANCE, INADEQUATE DESIGN/LOCATION, AND POOR VEGETATIVE COVER.
   - C. THE AREA BELOW A LEVEL SPREADER SHOULD BE INSPECTED FOR CLOGGING, DENSITY OF VEGETATION, DAMAGE BY FOOT OR VEHICULAR TRAFFIC, EXCESSIVE ACCUMULATIONS, AND CHANNELIZATION.
     - I. INSPECTIONS SHOULD BE MADE AS REQUIRED.
     - II. INSPECTIONS SHOULD BE MADE AFTER EVERY STORM EVENT GREATER THAN 1-INCH.
   - D. SEDIMENT AND DEBRIS SHOULD BE ROUTINELY REMOVED (NEVER LESS THAN SEMIANNUALLY), OR UPON OBSERVATION, WHEN BUILDUP OCCURS IN THE CLEAN OUTS.
     - I. REGRADING AND RESEEDING MAY BE NECESSARY IN THE AREAS BELOW THE LEVEL SPREADER.
     - II. REGRADING MAY BE REQUIRED WHEN POOLS OF STANDING WATER ARE OBSERVED ALONG THE SLOPE.
       - 1. IN NO CASE SHOULD STANDING WATER BE ALLOWED LONGER THAN 72 HOURS.
   - E. MAINTAINING A VIGOROUS VEGETATIVE COVER ON THE AREAS BELOW A LEVEL SPREADER IS CRITICAL FOR MAXIMIZING POLLUTANT REMOVAL EFFICIENCY AND EROSION PREVENTION.
     - I. IF VEGETATIVE COVER IS NOT FULLY ESTABLISHED WITHIN THE DESIGNATED TIME, IT MAY NEED TO BE REPLACED WITH AN ALTERNATIVE SPECIES.
       - 1. IT IS STANDARD PRACTICE TO CONTRACTUALLY REQUIRE THE CONTRACTOR TO REPLACE DEAD VEGETATION.
     - II. UNWANTED OR INVASIVE GROWTH SHOULD BE REMOVED ON AN ANNUAL BASIS.
     - III BIWEEKLY INSPECTIONS ARE RECOMMENDED FOR AT LEAST THE FIRST GROWING SEASON, OR UNTIL THE VEGETATION IS PERMANENTLY ESTABLISHED.
       - 1. ONCE VEGETATION IS ESTABLISHED, INSPECTIONS OF HEALTH, DIVERSITY, AND DENSITY SHOULD BE PERFORMED AT LEAST TWICE PER YEAR, DURING BOTH THE GROWING AND NON-GROWING SEASON.
     - IV. VEGETATIVE COVER SHOULD BE SUSTAINED 85% AND REPLACED IF DAMAGE GREATER THAN 50% IS OBSERVED.

MAINTENANCE OF STORMWATER FACILITIES

FACILITY	POTENTIAL PROBLEM	REMEDIES:
OUTLET PROTECTION	DISLODGED STONES	REPLACE WITH LARGER STONES.
	EROSION BELOW OUTLET	ENLARGE RIPRAP APRON; OR LINE RECEIVING CHANNEL BELOW OUTLET.
	OUTLET SCOUR	INSTALL PROPER FILTER FABRIC OR GRADED BEDDING BENEATH RIPRAP ARPON.
DETENTION BASINS	OBSTRUCTED OUTLET	REMOVE DEBRIS.
	BASIN NOT DEWATERING BETWEEN STORMS	CLEAR ORIFICE AND CHECK OUTLET PIPES FOR DEBRIS AND SEDIMENT. CLEAN INLET BOX GRATE.
	DAMAGED EMBANKMENTS	REBUILD AND COMPACT DAMAGED AREAS. *.
	SPILLWAY EROSION	LINE SPILLWAY WITH ROCK OR FILTER FABRIC.
	OUTLET EROSION	MAKE SURE OUTLET IS FLUSH WITH GROUND AND ON LEVEL GRADE. INSTALL, EXTEND, OR REPAIR RIPRAP APRON AS REQUIRED.
INLETS/PIPES	CLOGGED PIPE	FLUSH PIPE
INLETS/PIPES	SILT AND DEBRIS	REMOVE SILT AND DEBRIS
SWALES	WATER QUALITY	VEGETATION IN SWALES SHOULD REMAIN UNCUT TO PROMOTE THE SETTLEMENT OF SEDIMENT AND EVAPOTRANSPIRTATION ONCE ALL SWALES ARE FULLY VEGETATED.(APPLIES TO SWALE NOT ADJACENT TO ROADS.)

NOTE: THE OWNERSHIP, OPERATION AND MAINTENANCE OF ALL STORMWATER FACILITIES WILL BE THE RESPONSIBILITY OF PPL BELL BEND, LLC.

Pennoni Associates Inc.
100 N. Wilkes-Barre Blvd, Suite 409, Wilkes-Barre, PA 18702
TEL: 570-824-2200 FAX: 570-824-0800
Engineers • Surveyors • Planners • Landscape Architects
Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

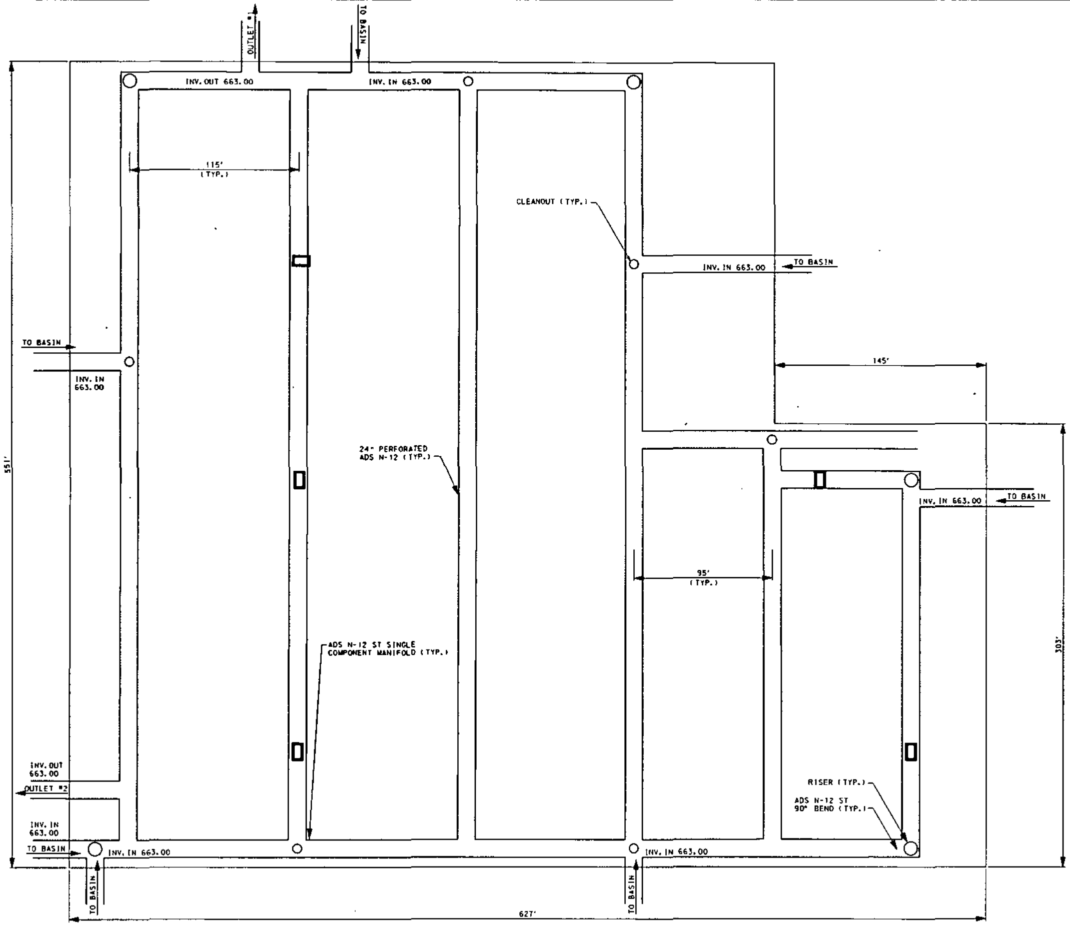
ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK

BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

PCSM DETAILS

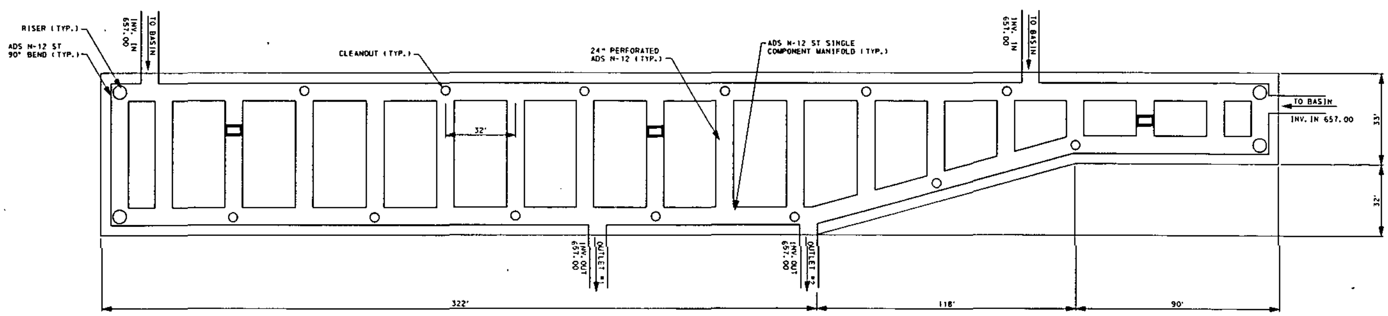
PPL BELL BEND, LLC
38 BOMBOY LANE
SUITE 2
BERWICK, PA 18603

DRAWING NO. CS 6100 PCSM



1 SUBSURFACE BASIN 1 LAYOUT
NO SCALE

NOTE: SEE PLAN SHEET 6102 FOR CROSS SECTIONS, OUTLET STRUCTURE DETAILS, AND RISER AND CLEANOUT DETAILS.



2 SUBSURFACE BASIN 10.4 LAYOUT
NO SCALE

NOTE: SEE PLAN SHEET 6102 FOR CROSS SECTIONS, OUTLET STRUCTURE DETAILS, AND RISER AND CLEANOUT DETAILS.

CONSTRUCTION SEQUENCE: SUBSURFACE INFILTRATION BASIN

1. DUE TO THE NATURE OF CONSTRUCTION SITES, SUBSURFACE INFILTRATION SHOULD BE INSTALLED TOWARD THE END OF THE CONSTRUCTION PERIOD, IF POSSIBLE.
2. INSTALL AND MAINTAIN ADEQUATE EROSION AND SEDIMENT CONTROL MEASURES (AS PER THE PENNSYLVANIA EROSION AND SEDIMENTATION CONTROL PROGRAM MANUAL) DURING CONSTRUCTION.
3. THE EXISTING SUBGRADE UNDER THE BED AREAS SHOULD NOT BE COMPACTED OR SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC PRIOR TO GEOTEXTILE AND STONE BED PLACEMENT.
4. WHERE EROSION OF SUBGRADE HAS CAUSED ACCUMULATION OF FINE MATERIALS AND/OR SURFACE PONDING, THIS MATERIAL SHOULD BE REMOVED WITH LIGHT EQUIPMENT AND THE UNDERLYING SOILS SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES WITH A YORK RAKE (OR EQUIVALENT) AND LIGHT TRACTOR. ALL FINE GRADING SHOULD BE DONE BY HAND. ALL BED BOTTOMS SHOULD BE AT LEVEL GRADE.
5. EARTHEN BERMS (IF USED) BETWEEN INFILTRATION BEDS SHOULD BE LEFT IN PLACE DURING EXCAVATION. THESE BERMS DO NOT REQUIRE COMPACTION IF PROVEN STABLE DURING CONSTRUCTION.
6. FOR INSTANCES OF THE BASIN BEING CUT INTO ROCK SUBGADES: INITIAL EXCAVATION OF THE ROCK SUBGRADE WILL INCLUDE OVER-DRILL AND BLASTING, OR MECHANICAL OVEREXCAVATION OF THE BOTTOM OF THE BASIN, TO A MINIMUM DEPTHS OF 4 FEET BELOW THE FINAL DESIGN GRADE.
7. AT TIME OF EXCAVATION AND SUBGRADE PREPARATION, REMOVE THE TOP 2 FEET OF THE SHOT-ROCK FROM THE BASIN BOTTOM.
8. PLACE 2 FEET OF PROCESSED GRANULAR FILL COMPACTED TO THE RANGE OF 85% TO 90% OF THE MAXIMUM DRY DENSITY PER ASTM D-1557. THE BASIN SUBGRADE FILL SHOULD HAVE A MAXIMUM PARTICLE SIZE OF LESS THAN 4 INCHES WITH LESS THAN 15% PASSING THE NO. 200 SIEVE.
9. THE BASIN SUBGRADE FILL MUST BE TESTED PRIOR TO APPROVAL TO MEET IN PLACE INFILTRATION RATES IN THE RANGE OF 4 TO 8 INCHES PER HOUR AS COMPACTED TO 85% PER ASTM D-1557 AND THE PENNSYLNVANIA BEST MANAGEMENT PRACTICES MANUAL. ALL INFILTRATION TESTING RESULTS SHOULD BE PROVIDED TO THE MONROE COUNTY CONSERVATION DISTRICT ONCE COMPLETE.
10. IF INFILTRATION RATES MEET THE REQUIRED RANGE, INSTALL UPSTREAM AND DOWNSTREAM CONTROL STRUCTURES, CEANOUTS, PERFORATED PIPING, AND ALL OTHER NECESSARY STORMWATER STRUCTURES ASSOCIATED WITH SUBSURFACE BASIN OPTION A.
11. IF INFILTRATION TESTING RESULTS SHOW THAT INFILTRATION WILL NOT OCCUR, INSTALL UPSTREAM AND DOWNSTREAM CONTROL STRUCTURES, CLEANOUTS, PERFORATED PIPING, AND ALL OTHER NECESSARY STORMWATER STRUCTURES, INCLUDING THE SUMP PUMP SYSTEM ASSOCIATED WITH SUBSURFACE BASIN OPTION B. THE APPLICANT WILL ALSO NEED TO MEET WITH THE DESIGN ENGINEER AND THE MONROE COUNTY CONSERVATION DISTRICT TO DISCUSS POTENTIAL RESOLUTION TO THE INFILTRATION ISSUE.
12. IF INFILTRATION TESTING RESULTS ARE GREATER THAN 0 INCHES/HR AND LESS THAN 4 INCHES/HR, INSTALL UPSTREAM AND DOWNSTREAM CONTROL STRUCTURES, CLEANOUTS, PERFORATED PIPING, AND ALL OTHER NECESSARY STORMWATER STRUCTURES AS DIRECTED BY THE ENGINEER. THE APPLICANT WILL ALSO NEED TO MEET WITH THE DESIGN ENGINEER AND THE MONROE COUNTY CONSERVATION DISTRICT TO DISCUSS POTENTIAL RESOLUTION TO THE INFILTRATION ISSUE.
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14. CLEAN-WASHED, UNIFORMLY GRADED AGGREGATE SHOULD BE PLACED IN THE BED IN MAXIMUM 8-INCH LIFTS. EACH LAYER SHOULD BE LIGHTLY COMPACTED, WITH CONSTRUCTION EQUIPMENT KEPT OFF THE BED BOTTOM AS MUCH AS POSSIBLE.
15. APPROVED SOIL MEDIA SHOULD BE PLACED OVER INFILTRATION BED IN MAXIMUM 6-INCH LIFTS.
16. SEED AND STABILIZE TOPSOIL.
17. DO NOT REMOVE INLET PROTECTION OR OTHER EROSION AND SEDIMENT CONTROL MEASURES UNTIL SITE IS FULLY STABILIZED.

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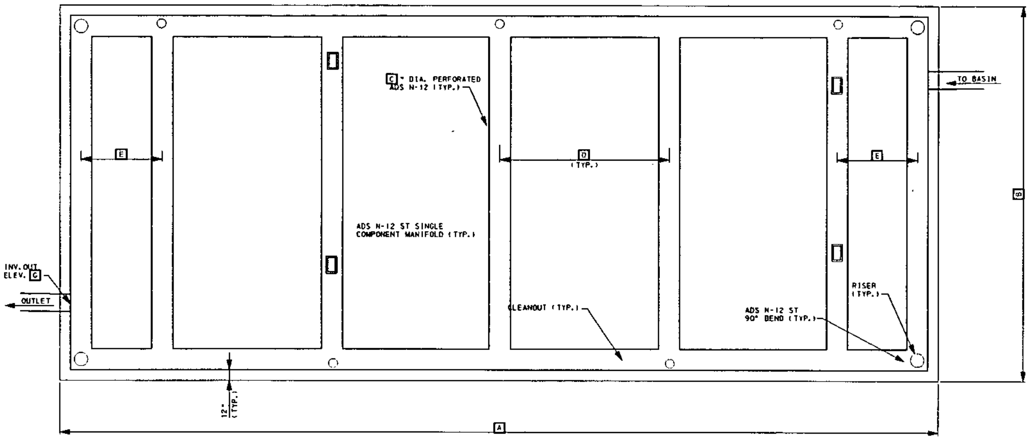
CONSULTING ENGINEERS

BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

PCSM DETAILS
PPL BELL BEND, LLC

CS6101
PCSM



1 TYPICAL SUBSURFACE BASIN LAYOUT
NO SCALE

NOTE: SEE PCSM PLAN SHEET AND NARRATIVE FOR OUTLET INFORMATION ON INDIVIDUAL BASINS. NUMBER OF OUTLETS MAY VARY.

CONSTRUCTION SEQUENCE: SUBSURFACE INFILTRATION BASIN

1. DUE TO THE NATURE OF CONSTRUCTION SITES, SUBSURFACE INFILTRATION SHOULD BE INSTALLED TOWARD THE END OF THE CONSTRUCTION PERIOD, IF POSSIBLE.
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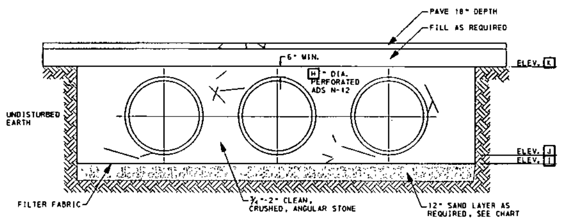
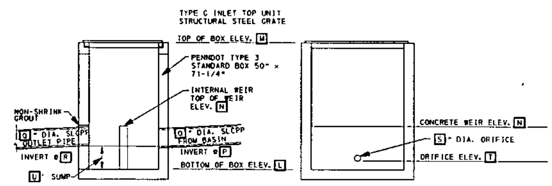
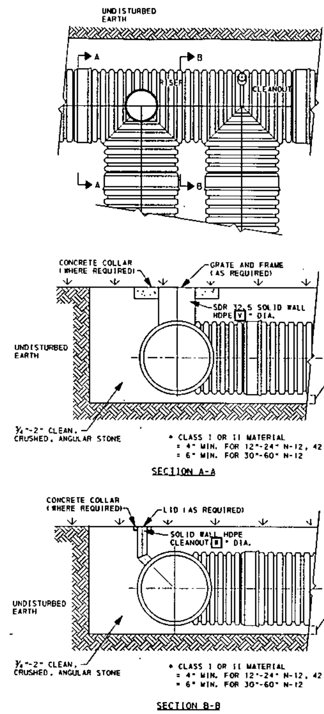


2 SUBSURFACE BASIN CROSS SECTION
NO SCALE



3 BASIN OUTLET STRUCTURE DETAIL
NO SCALE

SUBSURFACE BASIN #	SUBSURFACE BASIN LAYOUT							SUBSURFACE BASIN CROSS SECTION				12" SAND LAYER	SUBSURFACE BASIN OUTLET STRUCTURE											RISER & CLEANOUT DETAILS	
	A	B	C	D	E	F	G	H	I	J	K	YES/NO	OUTLET #	L	M	N	O	P	Q	R	S	T	U	V	W
1	SEE PLAN SHEET CS6101 FOR BASIN LAYOUT							24"	663.00	663.50	1	NO	1.1	661.50	VARIES	666.00	24"	663.50	24"	664.00	--	--	2.0	24"	12"
											2	NO	1.2		VARIES		24"	663.50	24"	664.00	-	-	2.0		
2	121.00'	164.00'	24"	48.00'	34.50'	NA	670.00'	-	670.00'	-	673.00'	NO	02	668.00'	VARIES	672.00	-	674.50'	24"	670.00	6"	671.00	2.0	24"	12"
3.1	320.00'	160.00'	24"	48.00'	38.00'	NA	674.00'	24"	674.00'	674.50'	679.00'	NO	03.1	672.00	VARIES	675.50	24"	674.50'	24"	674.50	6"	674.50	2.0	24"	12"
6	630.00'	347.50'	24"	48.00'	49.00'	NA	630.00'	-	630.00'	-	635.00'	NO	06	628.00'	VARIES	632.00	24"	630.50'	24"	630.00	6"	631.00	2.0	24"	12"
8	535.00'	135.00'	24"	48.00'	25.50'	NA	657.00'	-	657.00'	-	660.00'	NO	08	655.00'	VARIES	658.75	24"	657.50'	24"	657.00	9"	658.00	2.0	24"	12"
9	184.00'	181.00'	24"	48.00'	40.00'	NA	663.00'	-	663.00'	-	666.00'	NO	09	661.00'	VARIES	665.00'	24"	663.50'	24"	665.00'	6"	664.00	2.0	24"	12"
10.1	365.00'	320.00'	24"	48.00'	36.50'	NA	685.00'	-	685.00'	-	692.00'	YES	10.1	683.00'	VARIES	688.00	24"	685.50'	30"	685.00	6"	686.50	2.0	24"	12"
10.2	712.00'	123.00'	24"	48.00'	42.00'	NA	713.20'	30"	713.20'	713.70'	717.20'	NO	10.2	711.20'	VARIES	715.45	30"	713.70'	24"	713.20	6"	713.20	2.0	24"	12"
10.3	700.00'	135.00'	24"	48.00'	36.00'	NA	713.20'	30"	713.20'	713.70'	717.20'	NO	10.3	711.20'	VARIES	715.20	30"	713.70'	24"	713.20	6"	713.20	2.0	24"	12"
10.4	SEE PLAN SHEET CS6101 FOR BASIN LAYOUT						657.00'		657.00'	-	661.50'	NO	10.4	655.00'	VARIES	659.00	24"	657.50'	24"	656.00	6"	658.00	2.0	24"	12"
12	750.00'	258.50'	24"	48.00'	37.00'	NA	685.50'	-	685.00'	-	690.00'	YES	12	683.00'	VARIES	688.00	24"	685.50'	24"	685.00	6"	686.00	2.0	24"	12"
13.1	250.00'	121.00'	24"	48.00'	27.00'	NA		-	714.00'	-	719.00'	NO	13.1	712.00	VARIES	717.50	24"	716.00'	24"	715.50	6"	715.50	2.0	24"	12"
13.2	227.00'	163.00'	24"	48.00'	39.50'	NA	712.30'	-	712.30'	-	717.30'	NO	13.2	710.30'	VARIES	714.60	24"	713.80'	24"	712.30	6"	713.30	2.0	24"	12"
15.1	259.00'	137.00'	24"	48.00'	31.50'	NA	990.00'	-	990.00'	-	995.00'	NO	15.1	988.00'	VARIES	993.00'	24"	991.00'	24"	990.00'	6"	990.50'	2.0	24"	12"
15.2	638.00'	137.00'	24"	48.00'	52.00'	NA	990.00'		990.00'	-	995.00'	NO	15.2	988.00'	VARIES	993.50'	24"	991.50'	24"	990.00'	6"	991.00'	2.0	24"	12"



4 TYPICAL RISER AND CLEANOUT DETAILS
NO SCALE

Pennoni Associates Inc.
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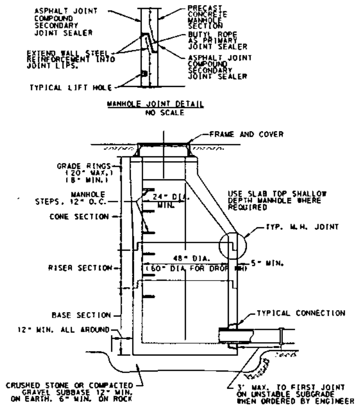
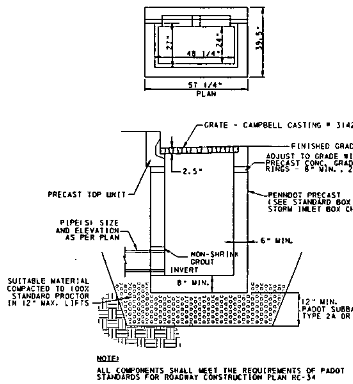
BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

PCSM DETAILS
PPL BELL BEND, LLC

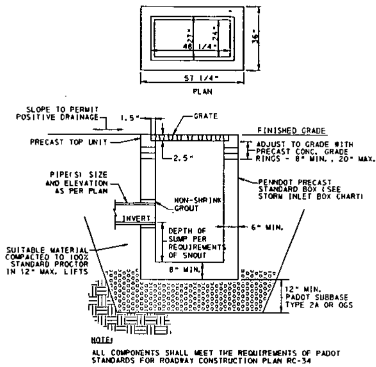
CS6102
PCSM



1 PRECAST CONCRETE STORM MANHOLE DETAIL
NO SCALE



2 PENNDOT TYPE C INLET DETAIL
NO SCALE



3 PENNDOT TYPE M INLET DETAIL
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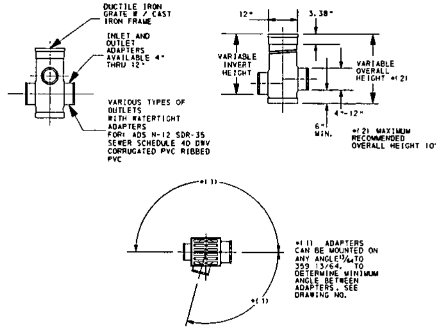
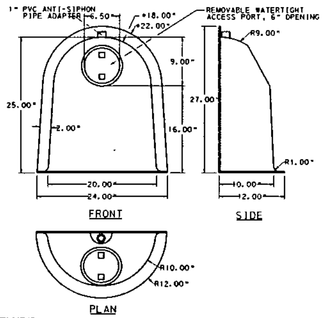
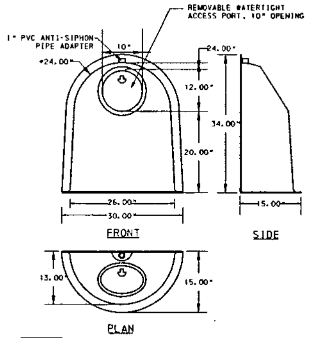


4 YARD DRAIN DETAIL
NO SCALE



5 18F OIL & DEBRIS SNOUT DETAIL
NO SCALE



6 24F OIL & DEBRIS SNOUT DETAIL
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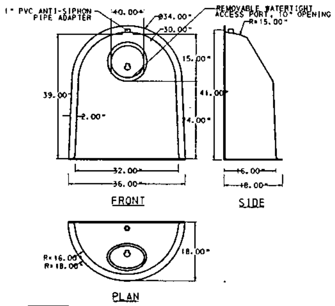
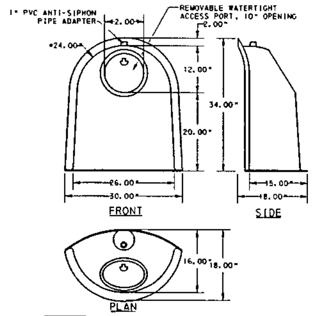
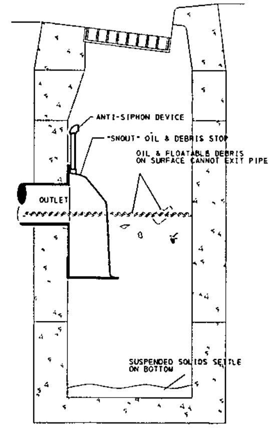


7 30F OIL & DEBRIS SNOUT DETAIL
NO SCALE



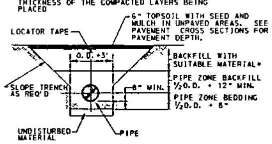
8 24R OIL & DEBRIS SNOUT DETAIL
NO SCALE



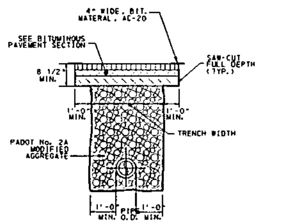
9 "SNOUT" INLET INSERT DETAIL
NO SCALE

PIPE TYPE	BEDDING	BACKFILL
PLASTIC	PADOT 2-A	PADOT 2-A
CONCRETE	AASHTO #8	PADOT 2-A
METAL	PADOT 2-A	PADOT 2-A

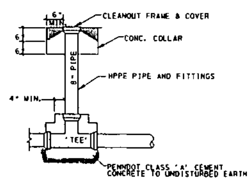
* MATERIAL CONTAINING NO DEBRIS, ORGANIC MATTER, FROZEN MATERIAL OR LARGE STONES WITH A DIAMETER GREATER THAN ONE-HALF THE THICKNESS OF THE COMPACTED LAYERS BEING PLACED



10 TYPICAL TRENCH DETAIL
NO SCALE



11 TRENCH RESTORATION - PAVEMENT
NO SCALE



12 STORM CLEANOUT
NO SCALE

Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

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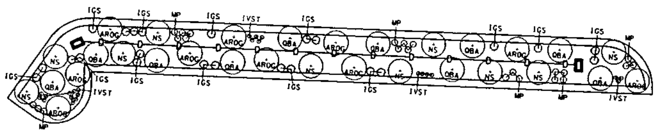
Pennoni Associates Inc.

BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

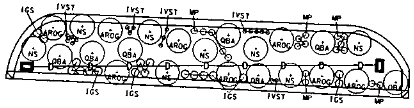
PCSM DETAILS

PPL BELL BEND, LLC

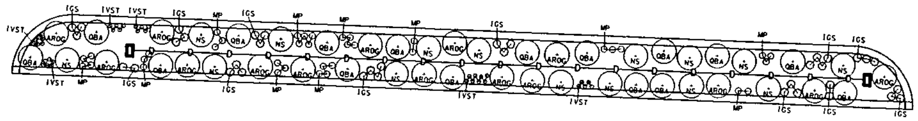
DRAWING NO.
CS6103
PCSM



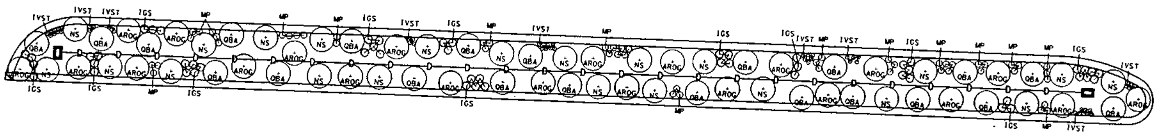
1	RAIN GARDEN DETAIL: RG-1
-	1" = 20'



2	RAIN GARDEN DETAIL: RG-2
-	1" = 20'



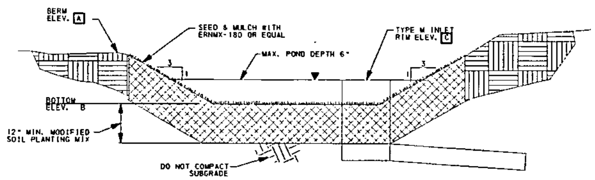
3	RAIN GARDEN DETAIL: RG-3
-	1" = 20'



4	RAIN GARDEN DETAIL: RG-4
-	1" = 20'

RAIN GARDEN PLANTING MIXTURE

KEY	BOTANICAL NAME	COMMON NAME	KEY	CONDITION	NUMBER OF TREES OR SHRUBS				
					RG-1	RG-2	RG-3	RG-4	TOTAL
IGS	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY	24" HT. (MIN.)	B&B OR CONT.	23	18	36	51	128
IVST	ILEX VERTICILLATA 'SUNSET'	SUNSET WINTERBERRY	24" HT. (MIN.)	B&B OR CONT.	23	18	36	51	128
MP	MYRICA PENNSYLVANICA	BAYBERRY	24" HT. (MIN.)	B&B OR CONT.	23	18	36	51	128
AROG	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY RED MAPLE	2½" CAL.	B&B	10	8	15	22	55
NS	NYSSA SYLVATICA	SOUR BLACK GUM	2½" CAL.	NO. 10 CONT.	10	8	15	22	55
QBA	QUERCUS BICOLOR	SWAMP WHITE OAK	2½" CAL.	B&B	10	7	16	22	55



RAIN GARDEN #	RAIN GARDEN DETAIL		
	A	B	C
1	686.00	685.00	686.00
2	688.50	687.50	688.00
3	684.50	683.50	684.00
4	681.50	680.50	681.00

5	RAIN GARDEN DETAIL
-	NO SCALE

NOTES:

1. RAINGARDENS SHALL BE CONSTRUCTED IN THE AREAS AS SHOWN.
2. RAINGARDENS SHALL BE MAINTAINED BY THE DEVELOPER.
3. MODIFIED SOIL PLANTING MIX SHALL CONTAIN 20% TO 30% ORGANIC MATERIAL (COMPOST) AND 70% TO 80% TOPSOIL. SOIL PH SHOULD BE BETWEEN 5.5 AND 6.5 AND HAVE A CLAY CONTENT LESS THAN 10%.

CONSTRUCTION SEQUENCE:

THE FOLLOWING IS A TYPICAL CONSTRUCTION SEQUENCE; HOWEVER, ALTERATIONS MIGHT BE NECESSARY DEPENDING ON DESIGN VARIATIONS.

1 INSTALL TEMPORARY SEDIMENT CONTROL BMPS AS SHOWN ON THE PLANS.
2. COMPLETE SITE GRADING. IF APPLICABLE, CONSTRUCT CURB CUTS OR OTHER INFLOW ENTRANCE BUT PROVIDE PROTECTION SO THAT DRAINAGE IS PROHIBITED FROM ENTERING CONSTRUCTION AREA.
3. STABILIZE GRADING WITHIN THE LIMIT OF DISTURBANCE EXCEPT WITHIN THE RAIN GARDEN AREA. RAIN GARDEN BED AREAS MAY BE USED AS TEMPORARY SEDIMENT TRAPS PROVIDED THAT THE PROPOSED FINISH ELEVATION OF THE BED IS 12 INCHES LOWER THAN THE BOTTOM ELEVATION OF THE SEDIMENT TRAP.
4. EXCAVATE RAIN GARDEN TO PROPOSED INVERT DEPTH AND SCARIFY THE EXISTING SOIL SURFACES. DO NOT COMPACT IN-SITU SOILS.
5. BACKFILL RAIN GARDEN WITH AMENDED SOIL AS SHOWN ON PLANS AND SPECIFICATIONS. OVERFILLING IS RECOMMENDED TO ACCOUNT FOR SETTLEMENT. LIGHT HAND TAMPING IS ACCEPTABLE IF NECESSARY.
6. PRESOAK THE PLANTING SOIL PRIOR TO PLANTING VEGETATION TO AID IN SETTLEMENT.
7. COMPLETE FINAL GRADING TO ACHIEVE PROPOSED DESIGN ELEVATIONS, LEAVING SPACE FOR UPPER LAYER OF COMPOST, MULCH OR TOPSOIL AS SPECIFIED ON PLANS.
8. PLANT VEGETATION ACCORDING TO PLANTING PLAN.
9. MULCH AND INSTALL EROSION PROTECTION AT SURFACE FLOW ENTRANCES WHERE NECESSARY.

SEEDING MIXTURE

RAIN GARDEN MIX: ERNMX-180 OR EQUAL

Panicum rigidulum, PA ecotype	Redtop Panic Grass, PA ecotype
Schizachyrium scoparium, Eastern ecotype	Little Bluestem, Eastern ecotype
Elymus virginicus	Virginia Wild Rye
Carex vulpinoidea	Fox Sledge
Chasmanthium latifolium	River Oats
Echinacea purpurea	Purple Coneflower
Liatris spicata	Marsh (Dense) Blazing Star
Rudbeckia hirta	Black Eyed Susan
Penstemon digitalis	Tall White Beard Tongue
Andropogon gerardii, Niagara	Niagara Big Bluestem
Asclepias incarnata	Swamp Milkweed
Aster novae-angliae	New England Aster
Baptisia australis	Blue False Indigo
Desmodium canadense	Showy Tick Trefoil
Geum laciniatum	Rough Avens
Monarda fistulosa	Wild Bergamot
Senna hebecarpa	Wild Senna
Tradescantia ohiensis	Ohio Spiderwort
Verbena hastata	Blue Vervain
Zizia aurea	Golden Alexanders
Agrostis perennans	Autumn Bentgrass

SEEDING RATE: 15 BULK LBS. PER ACRE

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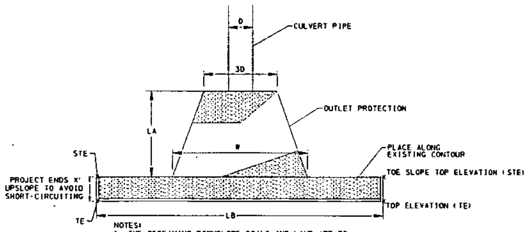
BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

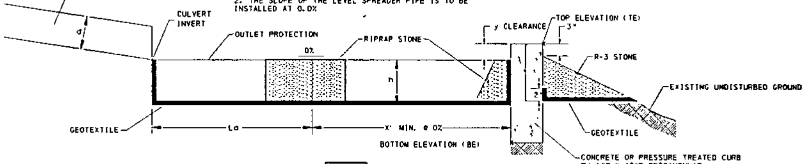
PCSM DETAILS

PPL BELL BEND, LLC

CS6104
PCSM

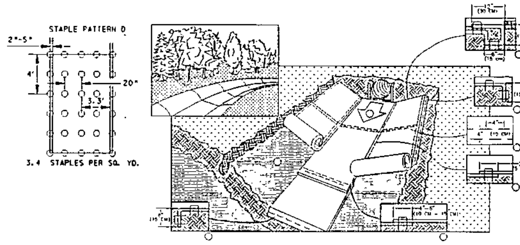


NOTES:
1. THE RECEIVING DOWNSLOPE SOILS AND LAND ARE TO REMAIN UNDISTURBED FOR THE ENTIRE FLOW PATH.
2. THE SLOPE OF THE LEVEL SPREADER PIPE IS TO BE INSTALLED AT 0.0%



1 — LEVEL SPREADER
NO SCALE

	CULVERT PIPE		OUTLET PROTECTION			PLUNGE POOL		LEVEL SPREADER				
BASIN OUTLET	SIZE D (IN)	INVERT EL.	WIDTH W (FT)	LENGTH La (FT)	RIP-RAP SIZE	DEPTH H (IN)	BOTTOM EL. BE	CLEARANCE Y (IN)	WIDTH X (FT)	LENGTH Lb (FT)	TOP EL. TE	TOE SLOPE TOP EL. STE
1.0.A	24	662.00	10.00	10.00	R-4	24	658.50	12	6.00	65	661.50	661.65
1.0.B	24	660.00	10.00	10.00	R-4	24	656.00	12	6.00	150	659.00	659.15
2	24	669.00	10.00	10.00	R-4	24	665.00	12	6.00	123	668.00	668.15
3.1	24	672.50	10.00	10.00	R-6	36	669.50	12	6.00	186	673.50	673.65
3.2	24	650.00	10.00	10.00	R-4	24	646.50	12	6.00	89	649.50	649.65
6.0.A	24	621.00	18.00	30.00	R-7	45	617.25	12	6.00	165	622.00	622.15
6.0.B	24	621.00	18.00	30.00	R-7	45	617.25	12	6.00	165	622.00	622.15
8	24	656.00	10.00	10.00	R-4	24	654.00	12	6.00	110	657.00	657.15
9	24	662.00	10.00	10.00	R-4	24	660.00	12	6.00	22	663.00	663.15
10.1	30	684.00	20.30	32.00	R-5	30	681.50	15	7.50	161	685.25	685.44
10.2	24	712.20	10.00	10.00	R-4	24	678.00	12	6.00	17	681.00	681.15
10.3	24	712.20	10.00	10.00	R-4	24	656.00	12	6.00	93	659.00	659.15
10.4.A	24	655.00	10.00	10.00	R-4	24	653.00	12	6.00	123	656.00	656.15
10.4.B	24	655.00	10.00	10.00	R-4	24	653.00	12	6.00	123	656.00	656.15
12	24	680.00	10.00	10.00	R-4	24	678.00	12	6.00	13	681.00	681.15
13.1	24	715.00	18.00	30.00	R-4	24	713.00	12	6.00	53	716.00	716.15
13.2.A	24	710.00	18.00	30.00	R-5	27	691.25	12	6.00	187	694.50	694.65
13.2.B	24	710.00	18.00	30.00	R-5	27	691.25	12	6.00	187	694.50	694.65
15.1	24	980.00	10.00	10.00	R-5	27	977.75	12	6.00	180	981.00	981.15
15.2.A	24	980.00	10.00	10.00	R-5	27	977.75	12	6.00	163	981.00	981.15
15.2.B	24	980.00	10.00	10.00	R-6	27	977.75	12	6.00	163	981.00	981.15
18	36	617.00	13.00	10.00	R-5	36	614.00	18	9.00	56	618.50	618.73
20	24	647.60	10.00	10.00	R-4	24	645.60	12	6.00	24	648.60	648.75
21	24	601.00	10.00	10.00	R-5	27	598.75	12	6.00	29	602.00	602.15



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.

2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.

3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.

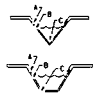
4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"-6" (10cm-15cm) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER TO SECURE BLANKETS.

5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (5cm-12.5cm) (DEPENDING ON BLANKET TYPE) AND STAPLED. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE BLANKET BEING OVERLAPPED.

7. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

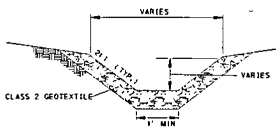


CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED. IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

2 — CHANNEL MATTING INSTALLATION DETAIL
NO SCALE

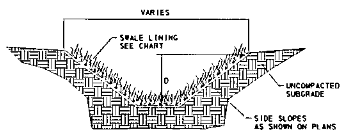


3 — ROCK-LINED SWALE DETAIL
NO SCALE

TYPICAL ROCK LINED SWALE INSTALLATION SEQUENCE

1. CLEAR AND GRUB TO LIMIT OF DISTURBANCE.
2. PERFORM EXCAVATION AND GRADING OPERATIONS. IMMEDIATELY PERFORM STEPS 3 AND 4.
3. PLACE GEOTEXTILE AT DESIGNED DEPTH IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. PLACE RIP RAP ON STEEP SLOPES

NOTE:
BEGIN SWALE CONSTRUCTION OPERATIONS AT THE DISCHARGE POINT AND WORK UPHILL. LIMIT SWALE CONSTRUCTION TO THAT AMOUNT WHICH CAN BE CONSTRUCTED AND STABILIZED WITH GEOTEXTILE AND ROCK IN ONE DAY.

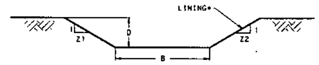


NOTES:
1. NAG - NORTH AMERICAN GREEN
2. USE STAPLE PATTERN D FOR ALL TEMPORARY MATTING.
3. USE STAPLE PATTERN E FOR ALL PERMANENT MATTING.

TYPICAL GRASS LINED SWALE INSTALLATION SEQUENCE

1. CLEAR AND GRUB TO LIMIT OF DISTURBANCE.
2. PERFORM EXCAVATION AND GRADING OPERATIONS.
3. INSTALL ROCK FILTER BERMS AS SHOWN ON PLANS.
4. PLACE EROSION CONTROL BLANKET IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. PLACE SEED, SOIL SUPPLEMENTS, AND MULCH IN ADJACENT DISTURBED AREAS, MAKING SURE THAT MULCH IS ANCHORED ON STEEP SLOPES.
6. REMOVE ROCK FILTER BERMS.

NOTE:
BEGIN SWALE CONSTRUCTION OPERATIONS AT THE DISCHARGE POINT AND WORK UPHILL. LIMIT SWALE CONSTRUCTION TO THAT AMOUNT WHICH CAN BE CONSTRUCTED AND STABILIZED WITH EROSION CONTROL BLANKET IN ONE DAY.



CHANNEL CROSS-SECTION

* S75 AS SPECIFIED BY MANUFACTURER. SEE MANUFACTURER'S LINING INSTALLATION DETAIL FOR STAPLE PATTERNS, AND VEGETATION STABILIZATION SPECIFICATIONS FOR SOIL AMENDMENTS, SEED MIXTURES, AND MULCHING INFORMATION.

CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	Z1 (FT)	Z2 (FT)	LINING*
SW 1.1	ALL	2	1.50	2	2	S75
SW 1.2	ALL	2	1.50	2	2	S75
SW 1.3	ALL	2	2.00	2	2	S75
SW 2.1	ALL	2	1.50	2	2	S75
SW 2.2	ALL	2	1.50	2	2	S75
SW 3.1	ALL	4	2.00	2	2	S75
SW 3.2	ALL	2	2.00	2	2	S75
SW 3.3	ALL	4	2.00	2	2	S75
SW 3.4	ALL	3	3.00	2	2	S75
SW 3.5	ALL	1	3.00	2	2	S75
SW 3.6	ALL	2	3.00	2	2	S75
SW 3.7	ALL	2	3.00	2	2	S75
SW 3.8	ALL	3	4.00	2	2	S75
SW 4.1	ALL	2	3.00	2	2	S75
SW 4.2	ALL	3	2.00	2	2	S75
SW 4.3	ALL	1	2.00	2	2	S75
SW 4.4	ALL	1	2.00	2	2	S75
SW 4.5	ALL	1	2.00	2	2	S75
SW 4.6	ALL	3	3.00	2	2	S75
SW 4.7	ALL	2	3.00	2	2	S75
SW 4.8	ALL	2	3.00	2	2	S75
SW 4.9	ALL	2	2.00	2	2	S75
SW 5.1	ALL	3	2.00	2	2	S75
SW 5.2	ALL	3	5.00	2	2	S75
SW 5.3	ALL	1	2.00	2	2	S75
SW 6.1	ALL	1	2.00	2	2	S75
SW 6.2	ALL	3	2.00	2	2	S75
SW 6.3	ALL	1	2.00	2	2	S75
SW 6.4	ALL	1	3.00	2	2	S75
SW 6.5	ALL	4	3.00	2	2	S75
SW 6.6	ALL	1	2.00	2	2	S75
SW 6.7	ALL	1	2.00	2	2	S75
SW 6.8	ALL	4	2.00	2	2	S75
SW 6.9	ALL	3	3.00	2	2	S75
SW 6.10	ALL	2	2.00	2	2	S75
SW 8.1	ALL	1	2.00	2	2	S75
SW 8.2	ALL	1	3.00	2	2	S75
SW 8.3	ALL	2	2.00	2	2	S75
SW 8.4	ALL	1	2.00	2	2	S75
SW 9.1	ALL	3	3.00	2	2	S75
SW 9.2	ALL	1	3.00	2	2	S75
SW 9.3	ALL	3	3.00	2	2	S75
SW 9.4	ALL	7	5.00	2	2	S75

CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	Z1 (FT)	Z2 (FT)	LINING*
SW 9.5	ALL	4	2.00	2	2	S75
SW 10.1	ALL	4	3.00	2	2	S75
SW 10.2	ALL	2	4.00	2	2	S75
SW 10.3	ALL	3	3.00	2	2	S75
SW 10.4	ALL	2	3.00	2	2	S75
SW 10.5	ALL	2	3.00	2	2	S75
SW 10.6	ALL	1	3.00	2	2	S75
SW 10.7	ALL	9	6.00	2	2	S75
SW 10.8	ALL	6	6.00	2	2	S75
SW 10.9	ALL	4	5.00	2	2	S75
SW 10.10	ALL	4	4.00	2	2	S75
SW 10.11	ALL	4	4.00	2	2	S75
SW 10.12	ALL	4	2.00	2	2	S75
SW 10.13	ALL	2	3.00	2	2	S75
SW 10.14	ALL	4	4.00	2	2	S75
SW 10.15	ALL	4	4.00	2	2	S75
SW 10.16	ALL	2	3.00	2	2	S75
SW 10.17	ALL	1	2.00	2	2	S75
SW 10.18	ALL	1	2.00	2	2	S75
SW 11.1	ALL	1	2.00	2	2	S75
SW 12.1	ALL	4	3.00	2	2	S75
SW 12.2	ALL	2	2.00	2	2	S75
SW 12.3	ALL	2	2.00	2	2	S75
SW 12.4	ALL	1	3.00	2	2	S75
SW 12.5	ALL	1	3.00	2	2	S75
SW 12.6	ALL	1	3.00	2	2	S75
SW 12.7	ALL	1	3.00	2	2	S75
SW 12.8	ALL	4	3.00	2	2	S75
SW 12.9	ALL	1	2.00	2	2	S75
SW 12.10	ALL	1	2.00	2	2	S75
SW 12.11	ALL	1	2.00	2	2	S75
SW 12.12	ALL	2	3.00	2	2	S75
SW 12.13	ALL	2	2.00	2	2	S75
SW 13.1	ALL	2	2.00	2	2	S75
SW 13.2	ALL	1	3.00	2	2	S75
SW 13.3	ALL	1	3.00	2	2	S75
SW 13.4	ALL	1	2.00	2	2	S75
SW 16.1	ALL	2	2.00	2	2	S75
SW 16.2	ALL	2	2.00	2	2	S75
SW 18.1	ALL	4	4.00	2	2	S75
SW 18.2	ALL	5	3.00	2	2	S75
SW 20.1	ALL	5	3.00	2	2	S75
SW 20.2	ALL	5	3.00	2	2	S75

4 — GRASS-LINED SWALE DETAIL
NO SCALE

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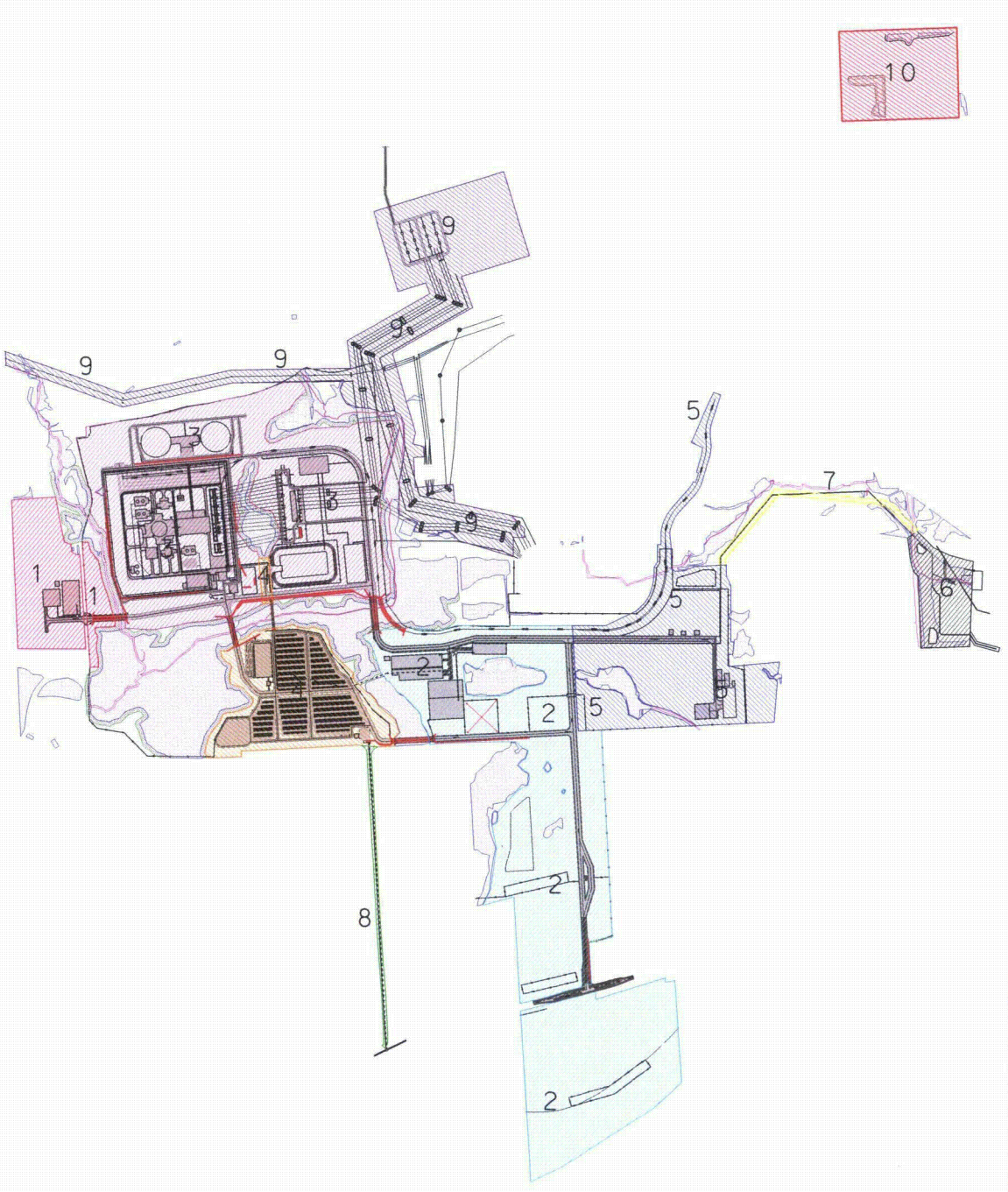
BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, PENNSYLVANIA

PCSM DETAILS

PPL BELL BEND, LLC

CS 6105
PCSM



DRAWING LIST

CS9000	CONSTRUCTION AREA MAP
CS9001	PHASE 1 MAP
CS9002	PHASE 2 MAP
CS9003	PHASE 3 MAP
CS9004	PHASE 4 MAP
CS9005	PHASE 5 MAP
CS9006	PHASE 6 MAP
CS9007	PHASE 7 MAP
CS9008	PHASE 8 MAP
CS9009	PHASE 9 MAP
CS9010	PHASE 10 MAP

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CONSULTING ENGINEERS

DATE	NO.	REVISIONS	BY
08/02/10	0	XXXXXXX XXXXXXXXXX	XXX

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND ENGINEER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

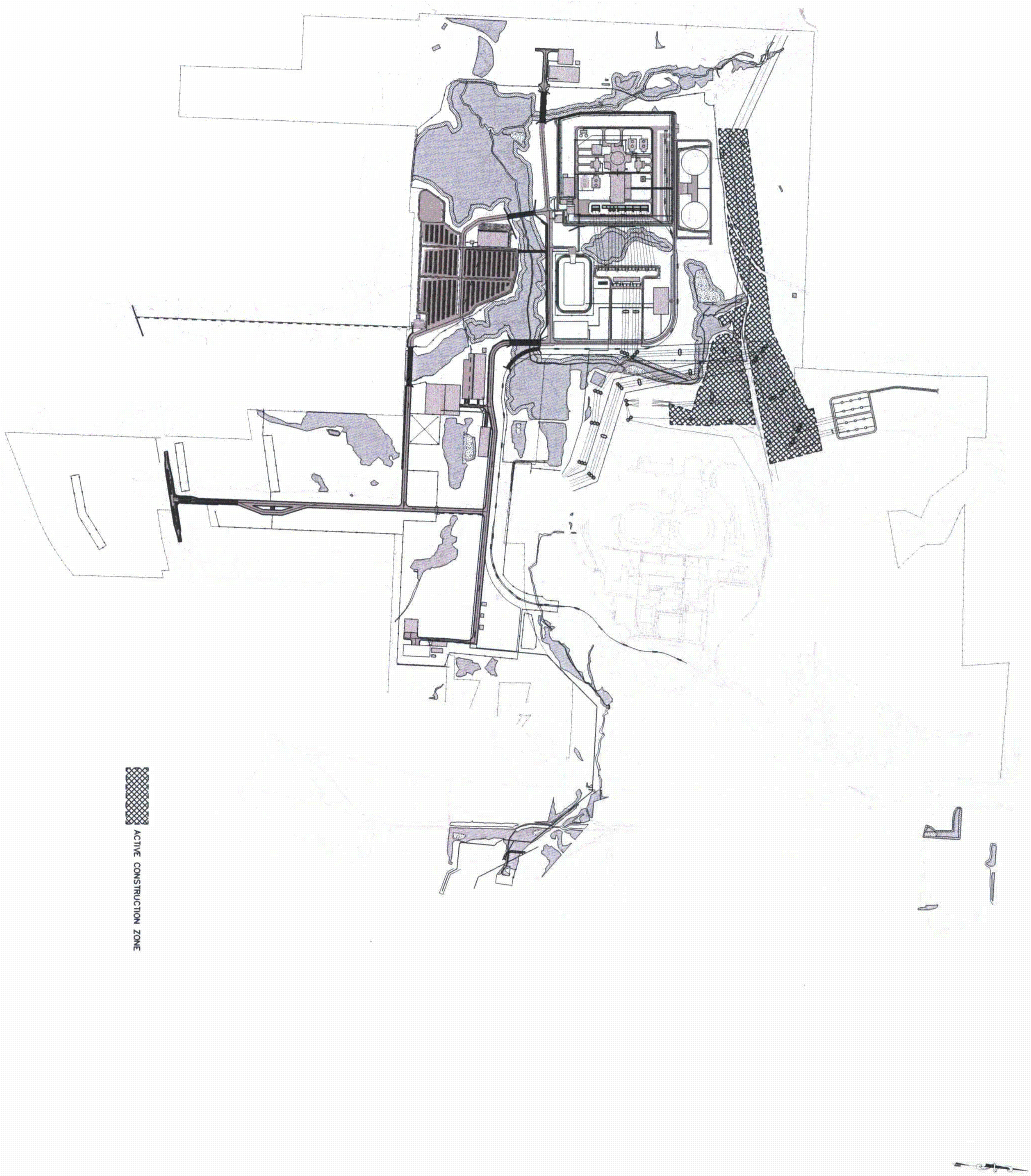
BELL BEND NUCLEAR POWER PLAN UNISTAR NUCLEAR

SALEM TOWNSHIP, PENNSYLVANIA

CONSTRUCTION AREA MAP

SHEET OF 1

SCALE	DRAWING NO.
1" = 500'	CS 9000
DRAWN BY: LGS	
DATE: 08/04/2010	
APPROVED: JPM	



Pennoni Associates Inc.

100 N. Wilkes-Barre Blvd, Suite 409, Wilkes-Barre, PA 18702
TEL: 570-824-2200 FAX: 570-824-0800

Engineers • Surveyors • Planners • Landscape Architects

BELL BEND NUCLEAR POWER PLAN UNISTAR NUCLEAR
SALEM TOWNSHIP, PENNSYLVANIA

PHASE 1 MAP

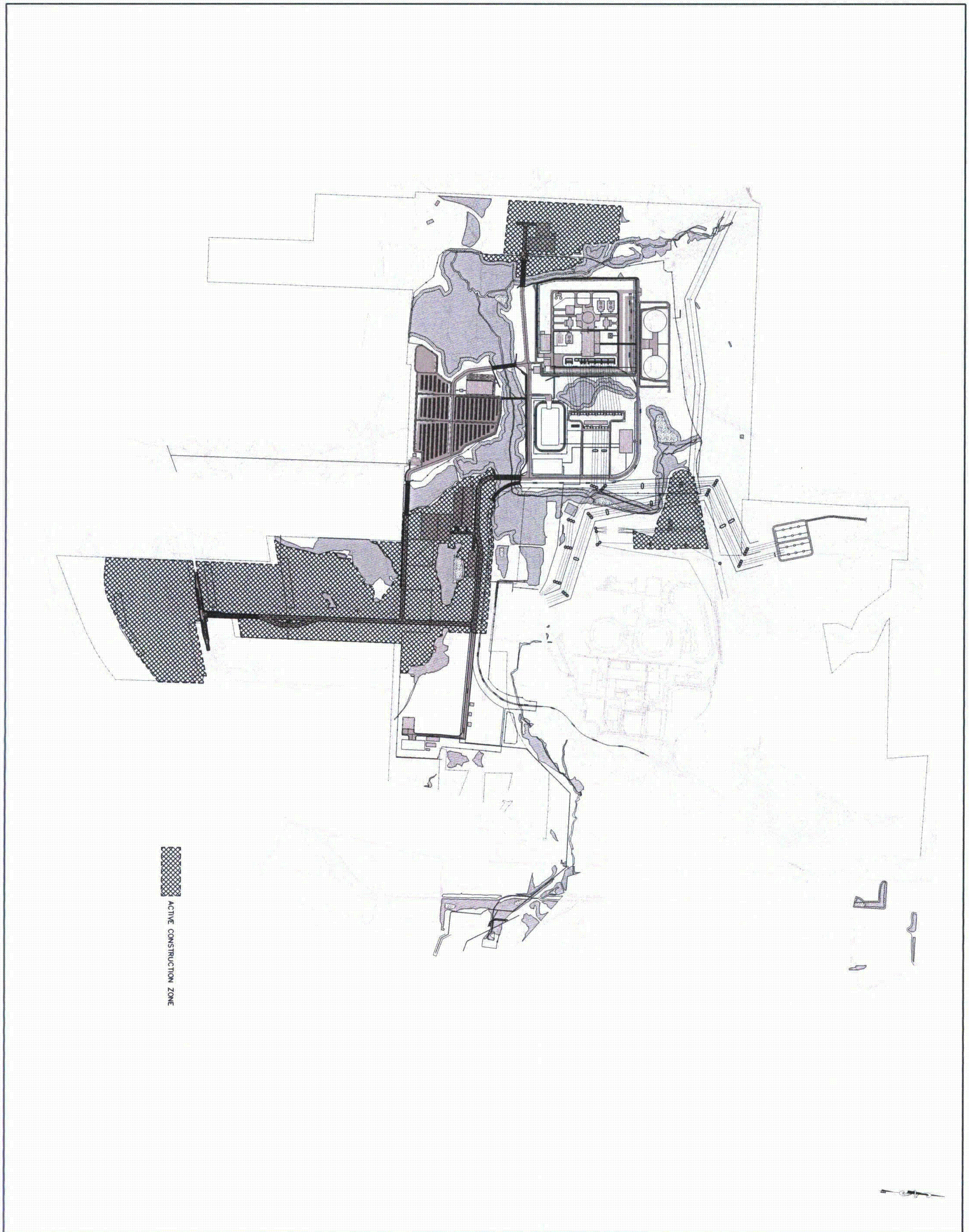
PPL BELL BEND, LLC
38 BOMBOY LANE
SUITE 2
BERWICK, PA 18603

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK

DATE	NO.	REVISIONS	BY
08/20/2010	0	XXXXXXXX XXXXXXXXXX	XXX

Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

SCALE 1" = 500'
DRAWN BY MJF
DATE 11/08/2010
APPROVED JFM
DRAWING NO. **CS 9001**



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BELL BEND NUCLEAR POWER PLAN UNISTAR NUCLEAR

SALEM TOWNSHIP, PENNSYLVANIA

PHASE 2 MAP

PPL BELL BEND, LLC

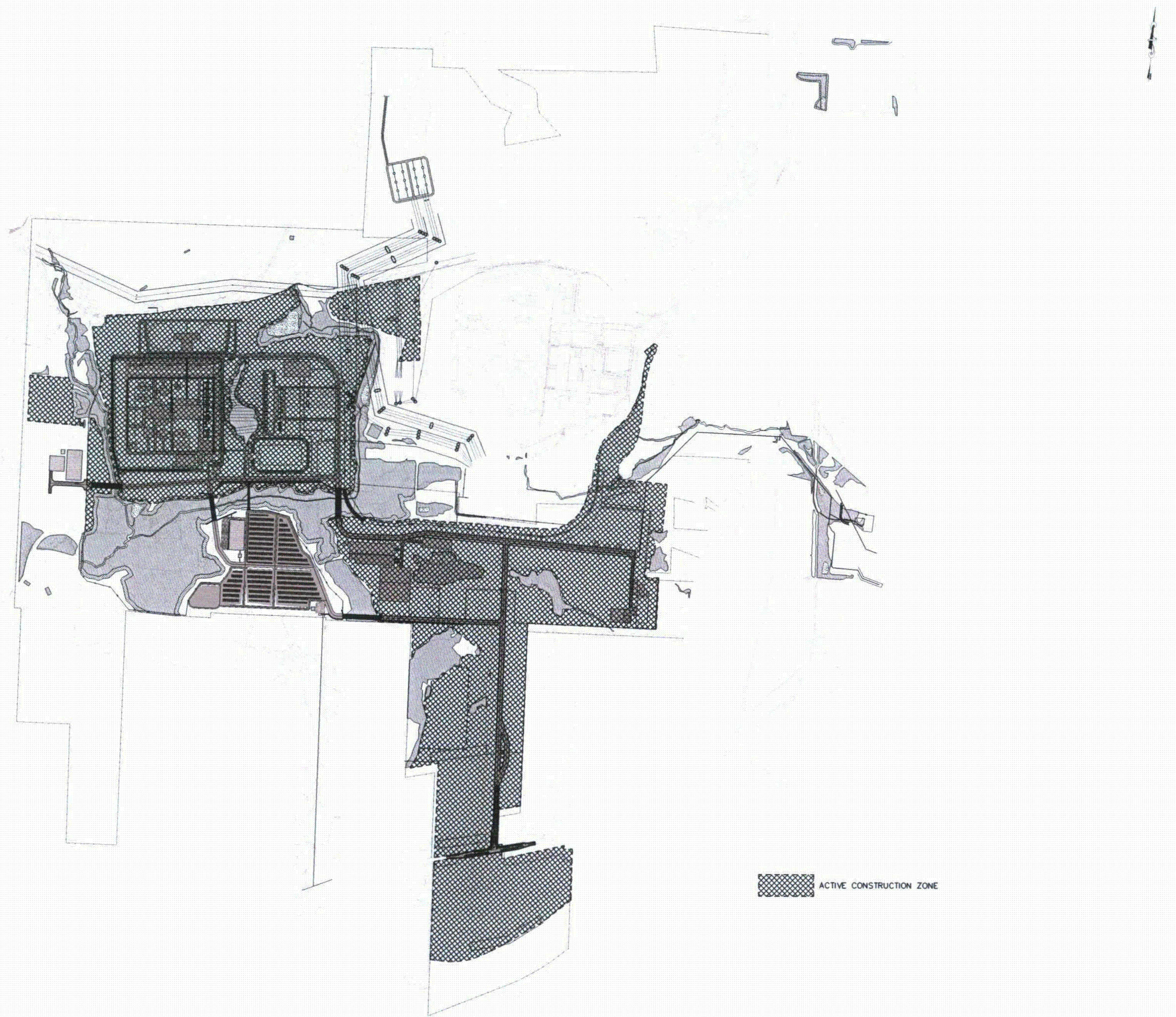
38 BOMBOY LANE
SUITE 2
BERWICK, PA 18603

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK

DATE	NO.	REVISIONS	BY
08/20/2010	0	XXXXXXXX XXXXXXXXXX	XXX

SCALE	1" = 500'
DRAWN BY	MJF
DATE	11/08/2010
APPROVED	JFM
DRAWING NO.	CS 9002

Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS



Pennoni Associates Inc.

100 N. Wilkes-Barre Blvd, Suite 409, Wilkes-Barre, PA 18702
TEL: 570-824-2200 FAX: 570-824-0800

Engineers • Surveyors • Planners • Landscape Architects

Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

DATE	NO.	REVISIONS	BY
08/20/2010	0	XXXXXXXX XXXXXXXXXX	XXX

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK

BELL BEND NUCLEAR POWER PLAN UNISTAR NUCLEAR

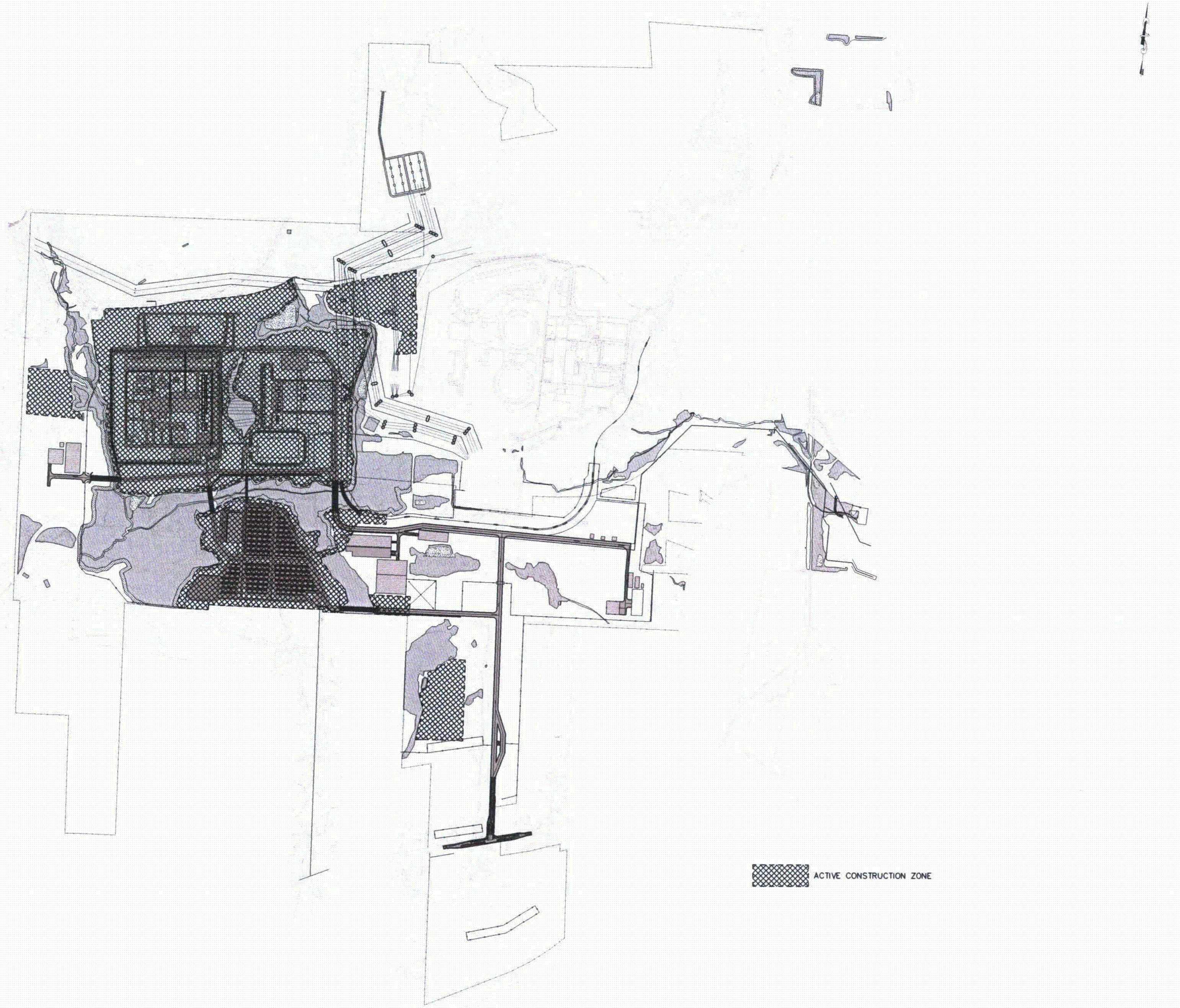
SALEM TOWNSHIP, PENNSYLVANIA

PHASE 3 MAP

PPL BELL BEND, LLC

38 BOMBOY LANE
SUITE 2
BERWICK, PA 18603

SCALE: 1" = 500'
DRAWN BY: MJF
DATE: 11/06/2010
APPROVED: JFM
DRAWING NO.: CS 9003



Pennoni Associates Inc.
100 N. Wilkes-Barre Blvd, Suite 409, Wilkes-Barre, PA 18702
TEL: 570-824-2200 FAX: 570-824-0800
Engineers • Surveyors • Planners • Landscape Architects

Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

DATE	NO.	REVISIONS	BY
05/20/2010	0	XXXXXXXX XXXXXXXXXX	XXX

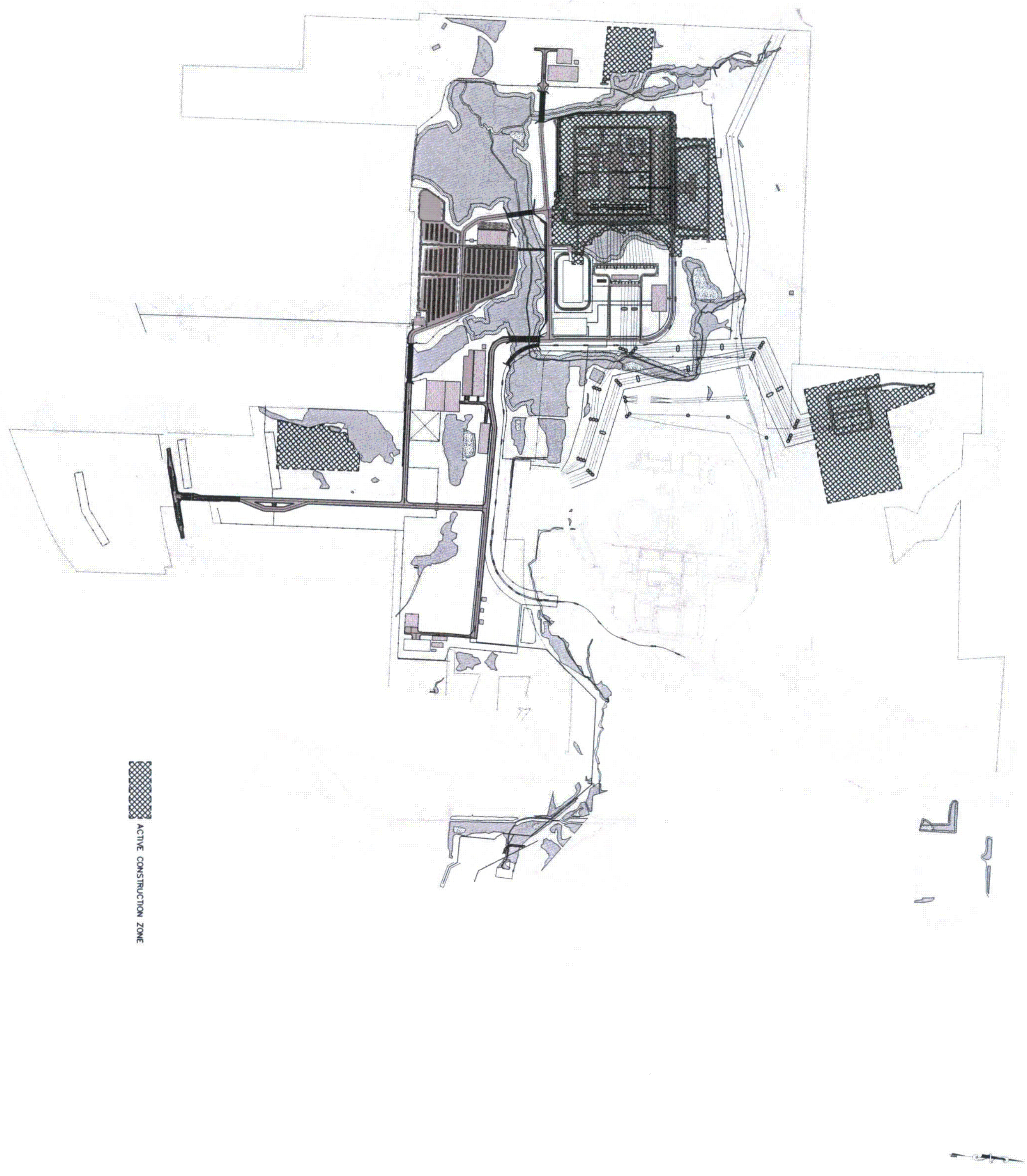
ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK

BELL BEND NUCLEAR POWER PLAN UNISTAR NUCLEAR
SALEM TOWNSHIP, PENNSYLVANIA

PHASE 4 MAP

PPL BELL BEND, LLC
38 BOMBOY LANE
SUITE 2
BERWICK, PA 18603

SCALE 1" = 500'	DRAWING NO.
DRAWN BY MJF	CS 9004
DATE 11/08/2010	
APPROVED JFM	



Pennoni Associates Inc.
100 N. Wilkes-Barre Blvd. Suite 409, Wilkes-Barre, PA 18702
TEL: 570-824-2200 FAX: 570-824-0800
Engineers • Surveyors • Planners • Landscape Architects

BELL BEND NUCLEAR POWER PLAN UNISTAR NUCLEAR
SALEM TOWNSHIP, PENNSYLVANIA

PHASE 5 MAP

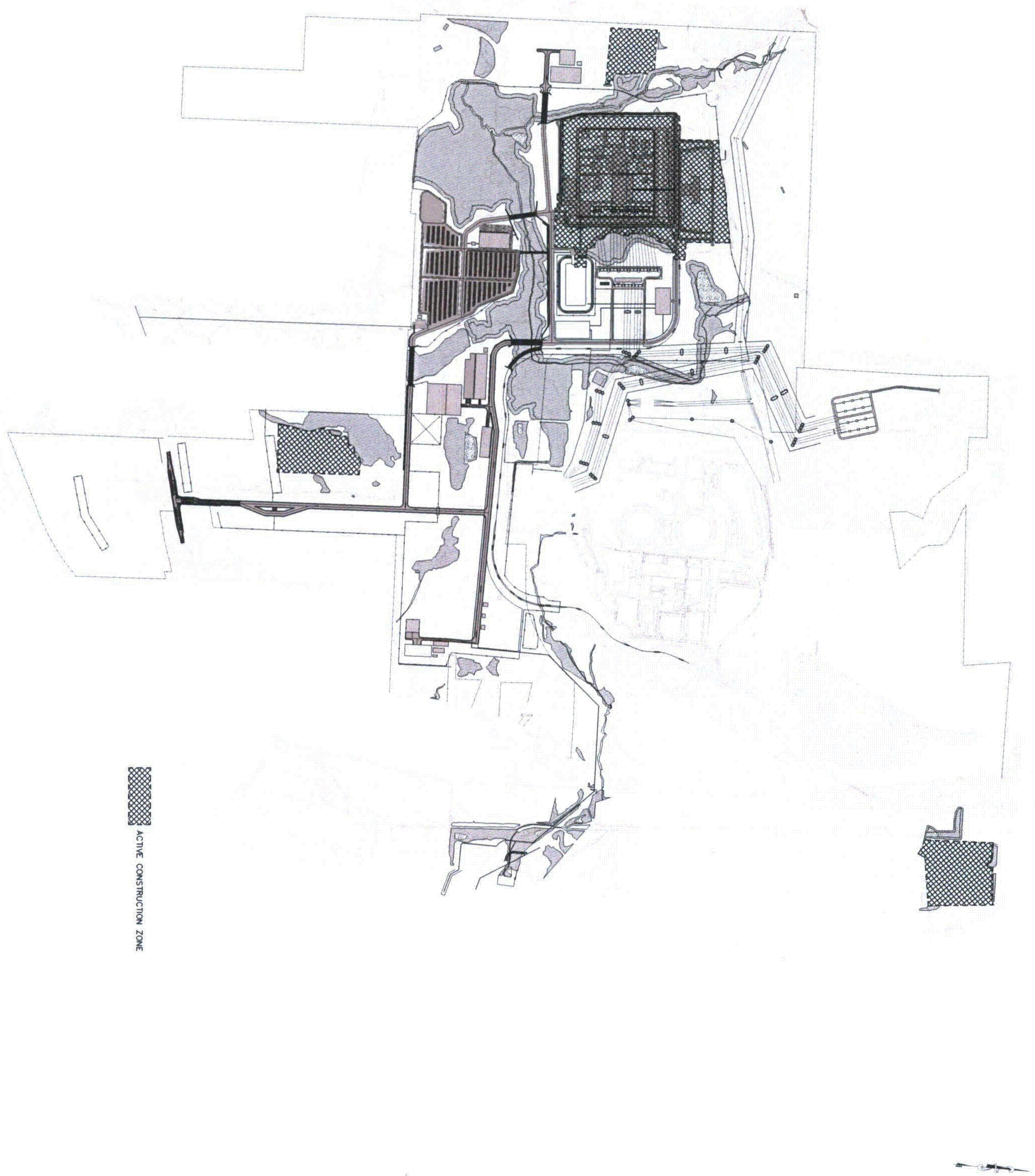
PPL BELL BEND, LLC
38 BOMBOY LANE
SUITE 2
BERWICK, PA 18603

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK

DATE	NO.	REVISIONS	BY
08/30/2010	0	XXXXXXX XXXXXXXXXX	

PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

SCALE: 1" = 500'
DRAWN BY: MJF
DATE: 11/08/2010
APPROVED: JFM
DRAWING NO.: CS 9005



Pennoni Associates Inc.

100 N. Wilkes-Barre Blvd, Suite 409, Wilkes-Barre, PA 18702
TEL: 570-824-2200 FAX: 570-824-0800

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BELL BEND NUCLEAR POWER PLAN UNISTAR NUCLEAR
SALEM TOWNSHIP, PENNSYLVANIA

PHASE 6 MAP

PPL BELL BEND, LLC
38 BOMBOY LANE
SUITE 2
BERWICK, PA 18603

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK

DATE	NO.	REVISIONS	BY
	0	XXXXXXXX XXXXXXXXXXX	

Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

DRAWING NO.
CS 9006

ACTIVE CONSTRUCTION ZONE

Pennoni Associates Inc.

100 N. Wilkes-Barre Blvd, Suite 409, Wilkes-Barre, PA 18702
TEL: 570-824-2200 FAX: 570-824-0800

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DRAWING NO.	CS 9007
SCALE	1" = 300'
DRAWN BY	MJP
DATE	
REVISIONS	
APPROVED	
PM	

BELL BEND NUCLEAR POWER PLAN UNISTAR NUCLEAR
SALEM TOWNSHIP, PENNSYLVANIA

PHASE 7 MAP

PPL BELL BEND, LLC
38 BOWBOY LANE
SUITE 2
BERWICK, PA 18603

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK

DATE	NO.	REVISIONS	BY
08/05/2010	0	XXXXXXX XXXXXXXXXX	XXX

Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

Pennoni Associates Inc.

100 N. Wilkes-Barre Blvd, Suite 409, Wilkes-Barre, PA 18702
TEL: 570-824-2200 FAX: 570-824-0800

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APPROVED: AF | DESIGNED: AF | DRAWN: AF | SCALE: 1" = 200'

DRAWING NO. CS 9008

BELL BEND NUCLEAR POWER PLAN UNISTAR NUCLEAR
SALEM TOWNSHIP, PENNSYLVANIA

PHASE 8 MAP

PPL BELL BEND, LLC
38 BOWDOY LANE
SUITE 7
BERWICK, PA 18603

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK

DATE	NO.	REVISIONS	BY
8/20/2010	0	XXXXXXXX XXXXXXXXXX	...

PENNONI ASSOCIATES INC. CONSULTING ENGINEERS

Pennoni Associates Inc.

100 N. Wilkes-Barre Blvd, Suite 409, Wilkes-Barre, PA 18702
TEL: 570-824-2200 FAX: 570-824-0800

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APPROVED	DESIGNED	SCALE
JM	JM	1" = 300'
CHECKED	DRAWN	
JM	JM	

CS 9009

DRAWING NO.

BELL BEND NUCLEAR POWER PLAN UNISTAR NUCLEAR
SALEM TOWNSHIP, PENNSYLVANIA

PHASE 9 MAP

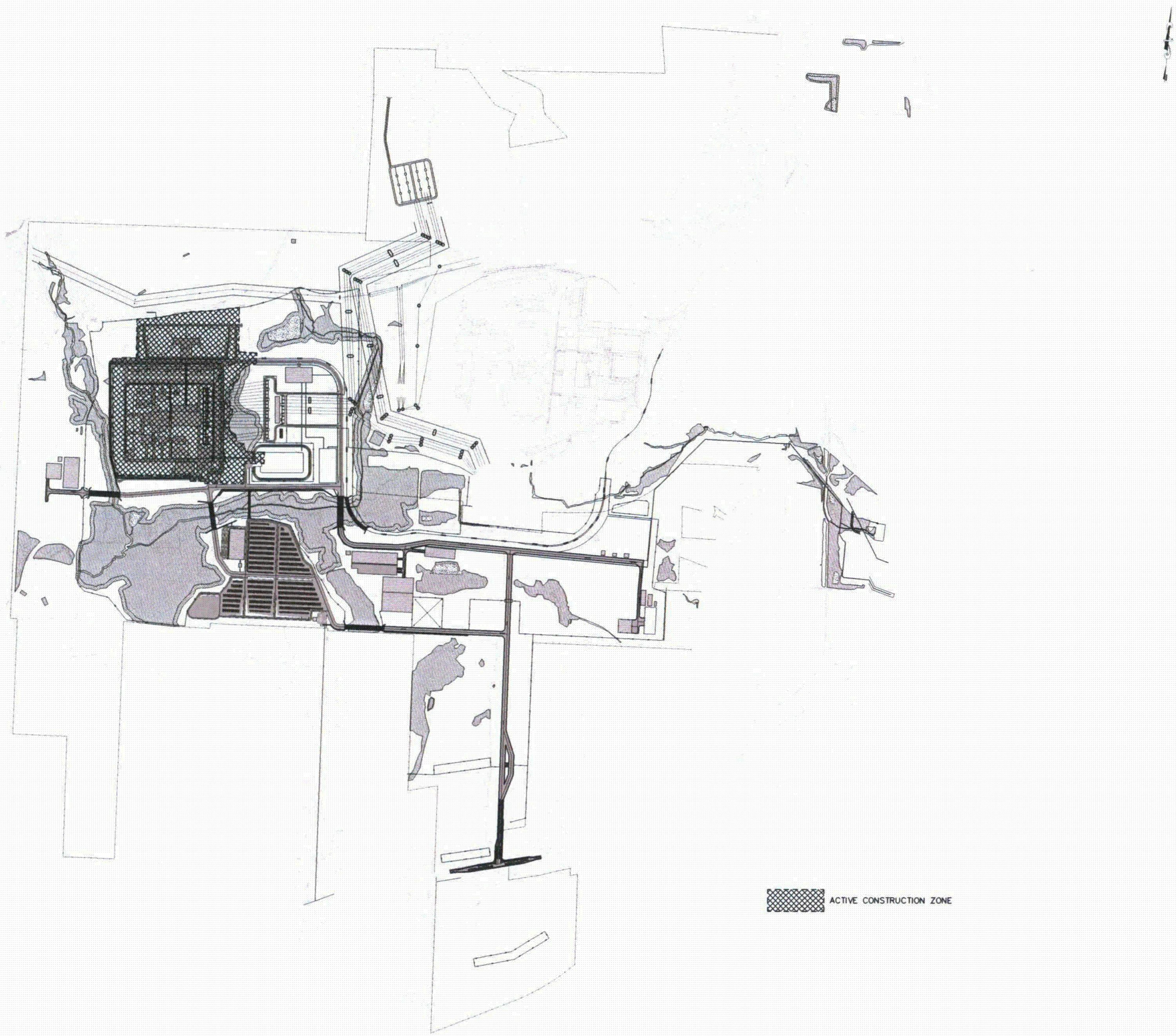
PPL BELL BEND, LLC

39 SOMERSET LANE
SUITE 2
BERWICK, PA 18603

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK

DATE	NO.	REVISIONS	BY
08/09/2010	0	XXXXXXX XXXXXXXXXX	XXX

PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS



Pennoni Associates Inc.
100 N. Wilkes-Barre Blvd, Suite 409, Wilkes-Barre, PA 18702
TEL: 570-824-2200 FAX: 570-824-0800
Engineers • Surveyors • Planners • Landscape Architects
Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

DATE	NO.	REVISIONS	BY
05/20/2010	0	XXXXXXXX XXXXXXXXXX	

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR AND OWNER MUST BE NOTIFIED OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK

BELL BEND NUCLEAR POWER PLAN UNISTAR NUCLEAR
SALEM TOWNSHIP, PENNSYLVANIA

PHASE 10 MAP

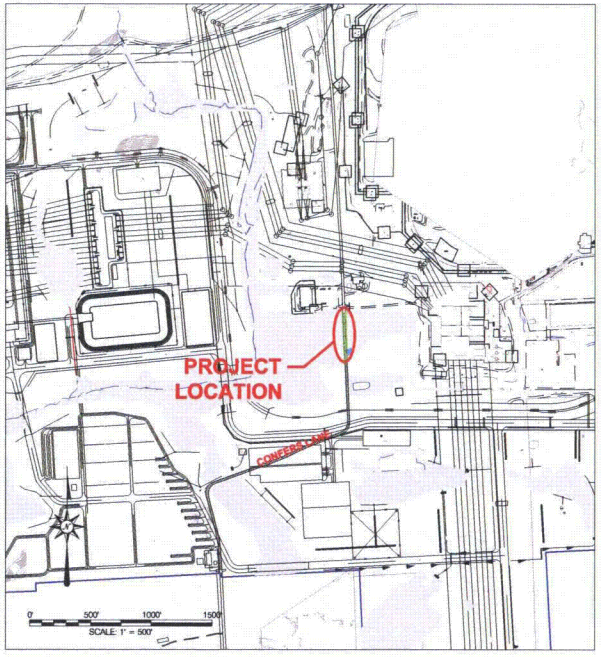
PPL BELL BEND, LLC
38 BOMBOY LANE
SUITE 2
BERWICK, PA 18603

SCALE	1" = 500'
DRAWN BY	MJF
DATE	11/05/2010
APPROVED	JFM
DRAWING NO.	CS 9010

BELL BEND NUCLEAR POWER PLANT
WETLAND MITIGATION PLAN
CONFERS LANE SITE

SALEM TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

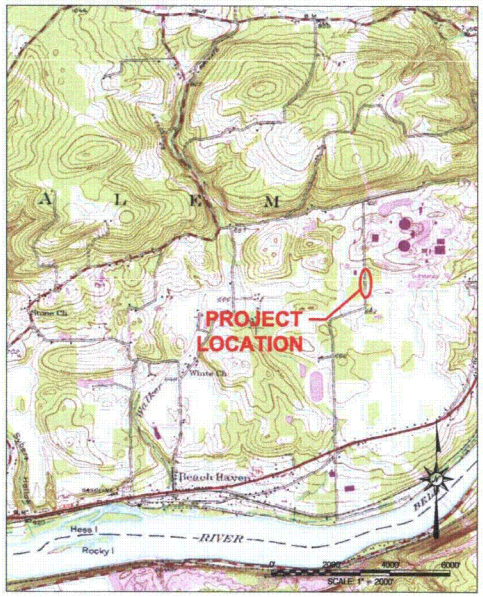
PLAN DATE: OCTOBER 29, 2010



SITE MAP
1" = 500'

TABLE OF CONTENTS

CLIENT ADDRESS:
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603
PHONE: (570) 802-5636
FAX: (570) 802-5639



LOCATION MAP
1" = 2,000'

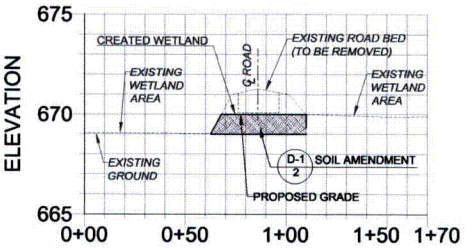
NOTES:
1. BACKGROUND TOPOGRAPHIC MAPPING WAS PRODUCED BY PETERS CONSULTANTS, INC. IN NOV. 2007, JAN. 2008 AND APRIL 2010. THE HORIZONTAL COORDINATE SYSTEM SHOWN ON THIS DRAWING IS PENNSYLVANIA'S STATE PLAN COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD 83). THE VERTICAL CONTOURS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
2. THE BBNPP PLOT PLAN IS FROM SARGENT & LUNDY, LLC., DRAWING SK-12198-400-001, REV. 4, REV. DATE 9-09-10.
3. THE WETLAND BOUNDARIES ARE FROM NORMANDEAU ASSOCIATES, INC. BELL BEND WETLANDS DELINEATION REPORT, REV. 3, JULY 2010.

Land Studies
717-627-4440
fax: 717-627-4660
landstudies.com
land@landstudies.com
315 North Street | Lititz, PA 17543
PA 04234

PROJECT: WETLAND MITIGATION PLAN: CONFERS LANE SITE
PROJECT #: E-726-L3 DATE: OCTOBER 29, 2010
COUNTY: LUZERNE COUNTY REVISION: 0 DATE: --

10/29/2010 9:33:22 AM, DRAFT

TYPICAL CROSS SECTION CONFERS LANE



SCALE:
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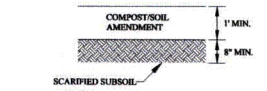
V: 1" = 3'

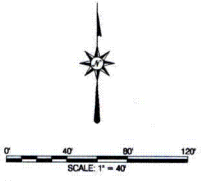


NOTES:
1. SUBSOIL MUST BE DRY WHEN SCARIFYING IS PERFORMED.
2. SOIL, COMPOST MIX SHALL BE 75% CLEAN, NATIVE SOIL, 25% COMPOST

D-1 / 2 SOIL AMENDMENT
NTS

LEGEND

- EXISTING CONTOUR (MINOR)
- EXISTING CONTOURS (MAJOR)
- PROPOSED CONTOUR (MINOR)
- PROPOSED CONTOURS (MAJOR)
- EXISTING WETLANDS
- CREATED WETLANDS
- ENHANCED WETLANDS
- EXISTING PAVEMENT (TO BE REMOVED)



PA 042324
717-627-4440
fax: 717-627-4660
landstudies.com
land@landstudies.com
315 North Street | Lititz, PA 17543
Land Studies

PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
GRADING PLAN
WETLAND MITIGATION PLAN - CONFERS LANE SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO	DATE	DESCRIPTION
X	X	X

PROJECT NUMBER: E-726-L8
DRAWN BY: EPJ
CHECKED BY: BJE
DATE: OCTOBER 29, 2010
SCALE: 1"=40'
GRADING PLAN
SHEET NUMBER: 2 OF 5

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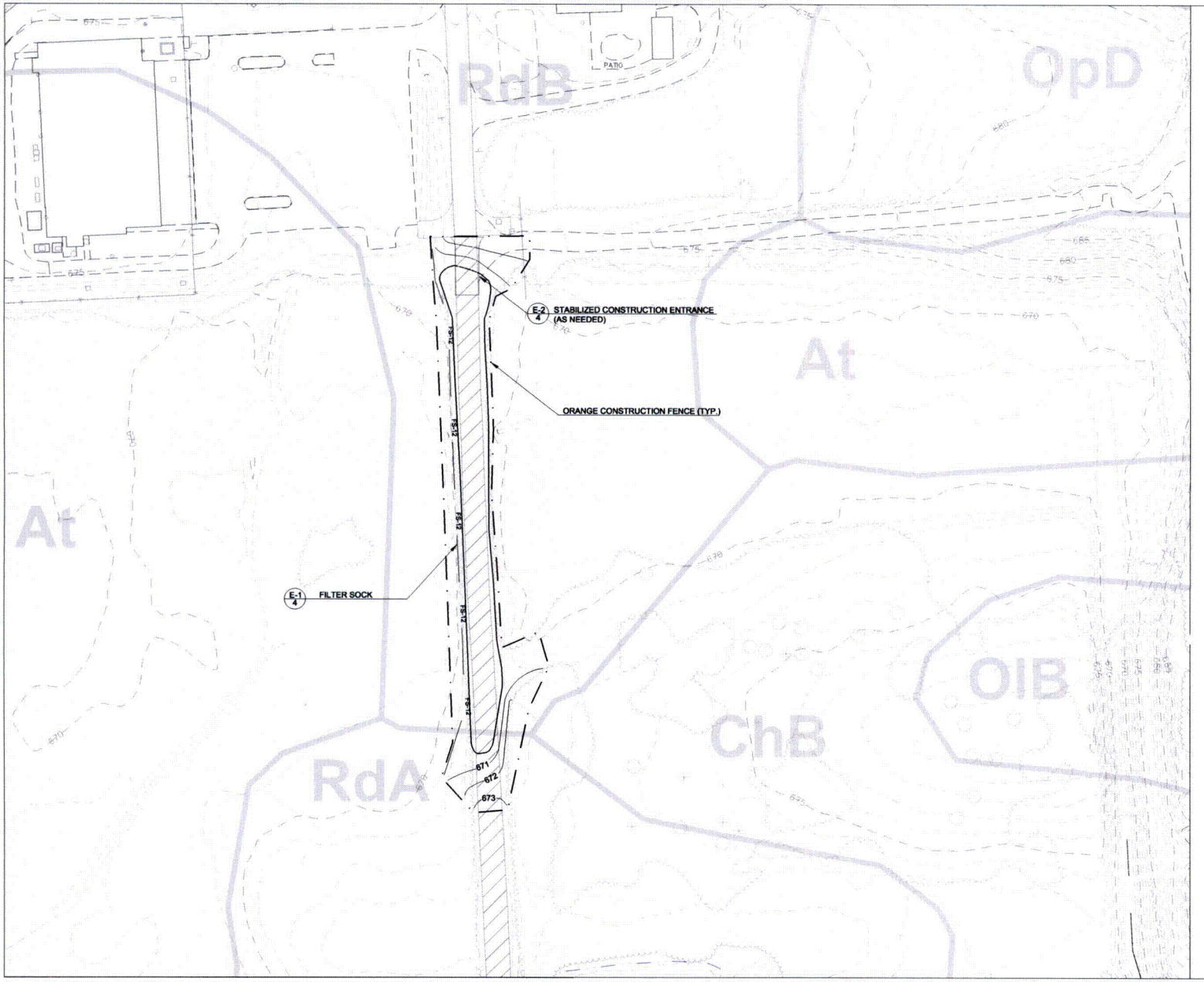

LEGEND

- EXISTING CONTOUR (MINOR)
- EXISTING CONTOURS (MAJOR)
- PROPOSED CONTOUR (MINOR)
- PROPOSED CONTOURS (MAJOR)
- FS-12 FILTER SOCK
- LIMIT OF DISTURBANCE
- EXISTING WETLANDS
- EXISTING PAVEMENT (TO BE REMOVED)
- SOIL BOUNDARY
- At SOIL MAPPING UNIT

0' 40' 80' 120'
SCALE: 1" = 40'

PA 049334
717-627-4440
fax: 717-627-4660
landstudies.com
land@landstudies.com
315 North Street | Lititz, PA 17543

PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
EROSION & SEDIMENT POLLUTION CONTROL PLAN
WETLAND MITIGATION PLAN - CONFERS LANE SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO	DATE	DESCRIPTION
X	X	X

PROJECT NUMBER: E-726-L8
DRAWN BY: EPJ
CHECKED BY: BJE
DATE: OCTOBER 29, 2010
SCALE: 1" = 40'
E&S PLAN
SHEET NUMBER: 3
OF 5

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EROSION AND SEDIMENTATION CONTROL NOTES

A. GENERAL EROSION AND SEDIMENTATION CONTROL GUIDELINES

CONTRACTORS RESPONSIBILITIES

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE LUZERNE COUNTY CONSERVATION DISTRICT (LCCD) 72 HOURS PRIOR TO CONSTRUCTION AND 72 HOURS PRIOR TO LEAVING THE SITE. ALSO, AT LEAST 3 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR BURIED UTILITIES LOCATIONS.

   LUZERNE COUNTY CONSERVATION DISTRICT
   485 SMITHS POND ROAD
   SHAVERTOWN, PA 18708
   (570) 674-7991

2. A COPY OF THIS E&SC PLAN SHALL BE KEPT AVAILABLE FOR INSPECTION ON THE CONSTRUCTION SITE AT ALL TIMES DURING EARTH MOVING ACTIVITY AND UNTIL THE SITE IS STABILIZED.

3. THE CONTRACTOR SHALL MINIMIZE MUD OR SEDIMENT-LADEN WATER EXITING THE CONSTRUCTION SITE TO THE GREATEST EXTENT POSSIBLE. THE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL DAMAGES TO DOWNSTREAM PROPERTIES AS A RESULT OF HIS/HER FAILURE TO PREVENT SUCH DAMAGES.

4. THE INTENT OF THIS PLAN/NARRATIVE IS TO INDICATE GENERAL MEANS OF COMPLIANCE WITH THE REQUIREMENTS OF THE RULES AND REGULATIONS OF CHAPTER 102 OF THE PENNSYLVANIA CLEAN STREAMS LAW. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO IMPLEMENT THESE METHODS PLUS ADDITIONAL METHODS AS MAY BE NECESSARY BECAUSE OF THE CONDITIONS, AND/OR CONSTRUCTION PROCEDURES IN ORDER TO ASSURE COMPLIANCE WITH APPLICABLE LAW. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL SEDIMENT AND EROSION CONTROL FACILITIES SO THAT THEY PERFORM AS REQUIRED BY LAW.

5. THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS OF THE APPENDIX 84, EROSION CONTROL RULES AND REGULATIONS, TITLE 25, PART 1, DEPARTMENT OF ENVIRONMENTAL PROTECTION, SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE III, WATER RESOURCES, CHAPTER 102, EROSION CONTROL.

6. BEFORE INITIATING ANY REVISIONS TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED E&S CONTROL PLAN, THE OPERATOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE LUZERNE COUNTY CONSERVATION DISTRICT.

7. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING A PREPAREDNESS, PREVENTION, AND CONTIGENCY (PPC) PLAN DESCRIBING ANY POTENTIAL HAZARDOUS MATERIALS THAT MAY BE STORED OR USED ON SITE AND EMERGENCY CLEAN-UP OR SPILL REMEDIATION PROCEDURES. THE PPC PLAN SHALL BE KEPT ON THE CONSTRUCTION SITE AT ALL TIMES.

B. GENERAL SEDIMENT AND EROSION CONTROL METHODS/PROCEDURES

1. ALL RELATED SEDIMENT AND EROSION CONTROL FACILITIES SHALL BE IN PLACE AND CAPABLE OF FUNCTIONING AS INTENDED PRIOR TO EARTH MOVING ACTIVITY WITHIN THEIR CONTRIBUTING WATERSHED AREAS. ALL SEDIMENT AND EROSION CONTROL FACILITIES SHALL REMAIN SO UNTIL UNIFORM OF THE UPLAND DRAINAGE AREA IS STABILIZED WITH PERMANENT GROUND COVER.

2. REDUCE BY THE GREATEST EXTENT PRACTICABLE THE AREA AND DURATION OF EXPOSURE OF READILY ERODIBLE SOILS.

3. EXCAVATED MATERIAL (SPOIL) SHALL BE HAULED AWAY FROM THE MITIGATION SITE AND DISPOSED OF WITHIN THE BELL BEND NUCLEAR POWER PLANT PROJECT AREA.

4. EXISTING WETLAND VEGETATION WILL BE PROTECTED TO THE GREATEST EXTENT POSSIBLE.

5. UPON COMPLETION OF EARTH MOVING, DISTURBED AREAS SHALL BE IMMEDIATELY SEEDED, MULCHED, OR OTHERWISE PROTECTED FROM ACCELERATED EROSION AND SEDIMENTATION.

6. THE CONTRACTOR SHALL PROVIDE PROTECTION AGAINST DISCHARGE OF POLLUTANTS SUCH AS CHEMICALS, FUEL, LUBRICANTS, SEWAGE, ETC. INTO STREAMS OR STORM WATER FACILITIES.

7. CONSTRUCTION ACCESS INTO UNPAVED AREAS FROM PAVED AREAS OR STREETS (PUBLIC OR PRIVATE) SHALL BE VIA A STABILIZED CONSTRUCTION ENTRANCE.

8. SEDIMENT SPILLED, DROPPED OR TRACKED ONTO PAVED SURFACES SHALL BE REMOVED IMMEDIATELY.

9. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

10. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE, THE OPERATOR SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS. DISTURBED AREAS WHICH ARE AT FINISHED GRADE OR WHICH WILL NOT BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.

11. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM 70% UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.

12. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE BMPS MUST BE STABILIZED IMMEDIATELY.

C. MAINTENANCE OF SEDIMENT AND EROSION CONTROL FACILITIES

1. UNTIL THE SITE ACHIEVES FINAL STABILIZATION, THE OPERATOR SHALL ASSURE THAT THE BEST MANAGEMENT PRACTICES ARE IMPLEMENTED, OPERATED, AND MAINTAINED PROPERLY AND COMPLETELY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL BEST MANAGEMENT PRACTICE FACILITIES. THE OPERATOR WILL MAINTAIN AND MAKE AVAILABLE TO LUZERNE COUNTY CONSERVATION DISTRICT COMPLETE, WRITTEN INSPECTION LOGS OF ALL THOSE INSPECTIONS. ALL MAINTENANCE WORK, INCLUDING CLEANING, REPAIR, REPLACEMENT, REGRADING AND RESTABILIZATION SHALL BE PERFORMED IMMEDIATELY.

2. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS MUST BE MAITAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROL BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, RE-GRADING, RE-SEEDING, RE-MULCHING, AND RE-NETTING, MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.

3. ALL SEDIMENT AND EROSION CONTROL FACILITIES MUST BE MAINTAINED IN OPERATING CONDITION UNTIL UPSTREAM AREAS ARE OF UNIFORM 70% STABILIZED WITH UNIFORM PERENNIAL VEGETATIVE COVER.

4. SEDIMENT REMOVED FROM BMP'S SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.

5. ALL NON-USABLE MATERIAL AND DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LEGAL MANNER IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.

6. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.

D. RECYCLING AND DISPOSAL OF WASTE MATERIALS

1. THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 287.1 ET SEQ. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THE SITE.

2. THE OPERATOR SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE LUZERNE COUNTY CONSERVATION DISTRICT, AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL AND/OR ROCK SPOIL AND BORROW AREAS, REGARDLESS OF THEIR LOCATIONS.

3. RE-USE OR RECYCLE SANDBAGS, CULVERTS, AND FLEXIBLE PIPE.

4. PROPERLY DISPOSE OF SEDIMENT FILTER BAGS, SILT FENCE, STAKES, AND FILTER SOCK MATERIAL.

5. DISPERSE COMPOST MATERIAL FROM FILTER SOCKS ON SITE, AS DIRECTED.

E. RESTORATION OF PLANTING AREAS

1. FINAL RESTORATION SHALL BE PERFORMED NO LATER THAN THE START OF THE NEXT PLANTING SEASON FOLLOWING CONSTRUCTION. THE PLANTING SEASON SHALL BE AS ESTABLISHED BY THE U.S. AGRICULTURAL SERVICE FOR THE AREA OF CONSTRUCTION.

2. TOPSOIL SHALL BE FREE FROM SUBSOIL, BRUSH, WEEDS, OR OTHER LITTER, CLAY LUMPS AND STONES, BUT MAY CONTAIN DECAYING VEGETABLE MATTER AS IS PRESENT IN GOOD TOPSOIL.

3. TOPSOIL SHALL BE IMPORTED FROM OFF-SITE IF NECESSARY AS DETERMINED BY PROJECT DESIGNER.

4. PRECAUTIONS SHALL BE EXERCISED AS NECESSARY TO CONFORM WITH LAWS RELATING TO EROSION AND SEDIMENT CONTROL.

5. SEED SHALL NOT HAVE LESS THAN 80% GERMINATION. GERMINATION TESTS OF SEEDS SHALL BE MADE NOT MORE THAN SIX (6) MONTHS PRIOR TO SEEDING. SEED WHICH HAS BECOME WET, MOLDY, OR OTHERWISE DAMAGED SHALL NOT BE USED.

6. THE CONTRACTOR SHALL BE RESPONSIBLE TO PRODUCE A STAND OF GRASS OR WETLAND VEGETATION IN ALL SEEDED OR SODDED AREAS. EROSION, DROUGHT, OR ANY OTHER CONDITION ENCOUNTERED SHALL NOT RELIEVE THE CONTRACTOR OF THIS REQUIREMENT.

F. SITE STABILIZATION

1. ALL DISTURBED WETLAND AREAS WITHIN THE PROPOSED WETLANDS WILL BE SEEDED WITH THE PROPOSED SEED MIX AS SPECIFIED IN THE SEEDING RESTORATION TABLE WITHIN 48 HOURS OF COMPLETING EARTH MOVING ACTIVITIES OR BY THE END OF A WORK DAY IF A PRECIPITATION EVENT IS FORECASTED.

2. ALL DISTURBED AREAS OUTSIDE OF THE PROPOSED WETLANDS WILL BE SEEDED WITH THE PROPOSED STABILIZATION SEED MIX AND MULCHED UPON THE COMPLETION OF EARTH MOVING ACTIVITIES.

3. MULCH AND STRAW WILL BE SPREAD AT 3 TONS/ACRE. STRAW MULCH SHALL BE APPLIED IN LONG STRANDS, NOT CHOPPED OR FINELY BROKEN.

4. MULCH WITH MULCH CONTROL NETTING OR EROSION CONTROL BLANKETS MUST BE INSTALLED ON ALL SLOPES 3:1 AND STEEPER.

SOIL DESCRIPTIONS

SYMBOL	NAME	DESCRIPTION	HYDRIC?
At	ATHERTON, SILT LOAM	SOILS ARE POORLY OR VERY POORLY DRAINED WITH LOW RUNOFF POTENTIAL AND PONDING WATER. THEY HAVE A SEASONALLY HIGH WATER TABLE NEAR OR AT THE SOIL SURFACE. THESE NEARLY LEVEL SOILS ARE FOUND PRIMARILY IN DEPRESSION IN GLACIAL OUTWASH TERRACES, OLDER STREAM TERRACES, AND KAME-KETTLE LAND FORMATIONS.	YES
RdB	REXFORD LOAM, 3-8% SLOPES	DEEP, SOMEWHAT POORLY DRAINED AND POORLY DRAINED SOILS LOCATED IN SMOOTH LOW-LYING CONCAVE DEPRESSIONS ON GLACIAL OUTWASH TERRACES DESCRIBES REXFORD LOAM SOILS. THIS SOIL COMMONLY HAS A FRAGIPAN AT 15 TO 24 INCHES WHICH SLOWS THE DOWNWARD MOVEMENT OF WATER. THE SEASONAL HIGH WATER TABLE IS SIX INCHES TO ONE FOOT.	YES

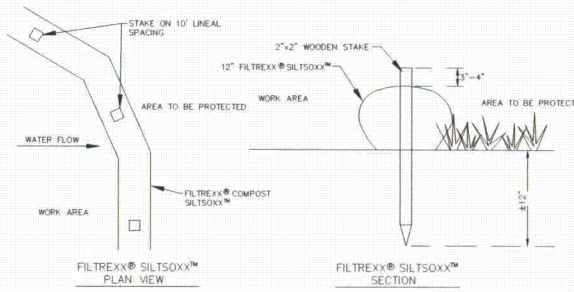
CONSTRUCTION SEQUENCE:

CONSTRUCTION NOTES:

- AT LEAST 7 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES THE OPERATOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES INCLUDING BUT NOT LIMITED TO: THE LANDOWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, THE EROSION AND SEDIMENT CONTROL PLAN PREPARER, AND A REPRESENTATIVE FROM THE LUZERNE COUNTY CONSERVATION DISTRICT FOR AN ON-SITE PRE-CONSTRUCTION MEETING. ALSO, AT LEAST 3 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR BURIED UTILITIES LOCATIONS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE LUZERNE COUNTY CONSERVATION DISTRICT 72 HOURS PRIOR TO CONSTRUCTION AND 72 HOURS PRIOR TO LEAVING THE SITE.
- CLEAN EXCAVATED MATERIAL SHALL BE HAULED FROM THE SITE AND DISPOSED OF WITHIN THE PROJECT AREA.
- IF WATER NEEDS TO BE PUMPED FROM THE EXCAVATED AREA, IT SHALL BE PUMPED THROUGH A PUMPED WATER FILTER BAG DISCHARGING OVER NON-DISTURBED AREAS.
- THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 287.1 ET SEQ. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THE SITE.
- GRADED AREAS WITHIN THE PROPOSED WETLAND SHALL BE STABILIZED WITH THE PROPOSED CONSERVATION SEED MIX PRIOR TO PLANTINGS.
- AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENT.
- ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE.

CONSTRUCTION STAGES:

1. STAKE OUT LIMIT OF DISTURBANCE IN THE FIELD.
2. INSTALL ORANGE CONSTRUCTION FENCE WHERE LOD IS ADJACENT TO EXISTING WETLANDS TO PREVENT ADDITIONAL DISTURBANCE TO THESE WETLANDS.
3. INSTALL FILTER SOCK AS SHOWN ON THE PLAN
4. PERFORM NECESSARY CLEARING AND GRUBBING WITHIN PROPOSED LIMIT OF DISTURBANCE.
5. REMOVE EXISTING PAVEMENT AND STONE BASE.
6. EXCAVATE PROPOSED WETLAND AREA TO PROPOSED SUB-GRADE ELEVATIONS. SCARIFY SUBSOIL TO A DEPTH OF AT LEAST EIGHT (8) INCHES.
7. ADD COMPOST AND TOPSOIL MIXTURE WITH A RATIO OF 75% CLEAN, NATIVE SOIL AND 25% COMPOST. SOIL/COMPOST SHALL BE THOROUGHLY MIXED.
8. PLACE SOIL/COMPOST MIXTURE ON WETLAND TO PROPOSED FINAL GRADE ELEVATIONS (1" MIN.).
9. SEED DISTURBED AREA WITH FLOODPLAIN SEED MIX, PER THE LANDSCAPE PLAN ON SHEET 5 OF 5. MULCH SEEDED AREA WITH STRAW AT 3 TONS PER ACRE.
10. INSTALL PROPOSED VEGETATION WITHIN GRADED WETLAND PER THE LANDSCAPE PLAN AND DETAILS ON SHEETS 5 &6 OF THIS PLAN SET.
11. REMOVE FILTER SOCK AFTER DISTURBED AREAS HAVE ACHIEVED A MINIMUM OF 70% VEGETATIVE COVER. STABILIZE ANY AREAS DISTURBED WHILE REMOVING THIS BMP WITH THE PROPOSED STABILIZATION SEED MIX AND MULCH.

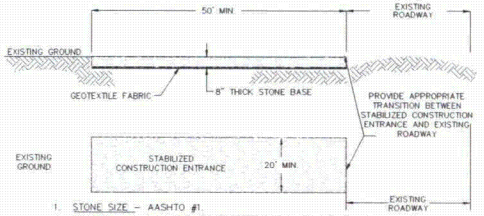


FILTREXX® SILTSOXX™ PLAN VIEW

FILTREXX® SILTSOXX™ SECTION

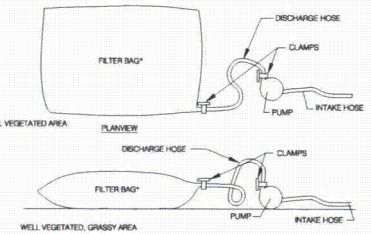
NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILTSOXX™ COMPOST/JSOIL/ROCK/SEED FILL TO MEET APPLICATION REQUIREMENTS.
3. SILTSOXX™ DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER.
4. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
5. LOCAL FILTREXX CONTACT: KEYL GROFF AT GARDENIQUE (610-972-9018).

E-1 / 4 FILTER SOCK (FILTREXX)
NTS



1. STONE SIZE – AASHTO #1.
2. LENGTH – AS REQUIRED TO BE EFFECTIVE, BUT NOT LESS THAN 50'.
3. THICKNESS – NOT LESS THAN 8".
4. WIDTH – FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS, BUT NOT LESS THAN 20'.
5. WASHING – WHEELS SHALL BE CLEAN PRIOR TO ENTRANCE ONTO EXISTING ROADWAY. WHEN WASHING IS REQUIRED IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATERCOURSE THROUGH USE OF SAND BAGS, GRAVEL, BOARDS, OR OTHER APPROVED METHODS.
6. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO EXISTING ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO EXISTING ROADWAYS MUST BE REMOVED IMMEDIATELY. CONSTRUCTION ENTRANCE MUST BE INSPECTED DAILY.

E-2 / 4 STABILIZED CONSTRUCTION ENTRANCE
NTS



Filter bags shall be made from non-woven geotextile material sewn with high strength, double stitched "J" type seams. They shall be capable of trapping particles larger than 150 microns.

A suitable means of accessing the bag with machinery required for disposal purposes must be provided. Filter bags shall be replaced when they become ½ full. Spare bags shall be kept available for replacement of those that have failed or are filled.

Bags shall be located in well-vegetated (grassy) area, and discharge onto stable, erosion resistant areas. Where this is not possible, a geotextile flow path shall be provided. Bags shall not be placed on slopes greater than 5%.

The pump discharge hose shall be inserted into the bags in a manner specified by the manufacturer and securely clamped.

The pumping rate shall be no greater than 750 gpm or ½ the maximum specified by the manufacturer, whichever is less. Pump intakes should be floating and screened.

Filter bags may be used to filter water pumped from disturbed areas prior to discharging to water of the Commonwealth. They may also be used to filter water pumped from the sediment storage areas of sediment basins.

The pumping rate should be specified on the plan drawings next to the typical detail. Pumping rates will vary depending on the size of the filter bag, and the type and amount of sediment discharged to the bag.

Filter bags should be installed according to the details shown in Standard Construction Detail #26.

E-3 / 4 PUMPED WATER FILTER BAG
NTS

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315 North Street | Lititz, PA 17543

PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
EROSION & SEDIMENT POLLUTION CONTROL NARRATIVE AND DETAILS
WETLAND MITIGATION PLAN - CONFERS LANE
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
X	X	X

PROJECT NUMBER: E-728-L8
DRAWN BY: EPJ
CHECKED BY: BJE
DATE: OCTOBER 29, 2010
SCALE: AS NOTED
E&S DETAILS
SHEET NUMBER: 4 OF 5

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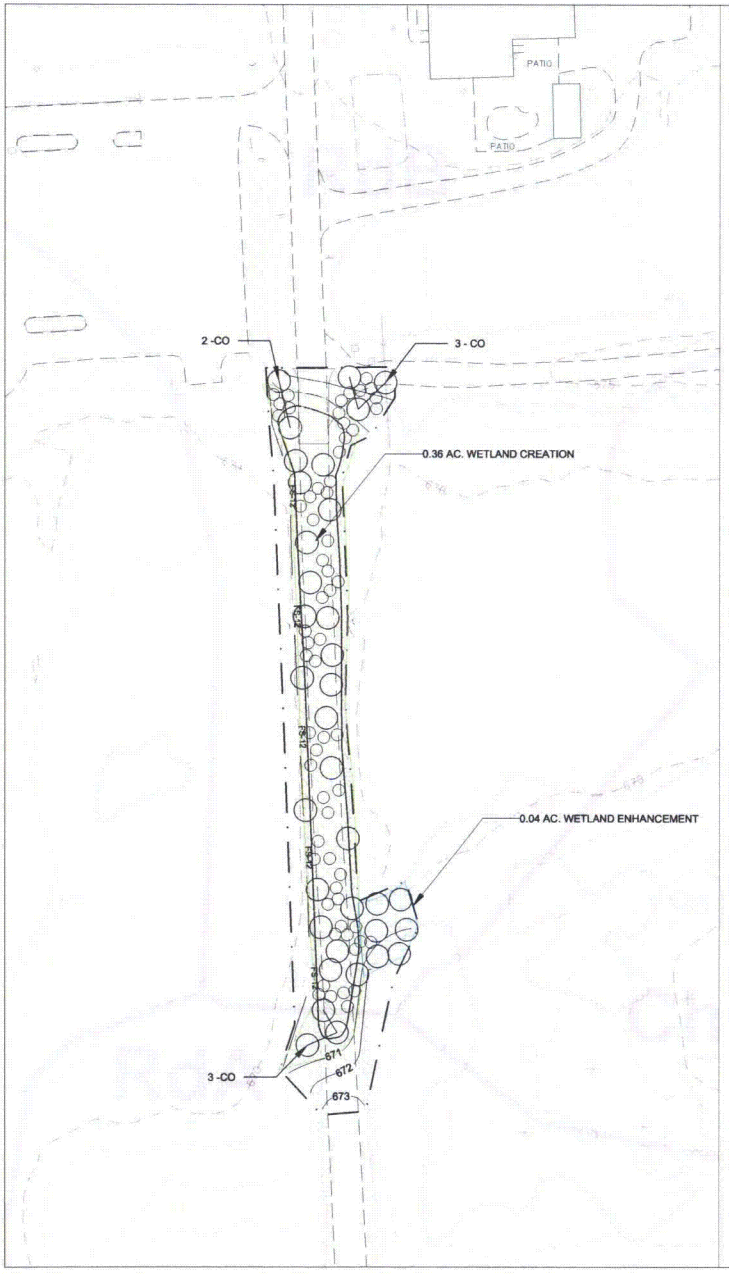


SEEDING RESTORATION TABLE

LOCATION	TOPSOIL	STARTER FERTILIZER	LIME	SEED MIX
WETLAND	YES	N/A	N/A	FLOODPLAIN SEED MIX APPLICATION RATE: 15–20 LBS./ACRE
OTHER DISTURBED AREAS	NO	N/A	N/A	TEMPORARY STABILIZATION SEED MIX SEE SEED MIX FOR SEEDING

DUE TO SOIL LIMITATIONS NEITHER FERTILIZER NOR LIME WILL BE APPLIED TO THE GRADED WETLAND. IT IS ANTICIPATED THAT THE SPREADING OF TOPSOIL AND THE CLOSE PROXIMITY TO EXISTING WATER TABLE WILL PROMOTE RAPID GERMINATION OF PROPOSED SEED.

Temporary Stabilization Seed Mix

%	Botanical Name	Common Name	Seeding Window	Application Rate
100	*Secale cereale*	Cereal Rye	Sep. 1 - Oct. 15	30 lbs/acre
100	*Avena sativa*	Oats	May. 1 - Sept. 15	30 lbs/acre

%	Botanical Name	Common Name	I.S.
10	*Elymus virginicus, PA*	Virginia Wild Rye, PA Ecotype	FACW
10	*Panicum ridgulum, PA*	Redtop Panic Grass, PA Ecotype	FACW+
8	*Elymus canadensis, PA*	Canada Wild Rye, PA Ecotype	FACU
5	*Carex vulpinoidea, PA Ecotype*	Fox Sedge, PA Ecotype	OBL
5	*Panicum clandestinum*	Deer Tongue 'Tioga', PA Ecotype	FAC+
5	*Elymus riparius, PA*	Riverbank Wild Rye, PA Ecotype	FACW
5	*Agrostis perennans, APB*	Autumn Bentgrass, APB	FACU
5	*Agrostis scabra, PA*	Ticklegrass, PA Ecotype (rough bentgrass	FAC
5	*Carex scoparia*	Blunt Broom Sedge	FACW
5	*Festuca rubra*	Creeping Red Fescue	FACU
4	*Carex comosa*	Bristly Sedge	OBL
4	*Chasmanthium latifolium, PA*	River Oats, PA Ecotype	FACU
3	*Carex stipata*	Awl Sedge	OBL
3	*Elymus hystrix, PA*	Bottlebrush Grass, PA Ecotype	NI
3	*Juncus effusus, PA*	Soft Rush, PA Ecotype	FACW+
2	*Asclepias incarnata*	Swamp Milkweed	OBL
2	*Bidens aristosa*	Bur Marigold, 'Suther' NC Ecotype	FACW-
2	*Carex lurida*	Lurid Sedge	OBL
2	*Juncus tenuis*	Path Rush	FAC-
2	*Poa palustris*	Fowl Bluegrass	FACW
1	*Aster prenanthoides*	Zigzag Aster	FAC
1	*Aster laevis*	Smooth Blue Aster	NI
1	*Aster novae-angliae*	New England Aster	FACW-
1	*Carex crinta*	Fringed Sedge	OBL
1	*Iris versicolor*	Blue Flag Iris	OBL
1	*Lobelia cardinalis*	Cardinal Flower	FACW+
1	*Lobelia siphilitica*	Great Blue Lobelia	FACW+
1	*Scirpus validus*	Soft-stem Bulrush	OBL
1	*Solidago riddellii*	Riddell's Goldenrod	OBL
1	*Solidago rugosa*	Wrinkle Leaf Goldenrod	FAC
100		***Application Rate: 15-20 lbs/acre***	

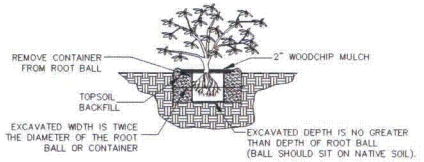
PLANT SCHEDULE

Trees

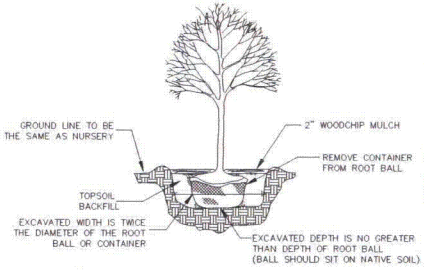
Key	Botanical Name	Common Name	Size	Qty.	Spacing	I.S.	Notes
	Acer rubrum	Red Maple	1"-1.5"	10	20'-30'	FAC	
	Acer saccharinum	Silver Maple	1"-1.5"	8	20'-30'	FACW	
CO	*Carya ovata*	Shagbark Hickory	1"-1.5"	8	20'-30'	FACU	Upland areas only
	Quercus bicolor	Swamp White Oak	1"-1.5"	11	20'-30	FACW	
				37			

Shrubs

Key	Botanical Name	Common Name	Size	Qty.	Spacing	I.S.	Notes
	Ilex verticillata	Winterberry	#5	18	4'-6'	FACW	1 male for every 8 female
	Lindera benzoin	Spicebush	#5	18	4'-6'	FACW	
	Vaccinium corymbosum	Highbush Blueberry	#5	16	4'-6'	FACW-	
	Viburnum trilobum	Cranberry Bush	#5	10	4'-6'	FACW	
				62			



L-1 / 5 TYPICAL SHRUB PLANTING - CONTAINER
NTS



L-2 / 5 TREE PLANTING DETAIL
NTS

PLANT SPECIFICATIONS: -

1. THE TREES AND SHRUBS SHALL BE NURSERY GROWN IN A CLIMATE SIMILAR TO THAT OF THE LOCALITY OF THE PROJECT
2. SET PLANTS AT SAME FINISHED GRADE AS GROWN IN THE NURSERY.
3. ALL TREES AND SHRUBS SHALL HAVE A NORMAL HABIT OF GROWTH AND SHALL BE SOUND, HEALTHY AND VIGOROUS. THEY SHALL BE FREE FROM DISEASE, INSECTS, INSECT EGGS, AND LARVAE.
4. ALL PLANTING SHALL BE PERFORMED IN CONFORMANCE WITH GOOD NURSERY AND LANDSCAPE PRACTICE.

LEGEND

- EXISTING CONTOUR (MINOR)
- EXISTING CONTOURS (MAJOR)
- PROPOSED CONTOUR (MINOR)
- PROPOSED CONTOURS (MAJOR)
- EXISTING WETLANDS
- CREATED WETLANDS
- ENHANCED WETLANDS
- PROPOSED TREE
- PROPOSED SHRUB

N

0 40' 80' 120'
SCALE: 1" = 40'

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PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
LANDSCAPING PLAN
WETLAND MITIGATION PLAN - CONFERS LANE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
X	X	X

PROJECT NUMBER: E-726-L8
DRAWN BY: ---
CHECKED BY: ---
DATE: OCTOBER 29, 2010
SCALE: 1"=40'
LANDSCAPING PLAN
SHEET NUMBER: 5 OF 5

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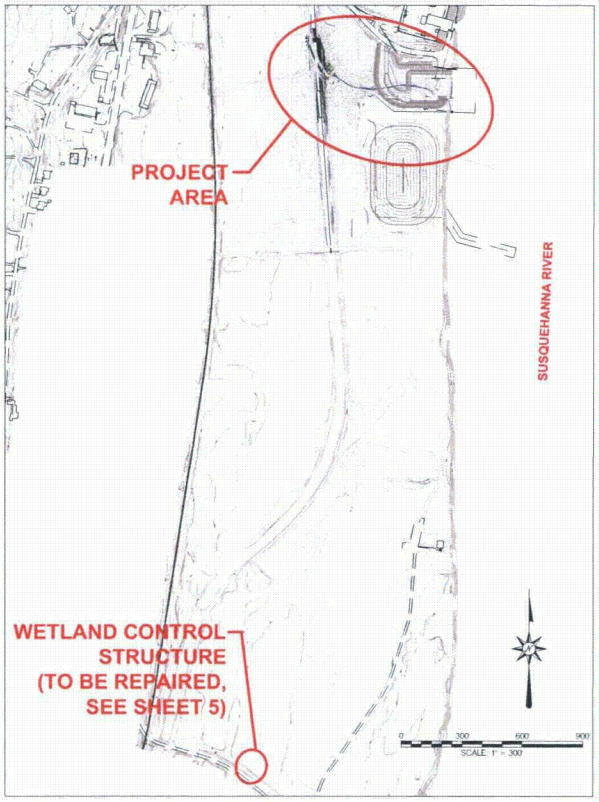
BELL BEND NUCLEAR POWER PLANT
WETLAND MITIGATION PLAN
RIVERLANDS SITE

SALEM TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

PLAN DATE: OCTOBER 29, 2010



SITE MAP

1" = 300'

TABLE OF CONTENTS

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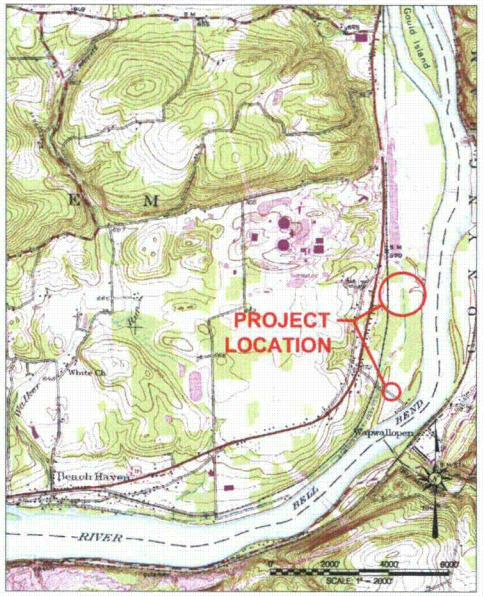
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603
PHONE: (570) 802-5636
FAX: (570) 802-5639



LOCATION MAP

1" = 2,000'

NOTES:

1. BACKGROUND TOPOGRAPHIC MAPPING WAS PRODUCED BY PETERS CONSULTANTS, INC. IN NOV. 2007, JAN. 2008 AND APRIL 2010. THE HORIZONTAL COORDINATE SYSTEM SHOWN ON THIS DRAWING IS PENNSYLVANIA'S STATE PLAN COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD 83). THE VERTICAL CONTOURS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
2. THE BBNPP PLOT PLAN IS FROM SARGENT & LUNDY, LLC., DRAWING SK-12198-400-001, REV. 4, REV. DATE 9-09-10.
3. THE WETLAND BOUNDARIES ARE FROM NORMANDEAU ASSOCIATES, INC. BELL BEND WETLANDS DELINEATION REPORT, REV. 3, JULY 2010.
4. EXISTING WEIR STRUCTURE DETAILS FROM KANDRA GREENLEAF HUTH, DRAWING E 187640, DATE AUGUST 1981.

PROJECT: MITIGATION PLAN - RIVERLANDS SITE
PROJECT #: E-720-L8 DATE: OCTOBER 29, 2010
COUNTY: LUZERNE COUNTY REVISION: 0 DATE: —

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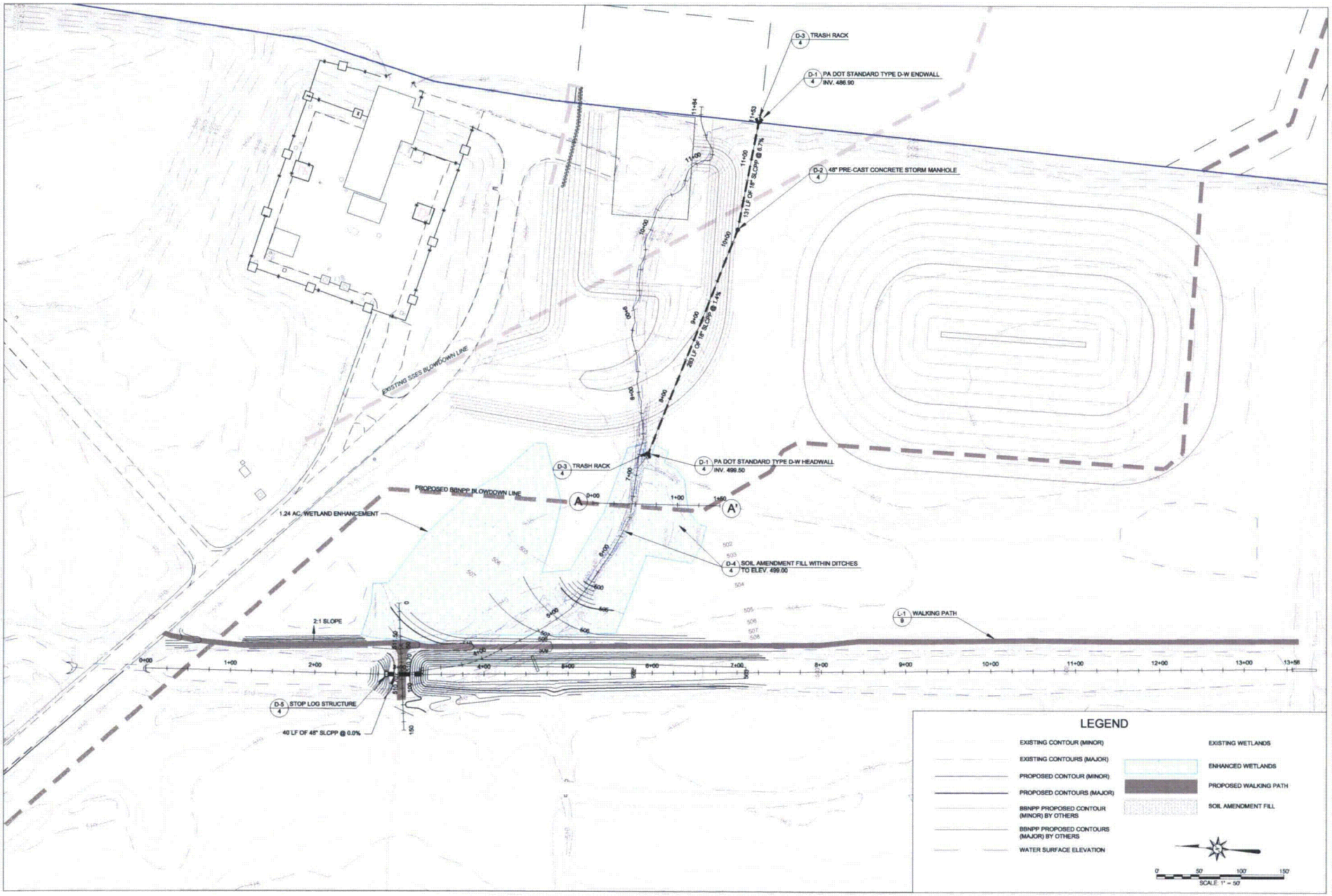

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PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOSTON AVENUE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
GRADING PLAN
WETLAND MITIGATION PLAN - RIVERLANDS SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
X	X	X

PROJECT NUMBER	E-726-L8
DRAWN BY	JS
CHECKED BY	BJE
DATE	OCTOBER 29, 2010
SCALE	1" = 50'
	GRADING PLAN
SHEET NUMBER	2 OF 9

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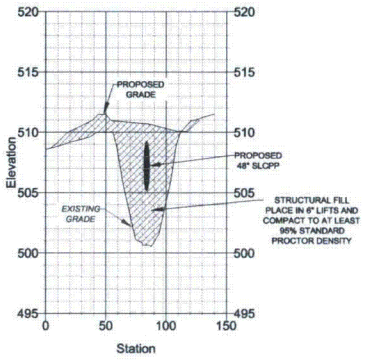
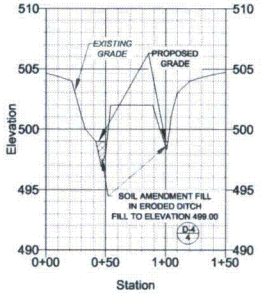
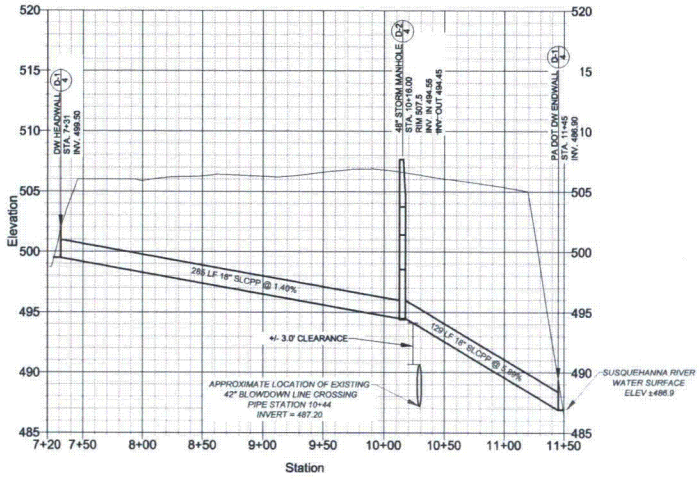
PROPOSED CANAL CROSSING CROSS SECTION



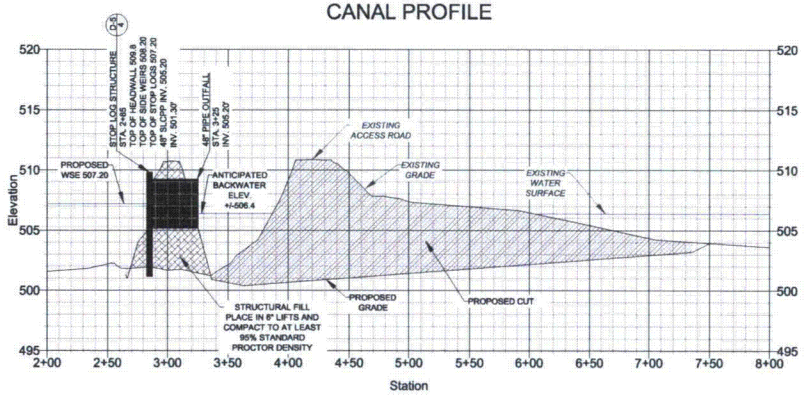
CROSS SECTION A - A'



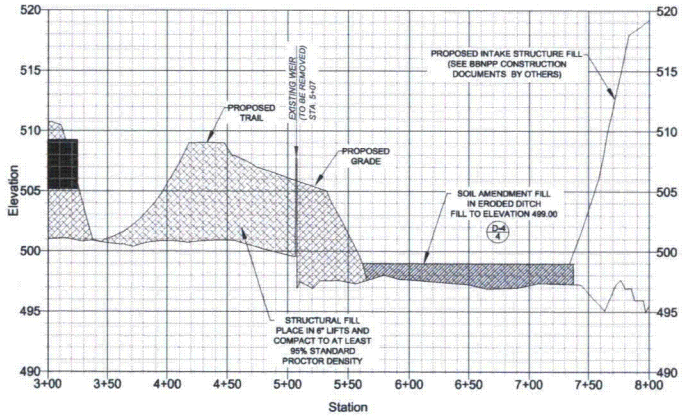
PIPE PROFILE



CANAL PROFILE



EXISTING CHANNEL PROFILE



HORIZONTAL SCALE: 1" = 50'

VERTICAL SCALE: 1" = 5'

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PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOWDOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
PROFILES AND CROSS SECTIONS
WETLAND MITIGATION PLAN - RIVERLANDS SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
X	X	X

PROJECT NUMBER: E-726-L8
DRAWN BY: JS
CHECKED BY: BJE
DATE: OCTOBER 29, 2010
SCALE: 1" = 50'
PROFILE SHEET
SHEET NUMBER: 3
OF 9

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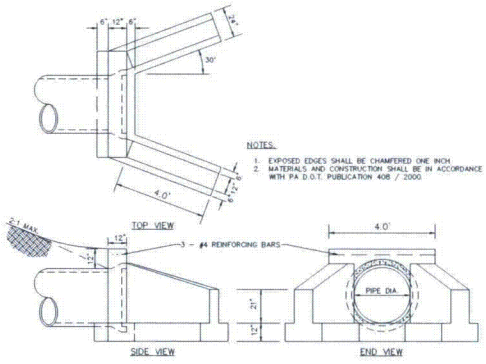
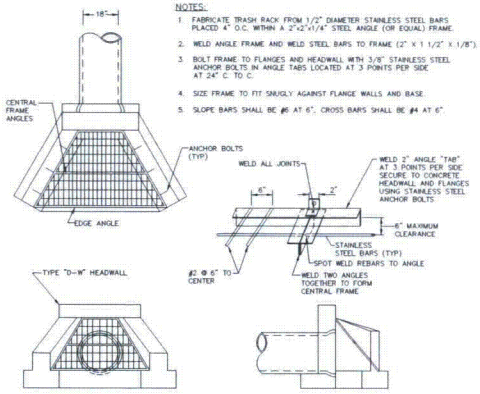


(PA D.O.T. RC-31)

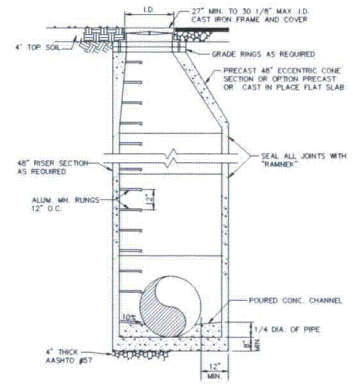
D-1 / 4 — STANDARD TYPE D-W ENDWALL

NTS



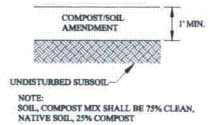
D-3 / 4 — TRASH RACK

NTS



D-2 / 4 — 48" PRE-CAST CONCRETE STORM MANHOLE

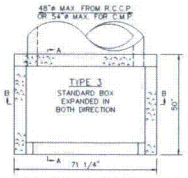
NTS



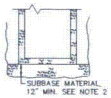
NOTE:
SOIL COMPOST MIX SHALL BE 75% CLEAN, NATIVE SOIL, 25% COMPOST

D-4 / 4 — SOIL AMENDMENT FILL

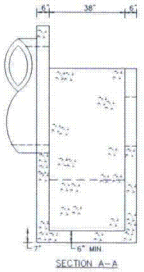
NTS



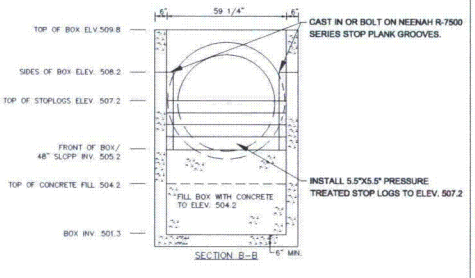
PRECAST CONCRETE INLET



DETAIL A
PRECAST CONCRETE INLET BOX BASE PREPARATION



SECTION A-A



SECTION B-B

NOTES:
1. CONSTRUCT INLET BOXES IN ACCORDANCE WITH THE REQUIREMENTS OF PUBLICATION 408, SECTION 713.2(d), FOR PRECAST CEMENT CONCRETE UNITS.
2. PLACE SUBBASE MATERIAL MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 350.2, IN 4 INCH LAYERS, COMPACTED TO A DENSITY SATISFACTORY TO THE ENGINEER AND INCIDENTAL TO THE INLET PAY ITEM.

D-5 / 4 — STOP LOG STRUCTURE
(MODIFIED PA DOT TYPE 3 BOX, RC-34)

NTS

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Land Studies

PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOWDOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
CONSTRUCTION DETAILS
WETLAND MITIGATION PLAN - RIVERLANDS SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
X	X	X

PROJECT NUMBER: E-726-L8
DRAWN BY: JS
CHECKED BY: BJE
DATE: OCTOBER 29, 2010
SCALE: AS NOTED
DETAIL SHEET
SHEET NUMBER: 4
OF 9

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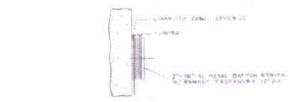
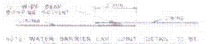
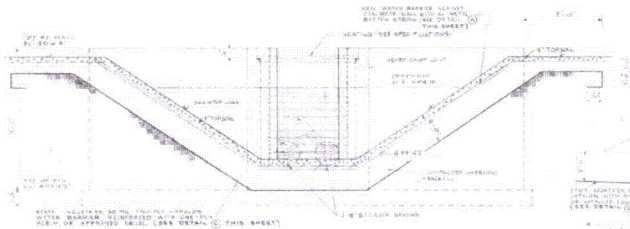


A WATER BARRIER ANCHOR TO CONCRETE STRUCTURES DETAIL

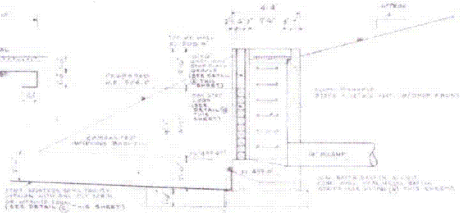
B POLYVINYL CHORIDE WATERSTOP DETAIL



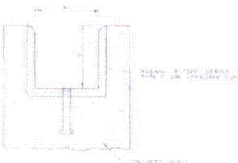
C TYPICAL WATER BARRIER EXP. JOINT DETAIL



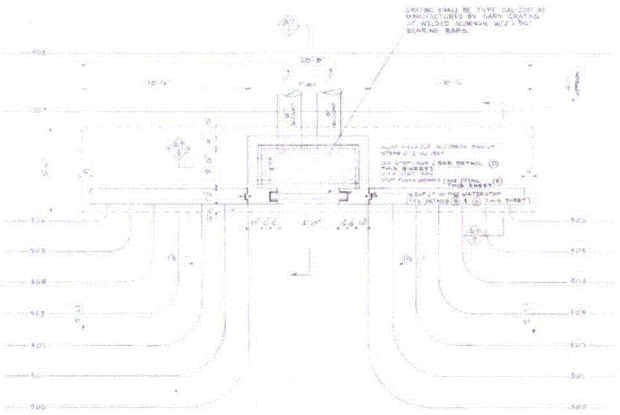
ELEVATION - FLOW STRUCTURE



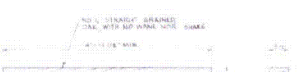
SECTION



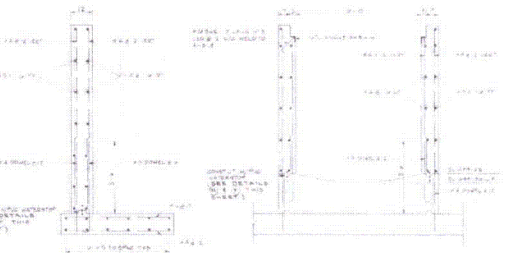
E CAST IRON STOP PLANK GROOVE DETAIL



PLAN - FLOW STRUCTURE



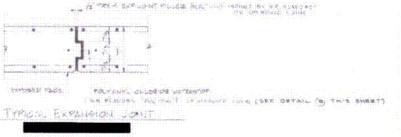
D DETAIL DOG STOP LEG



SECTION - WINGWALL

PIT SECTION

F TYPICAL CONSTRUCTION JOINT



G TYPICAL EXPANSION JOINT

NOTE:
THE EXISTING RIVERLANDS WETLAND WEIR STRUCTURE MUST BE REPAIRED TO THE ORIGINAL SPECIFICATIONS AS SHOWN IN THE DETAILS PROVIDED ON THIS SHEET. THE STOP LOGS MAY NEED TO BE ADJUSTED AFTER THE RECONNECTION OF THE CANAL TO MAINTAIN THE EXISTING WATER SURFACE ELEVATION IN THE RIVERLANDS WETLAND AREA.

DETAILS-FLOW STRUCTURE C — A-7

KANDRA GREENLEAF HUTH
A DIVISION OF HUTH ENGINEERING INC
KGH ARCHITECTS ENGINEERS PLANNERS
3440 HAMILTON BOULEVARD, ALLENTOWN, PENNSYLVANIA 18103

SUSQUEHANNA RIVERLANDS PHASE II
U.S. ROUTE #11 SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

PENNSYLVANIA POWER & LIGHT COMPANY
ALLENTOWN, PA.

E 137640

REFERENCE TITLE	NUMBER	REFERENCE TITLE	NUMBER	NO.	DATE	BY	REVISION	BY	CK.	APPROVED	NO.	DATE	BY	REVISION	BY	CK.	APPROVED

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PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOWDOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
RIVERLANDS WETLAND WEIR STRUCTURE
ORIGINAL CONSTRUCTION DETAILS
WETLAND MITIGATION PLAN - RIVERLANDS SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
X	X	X

PROJECT NUMBER: E-720-L8
DRAWN BY: JS
CHECKED BY: BJE
DATE: OCTOBER 29, 2010
SCALE: AS NOTED
DETAIL SHEET
SHEET NUMBER: 5 OF 9

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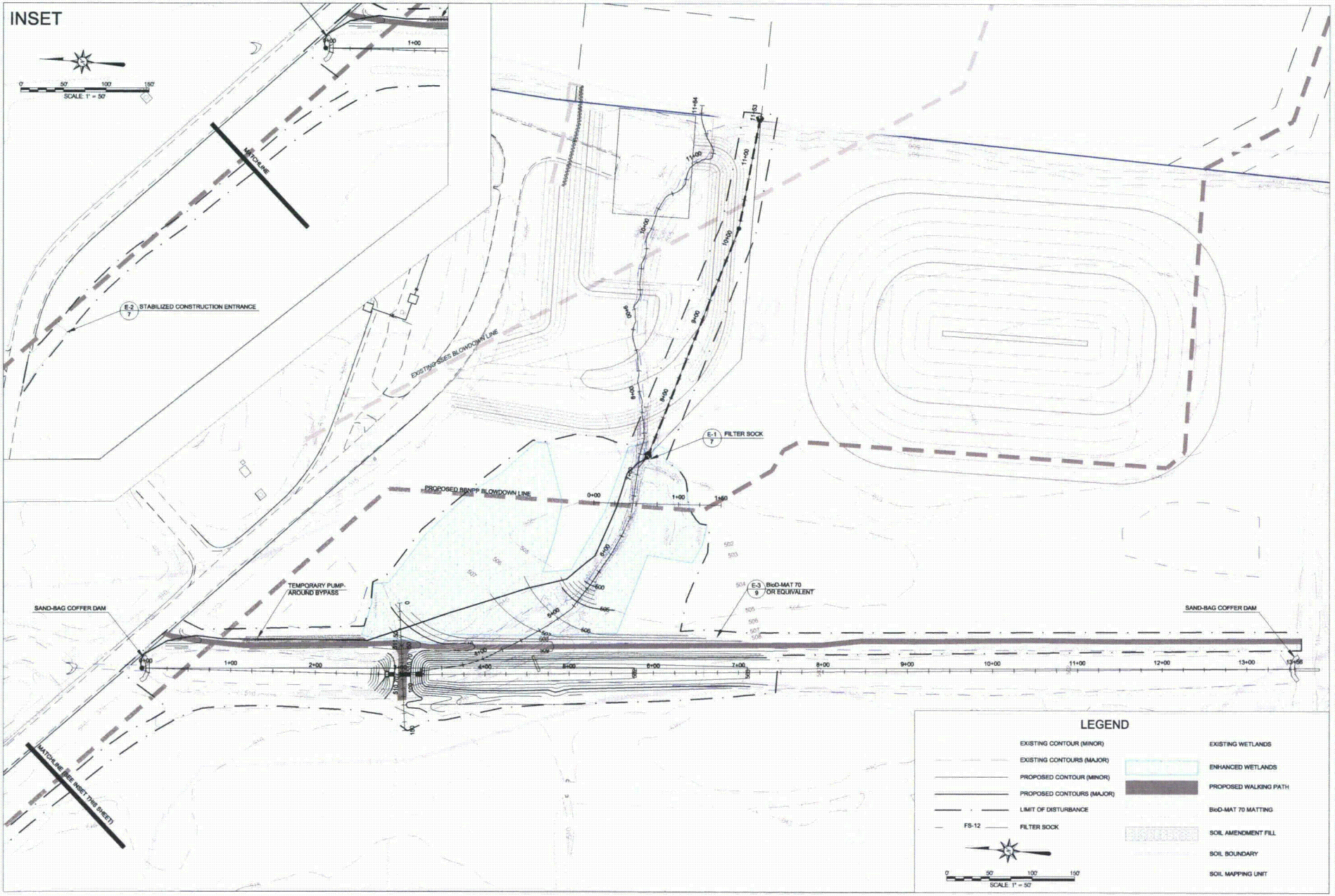

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Land Studies

PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
EROSION & SEDIMENT POLLUTION CONTROL PLAN
WETLAND MITIGATION PLAN - RIVERLANDS SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
X	X	X

PROJECT NUMBER:	E-726-L8
DRAWN BY:	JS
CHECKED BY:	BJE
DATE:	OCTOBER 29, 2010
SCALE:	########
	E&S PLAN
SHEET NUMBER:	6 OF 9

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EROSION AND SEDIMENTATION CONTROL NOTES

A. GENERAL EROSION AND SEDIMENTATION CONTROL GUIDELINES

CONTRACTORS RESPONSIBILITIES

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE LUZERNE COUNTY CONSERVATION DISTRICT (LCCD) 72 HOURS PRIOR TO CONSTRUCTION AND 72 HOURS PRIOR TO LEAVING THE SITE. ALSO, AT LEAST 3 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR BURIED UTILITIES LOCATIONS.
   LUZERNE COUNTY CONSERVATION DISTRICT
   485 SMITHS POND ROAD
   SHAVERTOWN, PA 18708
   (570) 674-7991
2. A COPY OF THIS E&SC PLAN SHALL BE KEPT AVAILABLE FOR INSPECTION ON THE CONSTRUCTION SITE AT ALL TIMES DURING EARTH MOVING ACTIVITY AND UNTIL THE SITE IS STABILIZED.
3. THE CONTRACTOR SHALL MINIMIZE MUD OR SEDIMENT-LADEN WATER EXISTING THE CONSTRUCTION SITE TO THE GREATEST EXTENT POSSIBLE. THE CONTRACTOR IS RESPONSIBLE FOR ANY AND AL DAMAGES TO DOWNSTREAM PROPERTIES AS A RESULT OF HIS FAILURE TO PREVENT SUCH DAMAGES.
4. THE INTENT OF THIS PLAN/NARRATIVE IS TO INDICATE GENERAL MEANS OF COMPLIANCE WITH THE REQUIREMENTS OF THE RULES AND REGULATIONS OF CHAPTER 102 OF THE PENNSYLVANIA CLEA STREAMS LAW. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO IMPLEMENT THES METHODS PLUS ADDITIONAL METHODS AS MAY BE NECESSARY BECAUSE OF THE CONDITIONS, AND OR CONSTRUCTION PROCEDURES IN ORDER TO ASSURE COMPLIANCE WITH APPLICABLE LAW. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL SEDIMENT AND EROSION CONTRO FACILITIES SO THAT THEY PERFORM AS REQUIRED BY LAW.
5. THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS OF THE APPENDIX 64, EROSION CONTROL RULES AND REGULATIONS, TITLE 25, PART 1, DEPARTMENT OF ENVIORNMENTAL PROTECTION, SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE III, WATER RESOURCES, CHAPTER 102, EROSION CONTROL.
6. BEFORE INITIATING ANY REVISIONS TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED E&S CONTROL PLAN, THE OPERATOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE LUZERNE COUNTY CONSERVATION DISTRICT.
7. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING A PREPAREDNESS, PREVENTION, AND CONTIGENCY (PPC) PLAN DESCRIBING ANY POTENTIAL HAZARDOUS MATERIALS THAT MAY BE STORED OR USED ON SITE AND EMERGENCY CLEAN-UP OR SPILL REMEDIATION PROCEDURES. THE PPC PLAN SHALL BE KEPT ON THE CONSTRUCTION SITE AT ALL TIMES.

B. GENERAL SEDIMENT AND EROSION CONTROL METHODS/PROCEDURES

1. ALL RELATED SEDIMENT AND EROSION CONTROL FACILITIES SHALL BE IN PLACE AND CAPABLE OF FUNCTIONING AS INTENDED PRIOR TO EARTH MOVING ACTIVITY WITHIN THEIR CONTRIBUTING WATERSHED AREAS. ALL SEDIMENT AND EROSION CONTROL FACILITIES SHALL REMAIN SO UNTIL UNIFORM OF THE UPLAND DRAINAGE AREA IS STABILIZED WITH PERMANENT GROUND COVER.
2. VEHICLES AND EQUIPMENT MAY NEITHER ENTER DIRECTLY TO NOR EXIT DIRECTLY FROM THE PROJECT SITE ONTO PA ROUTE 11.
3. REDUCE BY THE GREATEST EXTENT PRACTICABLE THE AREA AND DURATION OF EXPOSURE OF READILY ERODIBLE SOILS.
4. HEAVY EQUIPMENT WILL WORK FROM THE SIDE OF THE STREAM TO MINIMIZE THE POSSIBILITY OF PULLING SOIL INTO THE STREAM.
5. EXCAVATED MATERIAL (SPOIL) SHALL BE PLACED UP SLOPE FROM THE EXCAVATION WHENEVER POSSIBLE. RUNOFF FROM SPOIL PILES SHALL BE DIRECTED THROUGH A SEDIMENT FILTER STRUCTURE AND DISCHARGED IN A NON-EROSIVE MANNER.
6. EXISTING RIPARIAN VEGETATION WILL BE PROTECTED TO THE GREATEST EXTENT POSSIBLE.
7. UPON COMPLETION OF EARTH MOVING, DISTURBED AREAS SHALL BE IMMEDIATELY SEEDED, MULCHED, OR OTHERWISE PROTECTED FROM ACCELERATED EROSION AND SEDIMENTATION.
8. THE CONTRACTOR SHALL PROVIDE PROTECTION AGAINST DISCHARGE OF POLLUTANTS SUCH AS CHEMICALS, FUEL, LUBRICANTS, SEWAGE, ETC. INTO STREAMS OR STORM WATER FACILITIES.
9. CONSTRUCTION ACCESS INTO UNPAVED AREAS FROM PAVED AREAS OR STREETS (PUBLIC OR PRIVATE) SHALL BE VIA A STABILIZED CONSTRUCTION ENTRANCE.
10. SEDIMENT SPILLED, DROPPED OR TRACKED ONTO PAVED SURFACES SHALL BE REMOVED IMMEDIATELY.
11. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.
12. ALL PUMPING OF SEDIMENT LADEN WATER OR POTENTIALLY SEDIMENT LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP, SUCH AS A PUMPED WATER FILTER BAG DISCHARGING OVER UNDISTURBED AREAS.
13. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE, THE OPERATOR SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS. DISTURBED AREAS WHICH ARE AT FINISHED GRADE OR WHICH WILL NOT BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGATATIVE STABILIZATION SPECIFICATIONS.
14. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM OF 70% UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
15. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE BMPS MUST BE STABILIZED IMMEDIATELY.

PA1 SYSTEM, INC. 1-800-242-1776 SERIAL NUMBER: #XXXXXX608
CALL BEFORE YOU DIG! PENNSYLVANIA LAW REQUIRES (3) WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND (10) WORKING DAYS IN DESIGN STAGE - STOP CALL

C. MAINTENANCE OF SEDIMENT AND EROSION CONTROL FACILITIES

1. UNTIL THE SITE ACHIEVES FINAL STABILIZATION, THE OPERATOR SHALL ASSURE THAT THE BEST MANAGEMENT PRACTICES ARE IMPLEMENTED, OPERATED, AND MAINTAINED PROPERLY AND COMPLETELY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL BEST MANAGEMENT PRACTICE FACILITIES. THE OPERATOR WILL MAINTAIN AND MAKE AVAILABLE TO LUZERNE COUNTY CONSERVATION DISTRICT COMPLETE, WRITTEN INSPECTION LOGS OF ALL THOSE INSPECTIONS, ALL MAINTENANCE WORK, INCLUDING CLEANING, REPAIR, REPLACEMENT, REGRADING AND RESTABILIZATION SHALL BE PERFORMED IMMEDIATELY.
2. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS MUST BE MAITAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROL BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, RE-GRADING, RE-SEEDING, RE-MULCHING, AND RE-NETTING, MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
3. ALL SEDIMENT AND EROSION CONTROL FACILITIES MUST BE MAINTAINED IN OPERATING CONDITION UNTIL UPSTREAM AREAS ARE OF UNIFORM 70% STABILIZED WITH UNIFORM PERENNIAL VEGETATIVE COVER.
4. SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.
5. ALL NON-USABLE MATERIAL AND DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LEGAL MANNER IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.
6. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.

D. RECYCLING AND DISPOSAL OF WASTE MATERIALS

1. THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 287.1 ET SEQ. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THE SITE.
2. THE OPERATOR SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE LUZERNE COUNTY CONSERVATION DISTRICT, AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL AND/OR ROCK SPOIL AND BORROW AREAS, REGARDLESS OF THEIR LOCATIONS.
3. DISPOSE OF EXCAVATED MATERIAL FROM STREAM AND FLOODPLAIN RESTORATION AT STOCKPILE AT THE PROPOSED LOCATION.
4. RE-USE OR RECYCLE SANDBAGS, CULVERTS, AND FLEXIBLE PIPE.
5. PROPERLY DISPOSE OF SEDIMENT FILTER BAGS, SILT FENCE, STAKES, AND FILTER SOCK MATERIAL.
6. DISPERSE COMPOST MATERIAL FROM FILTER SOCKS ON SITE, AS DIRECTED.

E. RESTORATION OF PLANTING AREAS

1. FINAL RESTORATION SHALL BE PERFORMED NO LATER THAN THE START OF THE NEXT PLANTING SEASON FOLLOWING CONSTRUCTION. THE PLANTING SEASON SHALL BE AS ESTABLISHED BY THE U.S. AGRICULTURAL SERVICE FOR THE AREA OF CONSTRUCTION.
2. TOPSOIL SHALL BE FREE FROM SUBSOIL, BRUSH, WEEDS, OR OTHER LITTER, CLAY LUMPS AND STONES, BUT MAY CONTAIN DECAYING VEGETABLE MATTER AS IS PRESENT IN GOOD TOPSOIL.
3. TOPSOIL SHALL BE IMPORTED FROM OFF-SITE IF NECESSARY AS DETERMINED BY PROJECT DESIGNER.
4. PRECAUTIONS SHALL BE EXERCISED AS NECESSARY TO CONFORM WITH LAWS RELATING TO EROSION AND SEDIMENT CONTROL.
5. SEED SHALL NOT HAVE LESS THAN 90% GERMINATION. GERMINATION TESTS OF SEEDS SHALL BE MADE NOT MORE THAN SIX (6) MONTHS PRIOR TO SEEDING. SEED WHICH HAS BECOME WET, MOLDY, OR OTHERWISE DAMAGED SHALL NOT BE USED.
6. THE CONTRACTOR SHALL BE RESPONSIBLE TO PRODUCE A STAND OF GRASS IN ALL SEEDED OR SODDED AREAS. EROSION, DROUGHT, OR ANY OTHER CONDITION ENCOUNTERED SHALL NOT RELIEVE THE CONTRACTOR OF THIS REQUIREMENT.

F. SITE STABILIZATION

1. ALL DISTURBED AREAS WITHIN THE ENHANCED WETLAND AREA WILL BE SEEDED WITH THE PROPOSED CONSERVATION SEED MIX (SEE SEEDING RESTORATION TABLE) WITHIN 48 HOURS OF COMPLETING EARTH MOVING ACTIVITIES OR BY THE END OF A WORK DAY IF A PRECIPITATION EVENT IS FORECASTED.
2. ALL DISTURBED UPLAND AREAS WILL BE SEEDED WITH THE PROPOSED STABILIZATION SEED MIX AND MULCHED UPON THE COMPLETION OF EARTH MOVING ACTIVITIES.
3. MULCH AND STRAW WILL BE SPREAD AT 3 TONS/ACRE. STRAW MULCH SHALL BE APPLIED IN LONG STRANDS, NOT CHOPPED OR FINELY BROKEN.
4. MULCH WITH MULCH CONTROL NETTING OR EROSION CONTROL BLANKETS MUST BE INSTALLED ON ALL SLOPES 3:1 AND STEEPER.

CONSTRUCTION SEQUENCE:

CONSTRUCTION NOTES:

- AT LEAST 7 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES THE OPERATOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES INCLUDING BUT NOT LIMITED TO: THE LANDOWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, THE EROSION AND SEDIMENT CONTROL PLAN PREPARER, AND A REPRESENTATIVE FROM THE LUZERNE COUNTY CONSERVATION DISTRICT FOR AN ON-SITE PRE-CONSTRUCTION MEETING. ALSO, AT LEAST 3 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR BURIED UTILITIES LOCATIONS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE LUZERNE COUNTY CONSERVATION DISTRICT 72 HOURS PRIOR TO CONSTRUCTION AND 72 HOURS PRIOR TO LEAVING THE SITE.
- EXCESS CLEAN EXCAVATED MATERIAL SHALL BE HAULED FROM THE SITE IMMEDIATELY AND DISPOSED OF WITHIN THE BBNPP PROJECT AREA.
- IF WATER NEEDS TO BE PUMPED FROM THE EXCAVATED AREA, IT SHALL BE PUMPED THROUGH A PUMPED WATER FILTER BAG DISCHARGING OVER NON-DISTURBED AREAS
- 8" OF TOPSOIL SHALL BE SPREAD THROUGHOUT THE DISTURBED AREA TO ACHIEVE FINAL GRADE AND PROVIDE A SUITABLE PLANTING MEDIA.
- AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENT.
- ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE.

CONSTRUCTION STAGES:

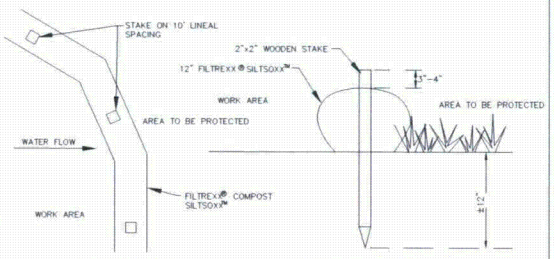
THE INSTALLATION OF THE PIPE, MANHOLE, INLET AND OUTFALL STRUCTURES MAY TAKE PLACE AT ANY TIME DURING THE CONSTRUCTION OF THE RIVERLANDS MITIGATION PROJECT, HOWEVER THE INSTALLATION OF THE PIPE AND DRAINAGE NETWORK MUST BE COMPLETE AND FUNCTIONING PRIOR TO THE FILLING OF THE TRIBUTARY FROM STATION 7+25 TO 11+50 FOR THE CONSTRUCTION OF THE PROPOSED INTAKE STRUCTURE. THE CONSTRUCTION OF THE DRAINAGE NETWORK MUST BEGIN WITH THE OUTFALL STRUCTURE AT THE RIVER, WORKING UPHILL TO THE MANHOLE AND THE INLET STRUCTURE AT PIPE STATION 7+25.

THE REPAIR AND MAINTAINENCE OF THE RIVERLANDS WETLAND CONTROL STRUCTURE MAY BE CONDUCTED AT ANY TIME AS THE PROCEDURE IS UNAFFECTED BY THE FOLLOWING SEQUENCE. SEE SHEET 5 FOR THE ORIGINAL CONSTRUCTION DETAILS.

1. LIMIT OF DISTURBANCE SHALL BE STAKED OUT IN THE FIELD.
2. INSTALL ORANGE CONSTRUCTION FENCE WHERE LOD IS ADJACENT TO EXISTING WETLANDS TO PREVENT ADDITIONAL DISTURBANCE TO THESE WETLANDS.
3. INSTALL STABILIZED CONSTRUCTION ENTRANCE
4. INSTALL FABRIC FILTER SOCK AS SHOWN ON THE PLAN
5. PERFORM NECESSARY CLEARING AND GRUBBING WITHIN PROPOSED LIMIT OF DISTURBANCE.
6. INSTALL SANDBAGS IN UPSTREAM AND DOWNSTREAM CULVERTS, AS SHOWN ON THE PLAN, AND SET UP PUMP AROUND. INSTALL PUMPS TO DE-WATER CANAL RECONNECTION AREA. CARE MUST BE EXERCISED TO PREVENT THE DISTURBANCE AND PUMPING OF SEDIMENT. FILTER BAGS MUST BE USED UNLESS PUMPING CLEAR WATER (SEE DETAIL E-4 ON SHEET 9 FOR FILTER BAG INSTALLATION).
7. BEGIN GRADING AT CANAL STATION 7+50 AND WORK UPSTREAM TO STATION 4+50.
8. REMOVE EXISTING WEIR (STATION 5+00) AND BACKFILL EXISTING CHANNEL WITH STRUCTURAL FILL. MATERIAL PLACED TO FILL THE EXISTING DIVERTED CANAL AND FORM THE RESTORED CANAL EMBANKMENT SHALL BE PLACED IN 6" LIFTS AND COMPACTED TO AT LEAST 95% STANDARD PROCTOR DENSITY. BLEND GRADING SURROUNDING EXISTING WEIR AND TIE INTO EXISTING CONTOURS. A MINIMUM OF 8" OF TOPSOIL MUST BE SPREAD ON ALL FILL LOCATIONS, WITH THE EXCEPTION OF THE PROPOSED PATHS, TO OBTAIN FINAL GRADE.
9. FILL TOW PATH (STATIONS 0+00 TO 2+50) AND CONSTRUCT WALKING PATH (SEE DETAIL L-1 ON SHEET 9).
10. FILL ENTRENCHED STREAM CHANNEL TO AN ELEVATION OF 499.00 WORKING FROM THE UPSTREAM FORKED REACH DOWNSTREAM TO THE PROPOSED INLET STRUCTURE AT PIPE STATION 7+25. USE SMALL TRACKED EQUIPMENT TO AVOID COMPACTING THE SOILS (BOTH NATIVE AND FILLED MATERIAL). ADD AMENDED TOPSOIL FROM THE PROPOSED INLET STRUCTURE PAD FILL (PIPE STATION 7+25) UPSTREAM TO THE LOCATION OF THE PROPOSED WEIR REMOVAL (STATION 5+00).
11. EXCAVATE CROSSING TO SOLID BASE MATERIAL AND FILL WITH STRUCTURAL FILL MATERIAL. INSTALL BASE FOR STOP LOG STRUCTURE ACCORDING TO DETAIL D-5 ON SHEET 4. INSTALL STOP LOG STRUCTURE AND PIPE.
12. REMOVE EXISTING CANAL DIVERSION EMBANKMENT (CANAL STATION 4+50 TO 3+50) AND RECONSTRUCT CANAL BERM AS SHOWN ON THE GRADING PLAN AND PROFILES. MATERIAL PLACED TO FILL THE EXISTING DIVERTED CANAL AND FORM THE RESTORED CANAL EMBANKMENT SHALL BE PLACED IN 6" LIFTS AND COMPACTED TO AT LEAST 95% STANDARD PROCTOR DENSITY.
13. SET GRADE CONTROL STRUCTURE STOP LOGS TO AN ELEVATION OF 507.20' AND REMOVE COFFER DAMS AND PUMPS.
14. SEED AND STABILIZE ALL DISTURBED AREAS WITH APPROPRIATE SEED MIX PER THE SEEDING RESTORATION TABLE AND THE LANDSCAPE PLAN. EROSION CONTROL MATTING (BioD-MAT 70 OR EQUIVALENT) MUST BE INSTALLED IN AREAS INDICATED ON THE E&S PLAN SHEET
15. REMOVE INVASIVE SPECIES PRIOR TO PLANTING.
16. INSTALL PROPOSED RIPARIAN VEGETATION AS INDICATED ON LANDSCAPING PLAN.
17. REMOVE STABILIZED CONSTRUCTION ENTRANCE.
18. REMOVE FABRIC FILTER SOCK AFTER ALL UPSLOPE DISTURBED AREAS HAVE ACHIEVED A MINIMUM OF 70% VEGETATIVE COVER. STABILIZE ANY AREAS DISTURBED WHILE REMOVING THESE BMPS WITH THE PROPOSED STABILIZATION SEED MIX AND MULCH.

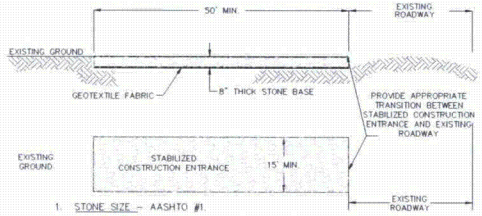
SOIL DESCRIPTIONS

SYMBOL	NAME	DESCRIPTION	HYDRIC
Ho	HOLLY SILT LOAM	DEEP, VERY POORLY AND POORLY DRAINED SOILS FORMED IN THE LOAMY ALLUVIUM ON FLOODPLAINS. PERMEABILITY IS MODERATE OR MODERATELY SLOW. THE SEASONAL HIGH WATER TABLE IS WITHIN A DEPTH OF 6 INCHES OF THE SOIL SURFACE	YES
Ps	POPE SOILS	DEEP, WELL-DRAINED, NEARLY LEVEL TO GENTLY SLOPING SOILS ON HIGH BOTTOM FLOODPLAINS FORMED IN MIXED ALLUVIAL MATERIAL DEPOSITED BY RIVERS AND STREAMS. SURFACE LAYER IS TYPICALLY DARK GRAYISH BROWN SILT LOAM ABOUT 10 INCHES THICK. SUBSOIL IS BROWN AND DARK BROWN SILT LOAM ABOUT 32 INCHES THICK. MODERATE TO MODERATELY RAPID PERMEABILITY. HIGH TO MODERATE AVAILABLE WATER CAPACITY. SUBJECT TO OCCASIONAL FLOODING. SOIL IS SUITED TO MOST CROPS COMMONLY GROWN IN THE COUNTY.	INCLUSIONS OF HYDRIC COMPONENTS (HOLLY, WAYLAND)



NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILTSOXX™ COMPOST/JSOIL/ROCK/SEED FILL TO MEET APPLICATION REQUIREMENTS.
3. SILTSOXX™ DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER.
4. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
5. LOCAL FILTREXX CONTACT: KEYL GROFF AT GARDENIQUE (610-972-9018).

E-1 / 7 FILTER SOCK (FILTREXX)
NTS



1. STONE SIZE – AASHTO #1.
2. LENGTH – AS REQUIRED TO BE EFFECTIVE, BUT NOT LESS THAN 50'.
3. THICKNESS – NOT LESS THAN 8".
4. WIDTH – FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS, BUT NOT LESS THAN 20'.
5. WASHING – WHEELS SHALL BE CLEAN PRIOR TO ENTRANCE ONTO EXISTING ROADWAY. WHEN WASHING IS REQUIRED IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATERCOURSE THROUGH USE OF SAND BAGS, GRAVEL, BOARDS, OR OTHER APPROVED METHODS.
6. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO EXISTING ROADWAY, THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO EXISTING ROADWAYS MUST BE REMOVED IMMEDIATELY. CONSTRUCTION ENTRANCE MUST BE INSPECTED DAILY.

E-2 / 7 STABILIZED CONSTRUCTION ENTRANCE
NTS

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land@landstudies.com
315 North Street | Lititz, PA 17543

PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
EROSION & SEDIMENT POLLUTION CONTROL NARRATIVE AND DETAILS
WETLAND MITIGATION PLAN - RIVERLANDS SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
X	X	X

PROJECT NUMBER: E-726-L8
DRAWN BY: JS
CHECKED BY: BJE
DATE: OCTOBER 29, 2010
SCALE: AS NOTED
E&S DETAILS
SHEET NUMBER: 7 OF 9

10/29/2010 11:55:55 AM, DRAFT

Trees

Key	%	Botanical Name	Common Name	Size	Qty.	Spacing	I.S.	Notes
AR	20.00%	Acer rubrum	Red Maple	#15	13		FAC	
CO	10.00%	Carya ovata	Shagbark Hickory	#15	7		FACU	Upland areas only
NS	15.00%	Nyssa sylvatica	Black Gum	#15	10		FACW	Do not plant in areas with frequent standing water
PO	10.00%	Platanus occidentalis	American Sycamore	#15	7		FACW	
QB	15.00%	Quercus bicolor	Swamp White Oak	#15	10		FACW	
QP	30.00%	Quercus palustris	Pin Oak	#15	20		FACW	
	100.00%				65			

Shrubs

Key	%	Botanical Name	Common Name	Size	Qty.	Spacing	I.S.	Notes
AA	10.00%	*Aronia arbutifolia*	Red Chockeberry	#5	21	4-6'	FACW	
IV	15.00%	*Ilex verticillata*	Winterberry	#5	32	4-6'	FACW	1 male for every 8 females
LB	30.00%	*Lindera benzoin*	Spicebush	#5	64	4-6'	FACW	
VC	25.00%	*Vaccinium corymbosum*	Highbush Blueberry	#5	54	4-6'	FACW	
VD	10.00%	*Viburnum dentatum*	Arrowwood	#5	21	4-6'	FAC	
VT	10.00%	Viburnum trilobum	Cranberry Bush	#5	21	4-6'	FACW	
	100.00%				214			

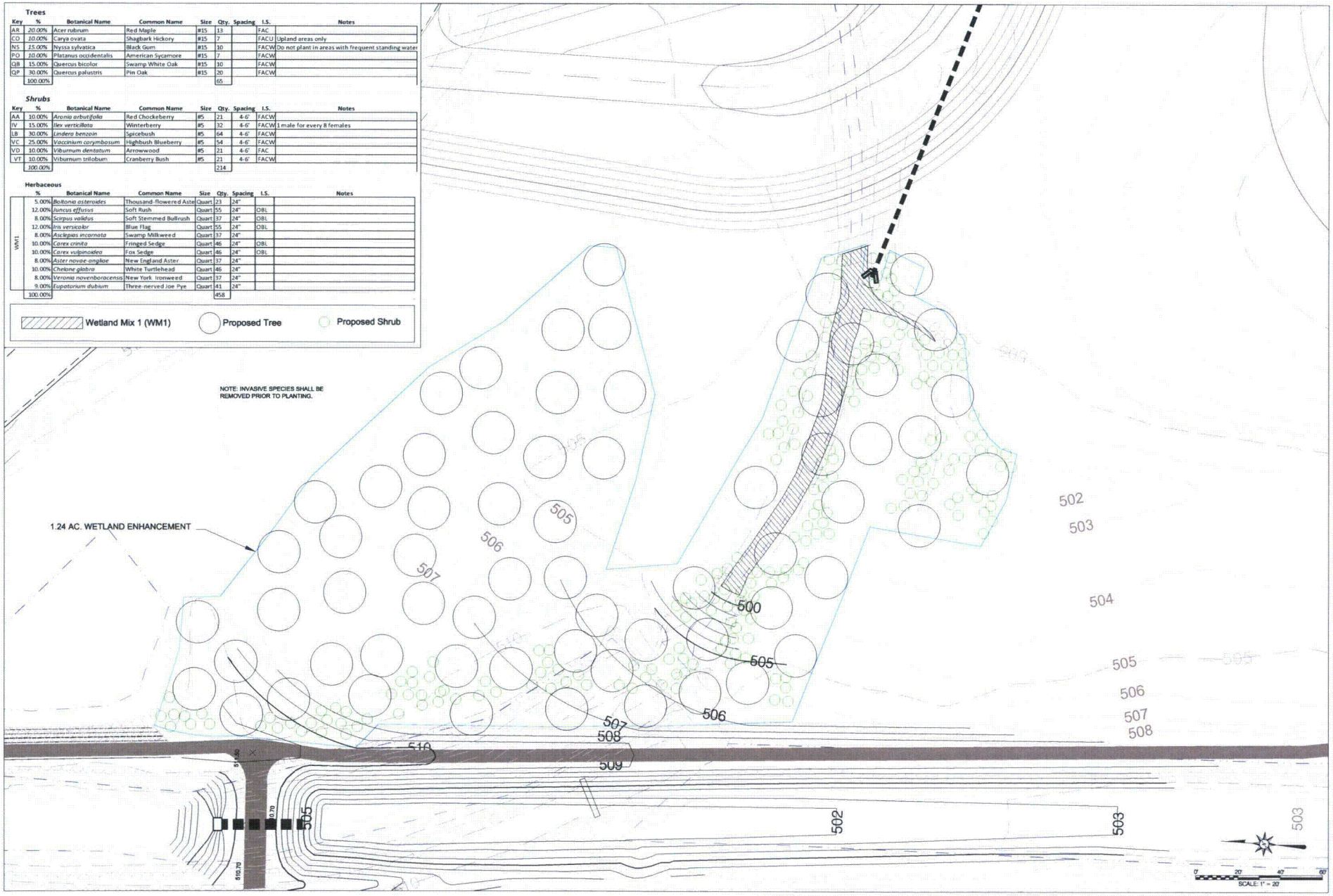
Herbaceous

	%	Botanical Name	Common Name	Size	Qty.	Spacing	I.S.	Notes
WM1	5.00%	*Boltonia asteroides*	Thousand-flowered Aste	Quart	23	24"		
	12.00%	*Juncus effusus*	Soft Rush	Quart	55	24"	OBL	
	8.00%	*Scirpus validus*	Soft Stemmed Bullrush	Quart	37	24"	OBL	
	12.00%	*Iris versicolor*	Blue Flag	Quart	55	24"	OBL	
	8.00%	*Asclepias incarnata*	Swamp Milkweed	Quart	37	24"		
	10.00%	*Carex crinita*	Fringed Sedge	Quart	46	24"	OBL	
	10.00%	*Carex vulpinoidea*	Fox Sedge	Quart	46	24"	OBL	
	8.00%	*Aster novae-angliae*	New England Aster	Quart	37	24"		
	10.00%	*Chelone glabra*	White Turtlehead	Quart	46	24"		
	8.00%	*Veronia novenboracensis*	New York Ironweed	Quart	37	24"		
	9.00%	*Eupatorium dubium*	Three-nerved Joe Pye	Quart	41	24"		
	100.00%				458			

Wetland Mix 1 (WM1) Proposed Tree Proposed Shrub

NOTE: INVASIVE SPECIES SHALL BE REMOVED PRIOR TO PLANTING.

1.24 AC. WETLAND ENHANCEMENT



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PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
LANDSCAPING PLAN
WETLAND MITIGATION PLAN - RIVERLANDS SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
X	X	X

PROJECT NUMBER: E-728-L8
DRAWN BY: AK
CHECKED BY: BJE
DATE: OCTOBER 29, 2010
SCALE: 1" = 20'
LANDSCAPING PLAN
SHEET NUMBER: 8 OF 9

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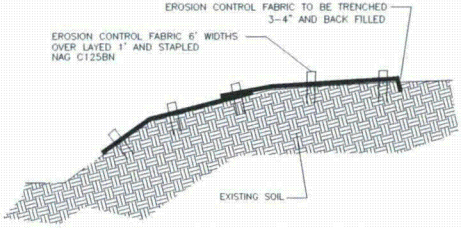


BioD-MAT 70 SPECIFICATIONS:

ROLL SIZE	6.56' x 166'
AREA	120 SY
WEIGHT	23 OZ
MATRIX	WOVEN BRISTLE COIR

E-3 / 9 — **BioD-MAT 70 MATTING**
NTS

SEEDING RESTORATION TABLE

LOCATION	TOPSOIL	STARTER FERTILIZER	LIME	SEED MIX
WETLAND	YES	N/A	N/A	FLOODPLAIN SEED MIX APPLICATION RATE: 15-20 LBS/ACRE
UPLAND	YES	N/A	N/A	CONSERVATION SEED MIX APPLICATION RATE: 15-20 LBS/ACRE
OTHER DISTURBED AREAS	NO	N/A	N/A	TEMPORARY STABILIZATION SEED MIX SEE SEED MIX FOR SEEDING

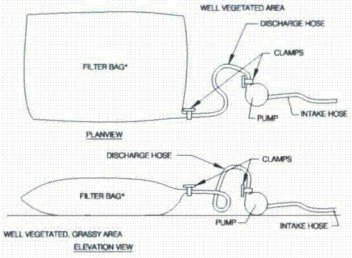
DUE TO SOIL LIMITATIONS NEITHER FERTILIZER NOR LIME WILL BE APPLIED TO THE GRADED WETLAND. IT IS ANTICIPATED THAT THE SPREADING OF TOPSOIL AND THE CLOSE PROXIMITY TO EXISTING WATER TABLE WILL PROMOTE RAPID GERMINATION OF PROPOSED SEED.

Temporary Stabilization Seed Mix

%	Botanical Name	Common Name	Seeding Window	Application Rate
100	*Secale cereale*	Cereal Rye	Sep. 1 - Oct. 16	30 lbs/acre
100	*Avena sativa*	Oats	May. 1 - Sept. 15	30 lbs/acre

%	Botanical Name	Common Name	I.S.
10	*Elymus virginicus, PA*	Virginia Wild Rye, PA Ecotype	FACW
10	*Panicum ridgulum, PA*	Redtop Panic Grass, PA Ecotype	FACW+
8	*Elymus canadensis, PA*	Canada Wild Rye, PA Ecotype	FACU
5	*Carex vulpinoidea, PA Ecotype*	Fox Sedge, PA Ecotype	OBL
5	*Panicum clandestinum*	Deer Tongue 'Tioga', PA Ecotype	FAC+
5	*Elymus riparius, PA*	Riverbank Wild Rye, PA Ecotype	FACW
5	*Agrostis perennans, APB*	Autumn Bentgrass, APB	FACU
5	*Agrostis scabra, PA*	Ticklegrass, PA Ecotype (rough bentgrass	FAC
5	*Carex scoparia*	Blunt Broom Sedge	FACW
5	*Festuca rubra*	Creeping Red Fescue	FACU
4	*Carex comosa*	Bristly Sedge	OBL
4	*Chasmanthium latifolium, PA*	River Oats, PA Ecotype	FACU
3	*Carex stipata*	Awl Sedge	OBL
3	*Elymus hystrix, PA*	Bottlebrush Grass, PA Ecotype	NI
3	*Juncus effusus, PA*	Soft Rush, PA Ecotype	FACW+
2	*Asclepias incarnata*	Swamp Milkweed	OBL
2	*Bidens aristosa*	Bur Marigold, 'Suther' NC Ecotype	FACW-
2	*Carex lurida*	Lurid Sedge	OBL
2	*Juncus tenuis*	Path Rush	FAC-
2	*Poa palustris*	Fowl Bluegrass	FACW
1	*Aster prenanthoides*	Zigzag Aster	FAC
1	*Aster laevis*	Smooth Blue Aster	NI
1	*Aster novae-angliae*	New England Aster	FACW-
1	*Carex crinta*	Fringed Sedge	OBL
1	*Iris versicolor*	Blue Flag Iris	OBL
1	*Lobelia cardinalis*	Cardinal Flower	FACW+
1	*Lobelia siphilitica*	Great Blue Lobelia	FACW+
1	*Scirpus validus*	Soft-stem Bulrush	OBL
1	*Solidago riddellii*	Riddell's Goldenrod	OBL
1	*Solidago rugosa*	Wrinkle Leaf Goldenrod	FAC
100		***Application Rate: 15-20 lbs/acre***	

%	Botanical Name	Common Name	I.S.
15	*Schizachyrium scoparium, PA*	Little Bluestem, PA	FACU-
10	*Elymus virginicus, PA*	Virginia Wild Rye, PA Ecotype	FACW
8	*Panicum ridgulum, PA*	Redtop Panic Grass, PA Ecotype	FACW+
5	*Agrostis perennans, APB*	Autumn Bentgrass, APB	FACU
5	*Agrostis scabra, PA*	Ticklegrass, PA Ecotype (rough bentgrass	FAC
5	*Carex scoparia*	Blunt Broom Sedge	FACW
5	*Elymus canadensis, PA*	Canada Wild Rye, PA Ecotype	FACU
5	*Festuca rubra*	Creeping Red Fescue	FACU
5	*Panicum clandestinum*	Deer Tongue 'Tioga', PA Ecotype	FAC+
4	*Chasmanthium latifolium, PA*	River Oats, PA Ecotype	FACU
4	*Eupatorium perfoliatum*	Boneset	FACW+
3	*Carex vulpinoidea, PA Ecotype*	Fox Sedge, PA Ecotype	OBL
3	*Elymus hystrix, PA*	Bottlebrush Grass, PA Ecotype	NI
3	*Elymus riparius, PA*	Riverbank Wild Rye, PA Ecotype	FACW
3	*Juncus effusus, PA*	Soft Rush, PA Ecotype	FACW+
2	*Asclepias incarnata*	Swamp Milkweed	OBL
2	*Asclepias tuberosa*	Butterfly Milkweed	NI
2	*Helopsis helianthoides*	Ox Eye Sunflower	NI
2	*Juncus tenuis*	Path Rush	FAC-
2	*Poa palustris*	Fowl Bluegrass	FACW
2	*Vernonia noveboracensis*	New York Ironweed	FACW+
1	*Aster novae-angliae*	New England Aster	FACW-
1	*Aster prenanthoides*	Zigzag Aster	FAC
1	*Bidens aristosa*	Bur Marigold, 'Suther' NC Ecotype	FACW-
1	*Onoclea sensibilis*	Sensitive Fern	FACW
1	*Solidago rugosa*	Wrinkle Leaf Goldenrod	FAC
100		***Application Rate: 15-20 lbs/acre***	



Filter bags shall be made from non-woven geotextile material sewn with high strength, double stitched "J" type seams. They shall be capable of trapping particles larger than 150 microns.

A suitable means of accessing the bag with machinery required for disposal purposes must be provided. Filter bags shall be replaced when they become ½ full. Spare bags shall be kept available for replacement of those that have failed or are filled.

Bags shall be located in well-vegetated (grassy) area, and discharge onto stable, erosion resistant areas. Where this is not possible, a geotextile flow path shall be provided. Bags shall not be placed on slopes greater than 5%.

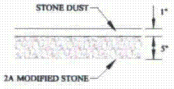
The pump discharge hose shall be inserted into the bags in a manner specified by the manufacturer and securely clamped.

The pumping rate shall be no greater than 750 gpm or ½ the maximum specified by the manufacturer, whichever is less. Pump intakes should be floating and screened.

Filter bags may be used to filter water pumped from disturbed areas prior to discharging to water of the Commonwealth. They may also be used to filter water pumped from the sediment storage areas of sediment basins.

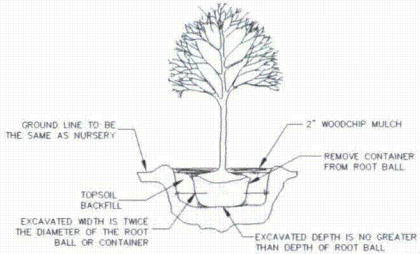
The pumping rate should be specified on the plan drawings next to the typical detail. Pumping rates will vary depending on the size of the filter bag, and the type and amount of sediment discharged to the bag.

E-4 / 9 — **PUMPED WATER FILTER BAG**
NTS

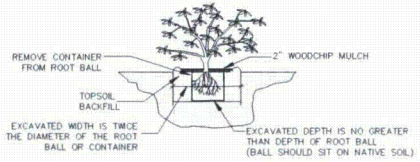


NOTE:
WALKING PATH SHALL BE A MINIMUM OF 5' WIDE ALONG THE TOW PATH, MINIMUM OF 10' WIDE OVER THE CANAL.

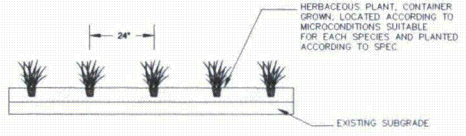
L-1 / 9 — **WALKING PATH**
NTS



L-3 / 9 — **TREE PLANTING DETAIL**
NTS



L-2 / 9 — **TYPICAL SHRUB PLANTING - CONTAINER**
NTS



L-4 / 9 — **HERBACEOUS QUART PLANTING DETAIL**
NTS

PLANT SPECIFICATIONS...

1. ALL PLANTS SHALL BE NURSERY GROWN IN A CLIMATE SIMILAR TO THAT OF THE LOCALITY OF THE PROJECT.
2. SET PLANTS AT SAME FINISHED GRADE AS GROWN IN THE NURSERY.
3. ALL PLANTS SHALL HAVE A NORMAL HABIT OF GROWTH AND SHALL BE SOUND, HEALTHY AND VIGOROUS. THEY SHALL BE FREE FROM DISEASE, INSECTS, INSECT EGGS, AND LARVAE.
4. ALL PLANTING SHALL BE PERFORMED IN CONFORMANCE WITH GOOD NURSERY AND LANDSCAPE PRACTICE.

PA 042324
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PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOWDOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
LANDSCAPING DETAILS
WETLAND MITIGATION PLAN - RIVERLANDS SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

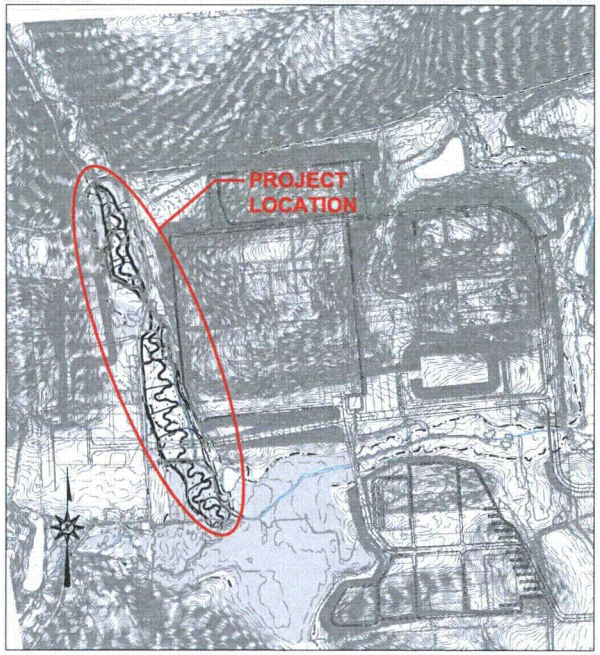
REVISIONS		
NO.	DATE	DESCRIPTION
X	X	X

PROJECT NUMBER: E-726-L8
DRAWN BY: JS
CHECKED BY: BJE
DATE: OCTOBER 29, 2010
SCALE: AS NOTED
LANDSCAPING DETAIL
SHEET NUMBER: 9
OF 9

10/29/2010 1:13:39 PM, DRAFT

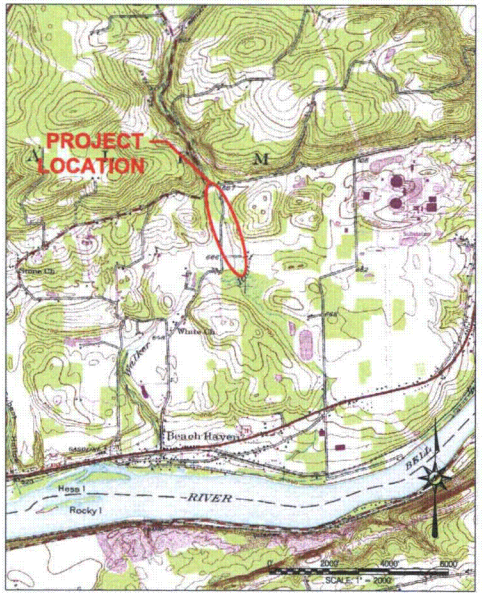
STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
BELL BEND NUCLEAR POWER PLANT
SALEM TOWNSHIP, LUZERNE COUNTY, PENNSYLVANIA

PLAN DATE: OCTOBER 29, 2010



SITE MAP
1" = 500'

TABLE OF CONTENTS



LOCATION MAP
1" = 2,000'

CLIENT ADDRESS:
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603
PHONE: (570) 802-5636
FAX: (570) 802-5639

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PA 17543

PROJECT: STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
PROJECT #: 5-378-L8 | DATE: OCTOBER 29, 2010
COUNTY: LUZERNE COUNTY | REVISION DATE:

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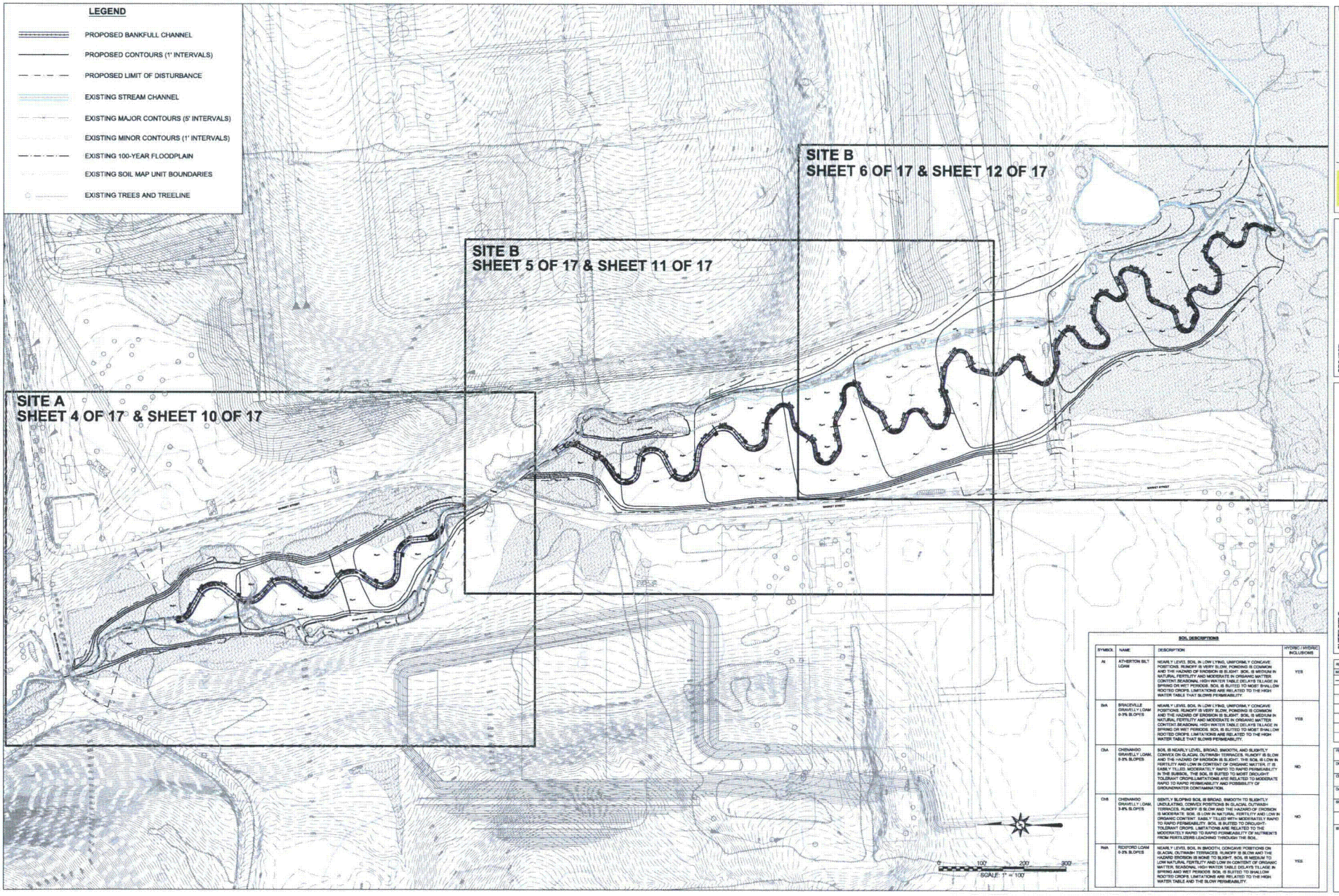

SOIL DESCRIPTIONS

SYMBOL	NAME	DESCRIPTION	HYDRIC / HYDRIC INCLUSIONS
At	ATHERTON SILT LOAM	NEARLY LEVEL SOIL IN LOW LYING, UNIFORMLY CONCAVE POSITIONS. RUNOFF IS VERY SLOW, PONDING IS COMMON AND THE HAZARD OF EROSION IS SLIGHT. SOIL IS MEDIUM IN NATURAL FERTILITY AND MODERATE IN ORGANIC MATTER CONTENT.SEASONAL HIGH WATER TABLE DELAYS TILLAGE IN SPRING OR WET PERIODS. SOIL IS SUITED TO MOST SHALLOW ROOTED CROPS. LIMITATIONS ARE RELATED TO THE HIGH WATER TABLE THAT SLOWS PERMEABILITY.	YES
BrA	BRACEVILLE GRAVELLY LOAM 0-3% SLOPES	NEARLY LEVEL SOIL IN LOW LYING, UNIFORMLY CONCAVE POSITIONS. RUNOFF IS VERY SLOW, PONDING IS COMMON AND THE HAZARD OF EROSION IS SLIGHT. SOIL IS MEDIUM IN NATURAL FERTILITY AND MODERATE IN ORGANIC MATTER CONTENT.SEASONAL HIGH WATER TABLE DELAYS TILLAGE IN SPRING OR WET PERIODS. SOIL IS SUITED TO MOST SHALLOW ROOTED CROPS. LIMITATIONS ARE RELATED TO THE HIGH WATER TABLE THAT SLOWS PERMEABILITY.	YES
ChA	CHENANGO GRAVELLY LOAM, 0-3% SLOPES	SOIL IS NEARLY LEVEL, BROAD, SMOOTH, AND SLIGHTLY CONVEX ON GLACIAL OUTWASH TERRACES. RUNOFF IS SLOW AND THE HAZARD OF EROSION IS SLIGHT. THE SOIL IS LOW IN FERTILITY AND LOW IN CONTENT OF ORGANIC MATTER. IT IS EASILY TILLED. MODERATELY RAPID TO RAPID PERMEABILITY IN THE SUBSOIL. THE SOIL IS SUITED TO MOST DROUGHT-TOLERANT CROPS.LIMITATIONS ARE RELATED TO MODERATE RAPID TO RAPID PERMEABILITY AND POSSIBILITY OF GROUNDWATER CONTAMINATION.	NO
ChB	CHENANGO GRAVELLY LOAM, 3-8% SLOPES	GENTLY SLOPING SOIL IS BROAD, SMOOTH TO SLIGHTLY UNDULATING, CONVEX POSITIONS IN GLACIAL OUTWASH TERRACES. RUNOFF IS SLOW AND THE HAZARD OF EROSION IS MODERATE. SOIL IS LOW IN NATURAL FERTILITY AND LOW IN ORGANIC CONTENT. EASILY TILLED WITH MODERATELY RAPID TO RAPID PERMEABILITY. SOIL IS SUITED TO DROUGHT-TOLERANT CROPS. LIMITATIONS ARE RELATED TO THE MODERATELY RAPID TO RAPID PERMEABILITY OF NUTRIENTS FROM FERTILIZERS LEACHING THROUGH THE SOIL.	NO
RnA	REDFORD LOAM 0-3% SLOPES	NEARLY LEVEL SOIL IN SMOOTH, CONCAVE POSITIONS ON GLACIAL OUTWASH TERRACES. RUNOFF IS SLOW AND THE HAZARD EROSION IS NONE TO SLIGHT. SOIL IS MEDIUM TO LOW NATURAL FERTILITY AND LOW IN CONTENT OF ORGANIC MATTER. SEASONAL HIGH WATER TABLE DELAYS TILLAGE IN SPRING AND WET PERIODS. SOIL IS SUITED TO SHALLOW ROOTED CROPS. LIMITATIONS ARE RELATED TO THE HIGH WATER TABLE AND THE SLOW PERMEABILITY.	YES

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PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
KEY MAP
STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
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PROJECT NUMBER: E-726-L8
DRAWN BY: BRU
CHECKED BY: BJE; AWD
DATE: OCTOBER 29, 2010
SCALE: 1"=100'
KEY MAP
SHEET NUMBER: 2 OF 17

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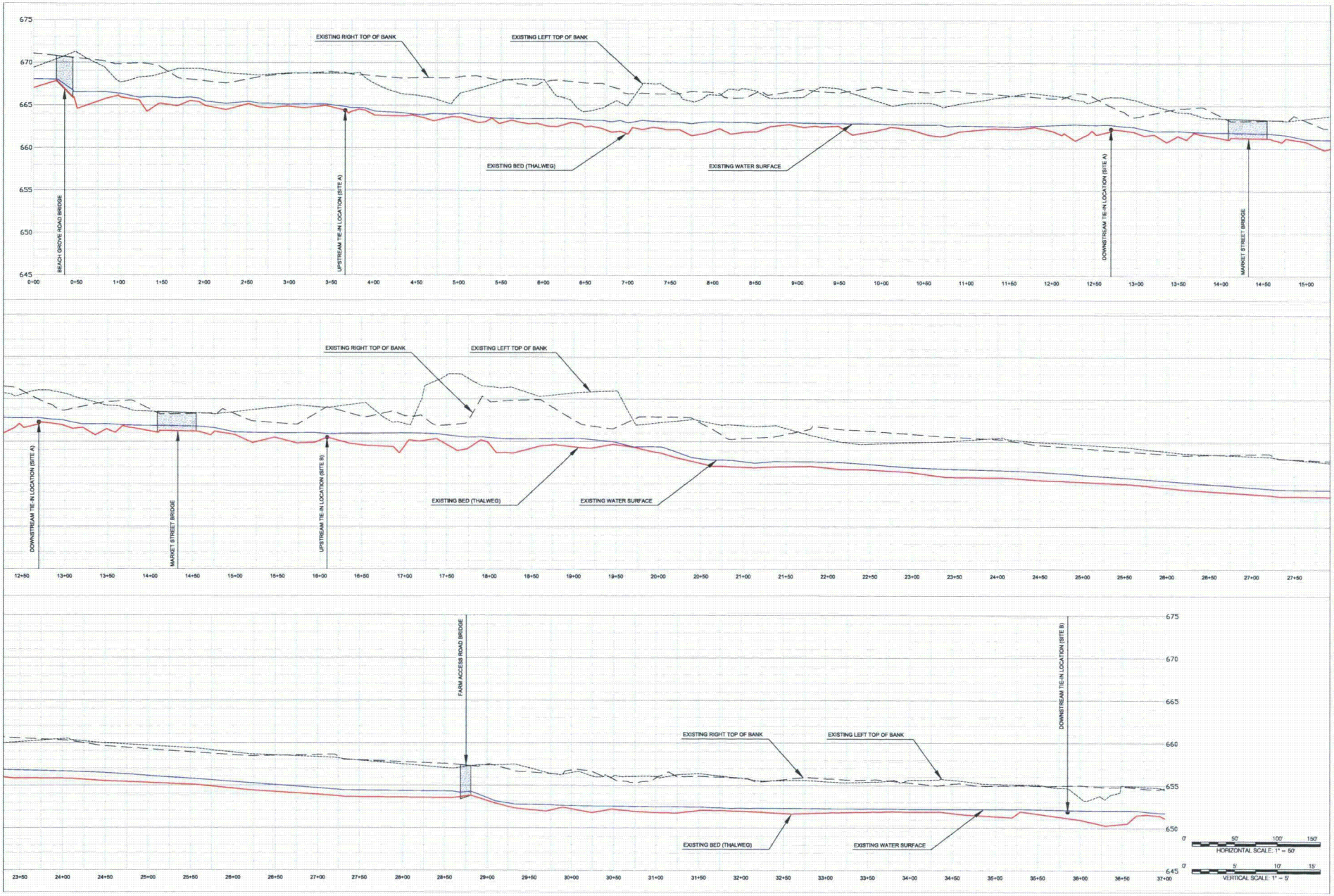

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PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
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BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
EXISTING LONGITUDINAL PROFILE
STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
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PROJECT NUMBER: E-726-L8
DRAWN BY: BRU
CHECKED BY: BJE, AWD
DATE: OCTOBER 29, 2010
SCALE: AS NOTED
PROFILE SHEET
SHEET NUMBER: 3 OF 17

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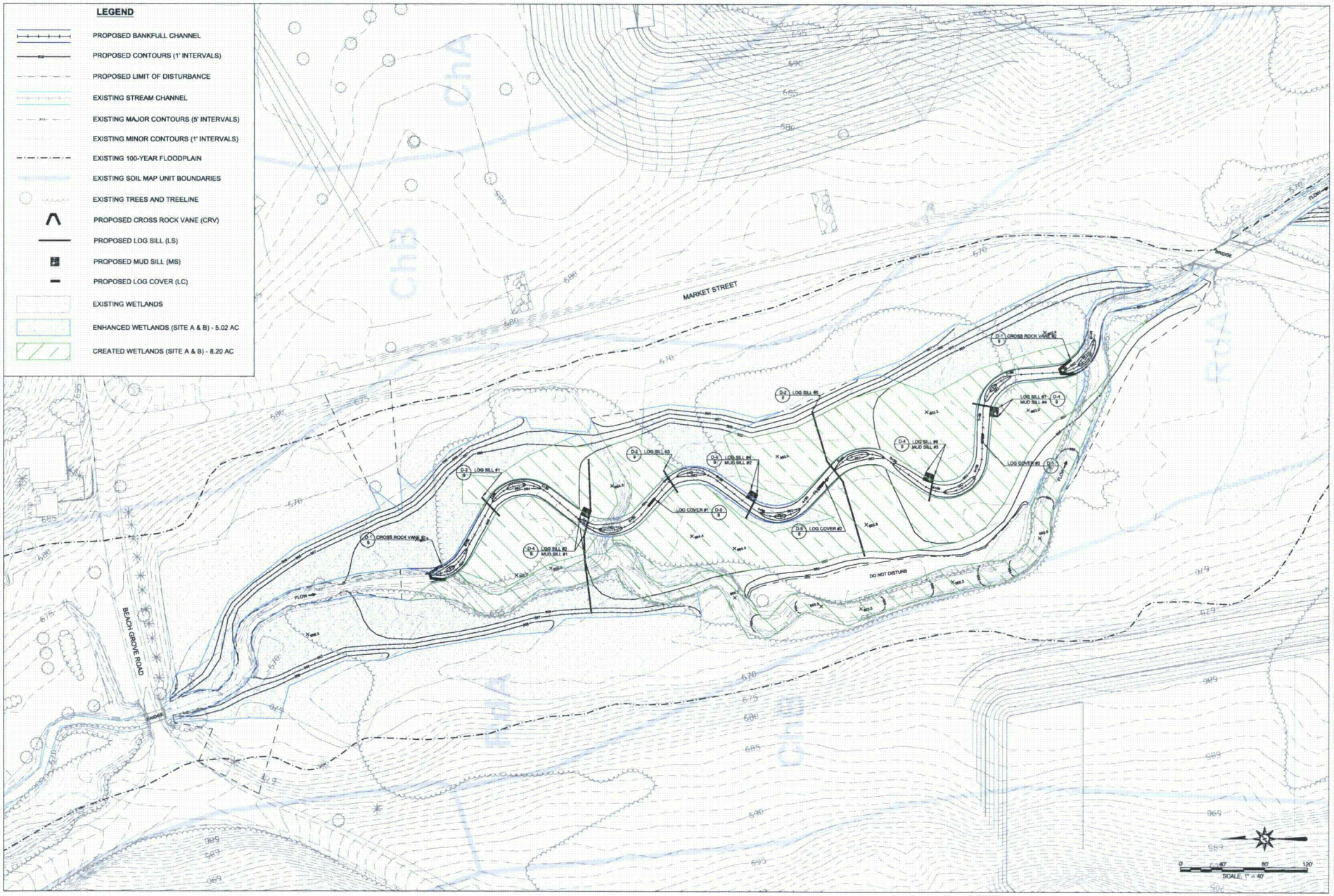

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PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
GRADING PLAN - SITE A
STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
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PROJECT NUMBER: E-726-L8
DRAWN BY: BRU
CHECKED BY: BJE; AWD
DATE: OCTOBER 29, 2010
SCALE: 1"=40'
GRADING PLAN - 1
SHEET NUMBER: 4
OF 17

10/29/2010 3:48:53 PM, DRAFT

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PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
GRADING PLAN - SITE B
STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
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PROJECT NUMBER: E-726-L8
DRAWN BY: BRU
CHECKED BY: BJE; AWD
DATE: OCTOBER 29, 2010
SCALE: 1"=40'
GRADING PLAN - 2
SHEET NUMBER: 5 OF 17

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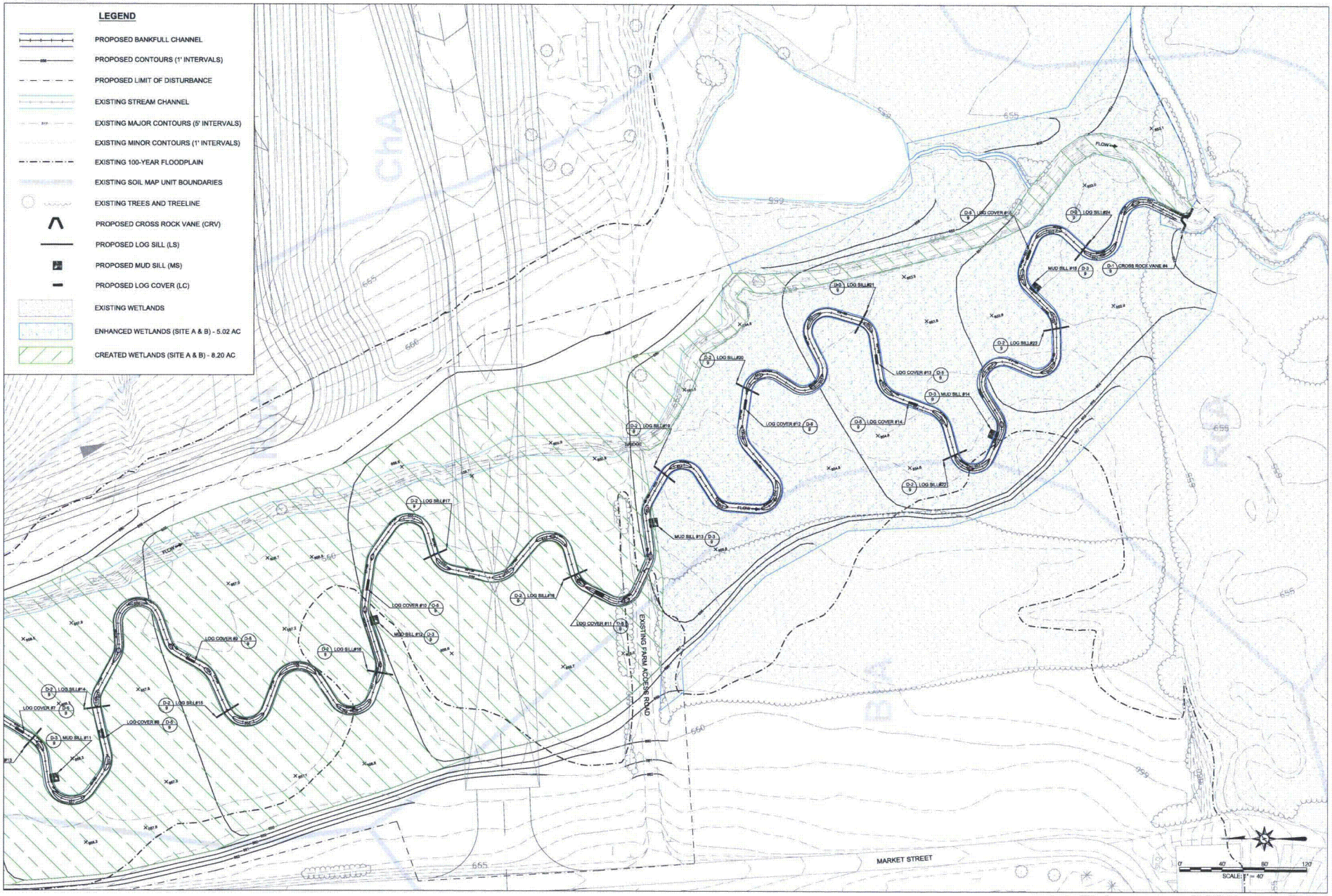

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PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
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BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
GRADING PLAN - SITE B
STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
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PROJECT NUMBER: E-726-L8
DRAWN BY: BRU
CHECKED BY: BJE; AWD
DATE: OCTOBER 29, 2010
SCALE: 1"=40'
GRADING PLAN - 3
SHEET NUMBER: 6 OF 17

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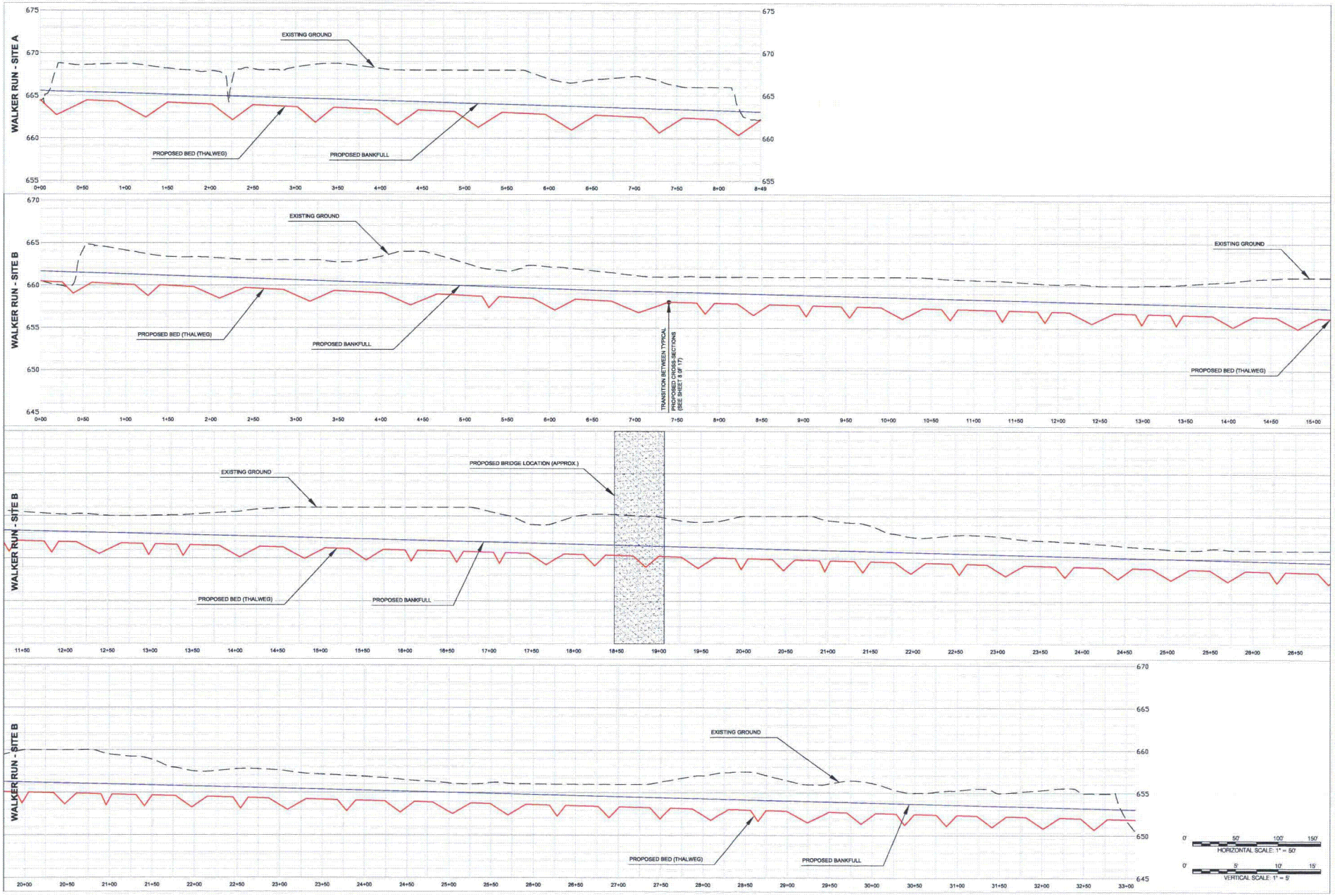

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PROJECT:
BELL BEND NUCLEAR POWER PLANT
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BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
PROPOSED LONGITUDINAL PROFILES
STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS

NO.	DATE	DESCRIPTION
—	—	—

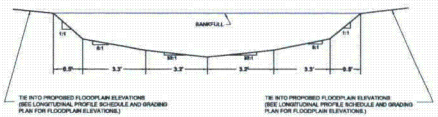
PROJECT NUMBER: E-726-L8
DRAWN BY: BRU
CHECKED BY: BJE; AWD
DATE: OCTOBER 29, 2010
SCALE: AS NOTED
PROFILE SHEET
SHEET NUMBER: 7 OF 17

10/29/2010 3:54:03 PM, DRAFT

TYPICAL CROSS-SECTIONS - SITE A (STA.0+00 TO STA. 8+49)

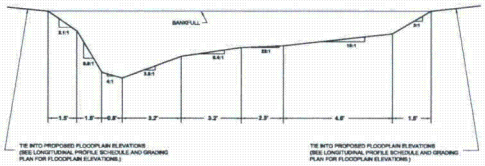
TYPICAL RIFFLE CROSS-SECTION

N.T.S.



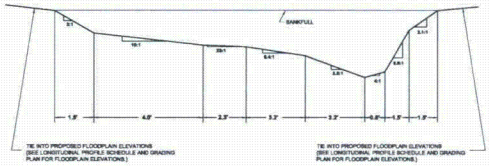
TYPICAL POOL LEFT CROSS-SECTION

N.T.S.



TYPICAL POOL RIGHT CROSS-SECTION

N.T.S.



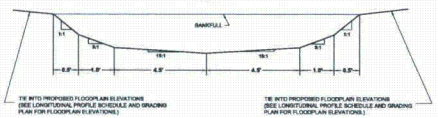
CROSS-SECTION SCHEDULE

CROSS SECTION TYPE	BANKFULL AREA (SQ.FT.)	BANKFULL WIDTH (FT.)	MEAN DEPTH (FT.)	MAXIMUM DEPTH (FT.)
RIFFLE	8.4-12.8	12.0-14.0	0.7-0.9	1.0-1.4
POOL	15.8-23.3	13.2-19.8	NA	1.8-3.2

TYPICAL CROSS-SECTIONS - SITE B (STA.0+00 TO STA. 7+40)

TYPICAL RIFFLE CROSS-SECTION

N.T.S.



TYPICAL POOL LEFT CROSS-SECTION

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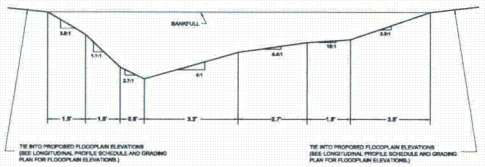

TYPICAL POOL RIGHT CROSS-SECTION

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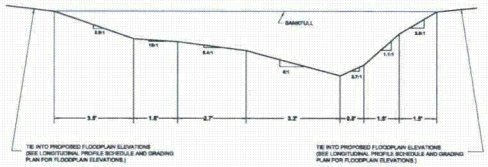


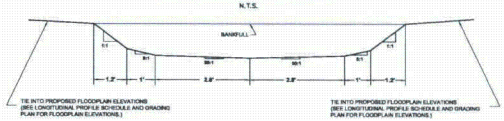
CROSS-SECTION SCHEDULE

CROSS SECTION TYPE	BANKFULL AREA (SQ.FT.)	BANKFULL WIDTH (FT.)	MEAN DEPTH (FT.)	MAXIMUM DEPTH (FT.)
RIFFLE	8.6-14.0	12.0-14.0	0.8-1.0	1.0-1.4
POOL	18.3-23.6	13.2-19.8	NA	2.0-3.5

TYPICAL CROSS-SECTIONS - SITE B (STA 7+40 TO STA. 33+10)

TYPICAL RIFFLE CROSS-SECTION

N.T.S.



TYPICAL POOL LEFT CROSS-SECTION

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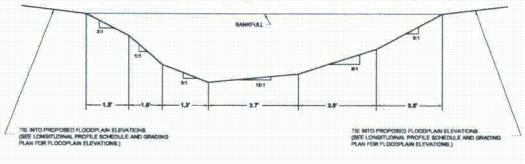

TYPICAL POOL RIGHT CROSS-SECTION

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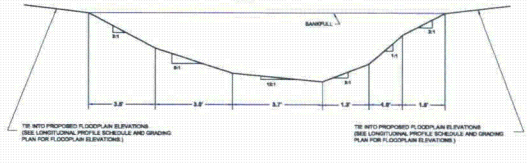

CROSS-SECTION SCHEDULE

CROSS SECTION TYPE	BANKFULL AREA (SQ.FT.)	BANKFULL WIDTH (FT.)	MEAN DEPTH (FT.)	MAXIMUM DEPTH (FT.)
RIFFLE	7.2-14.4	8.0-12.0	0.9-1.2	1.0-1.4
POOL	12.2-24.3	8.0-14.4	NA	1.4-3.0

PROPOSED LONGITUDINAL PROFILE SCHEDULE - SITE A

STATION	STATION	STREAM FACET	BED ELEVATION	BANKFULL ELEVATION
0+00	0	TAIL OF RIFFLE	664.47	665.57
0+19	19	POOL MAX DEPTH	662.69	665.49
0+55	55	HEAD OF RIFFLE	664.44	665.41
0+90	90	TAIL OF RIFFLE	664.28	665.31
1+24	124	POOL MAX DEPTH	662.42	665.22
1+50	150	HEAD OF RIFFLE	664.19	665.13
2+02	202	TAIL OF RIFFLE	663.96	664.98
2+26	226	POOL MAX DEPTH	662.11	664.91
2+50	250	HEAD OF RIFFLE	663.89	664.84
3+02	302	TAIL OF RIFFLE	663.66	664.69
3+23	323	POOL MAX DEPTH	661.83	664.63
3+45	345	HEAD OF RIFFLE	663.90	664.57
3+95	395	TAIL OF RIFFLE	663.38	664.42
4+20	420	POOL MAX DEPTH	661.55	664.35
4+45	445	HEAD OF RIFFLE	663.30	664.28
4+88	488	TAIL OF RIFFLE	663.11	664.15
5+16	516	POOL MAX DEPTH	661.27	664.07
5+44	544	HEAD OF RIFFLE	663.03	663.99
5+95	595	TAIL OF RIFFLE	662.81	663.84
6+26	626	POOL MAX DEPTH	660.96	663.76
6+54	654	HEAD OF RIFFLE	662.72	663.67
7+10	710	TAIL OF RIFFLE	662.47	663.51
7+29	729	POOL MAX DEPTH	660.64	663.44
7+57	757	HEAD OF RIFFLE	662.40	663.37
7+97	797	TAIL OF RIFFLE	662.22	663.26
8+23	823	POOL MAX DEPTH	660.38	663.18
8+49	849	HEAD OF RIFFLE	662.17	663.11

PROPOSED LONGITUDINAL PROFILE SCHEDULE - SITE B

STATION	STATION	STREAM FACET	BED ELEVATION	BANKFULL ELEVATION
0+00	0	HEAD OF RIFFLE	660.47	661.65
0+25	25	TAIL OF RIFFLE	660.34	661.57
0+38	38	POOL MAX DEPTH	659.01	661.51
0+60	60	HEAD OF RIFFLE	660.29	661.45
1+10	110	TAIL OF RIFFLE	660.04	661.28
1+26	126	POOL MAX DEPTH	658.73	661.23
1+40	140	HEAD OF RIFFLE	660.01	661.17
1+80	180	TAIL OF RIFFLE	659.80	661.04
2+10	210	POOL MAX DEPTH	658.44	660.94
2+40	240	HEAD OF RIFFLE	659.70	660.83
2+85	285	TAIL OF RIFFLE	659.47	660.68
3+16	316	POOL MAX DEPTH	658.08	660.58
3+45	345	HEAD OF RIFFLE	659.37	660.48
4+02	402	TAIL OF RIFFLE	659.08	660.28
4+35	435	POOL MAX DEPTH	657.67	660.17
4+67	467	HEAD OF RIFFLE	658.97	660.06
5+20	520	TAIL OF RIFFLE	658.70	659.98
5+28	528	POOL MAX DEPTH	657.35	659.85
5+40	540	HEAD OF RIFFLE	658.67	659.81
5+80	580	TAIL OF RIFFLE	658.46	659.68
6+06	606	POOL MAX DEPTH	657.09	659.59
6+30	630	HEAD OF RIFFLE	658.38	659.51
6+72	672	TAIL OF RIFFLE	658.16	659.37
7+04	704	POOL MAX DEPTH	656.80	659.30
7+40	740	HEAD OF RIFFLE	658.05	659.23
7+73	773	TAIL OF RIFFLE	657.95	659.15
7+83	783	POOL MAX DEPTH	656.63	659.13
7+94	794	HEAD OF RIFFLE	657.91	659.10
8+21	821	TAIL OF RIFFLE	657.84	659.03
8+40	840	POOL MAX DEPTH	656.49	658.99
8+59	859	HEAD OF RIFFLE	657.76	658.94
8+94	894	TAIL OF RIFFLE	657.66	658.86
9+03	903	POOL MAX DEPTH	656.34	658.84
9+11	911	HEAD OF RIFFLE	657.63	658.82
9+44	944	TAIL OF RIFFLE	657.54	658.74
9+54	954	POOL MAX DEPTH	656.22	658.72
9+63	963	HEAD OF RIFFLE	657.51	658.69
9+91	991	TAIL OF RIFFLE	657.43	658.63
10+16	1016	POOL MAX DEPTH	656.07	658.57
10+40	1040	HEAD OF RIFFLE	657.32	658.51
10+62	1062	TAIL OF RIFFLE	657.26	658.46
10+72	1072	POOL MAX DEPTH	655.93	658.43
10+81	1081	HEAD OF RIFFLE	657.23	658.41
11+26	1126	TAIL OF RIFFLE	657.11	658.30
11+34	1134	POOL MAX DEPTH	655.78	658.26
11+42	1142	HEAD OF RIFFLE	657.08	658.26
11+75	1175	TAIL OF RIFFLE	656.99	658.19
11+84	1184	POOL MAX DEPTH	655.67	658.17
11+92	1192	HEAD OF RIFFLE	656.95	658.14
12+13	1213	TAIL OF RIFFLE	656.90	658.09
12+40	1240	POOL MAX DEPTH	655.53	658.03
12+66	1266	HEAD OF RIFFLE	656.78	657.97
12+91	1291	TAIL OF RIFFLE	656.71	657.91
12+98	1298	POOL MAX DEPTH	655.39	657.89
13+06	1306	HEAD OF RIFFLE	656.68	657.87
13+32	1332	TAIL OF RIFFLE	656.61	657.81
13+39	1339	POOL MAX DEPTH	655.29	657.79
13+47	1347	HEAD OF RIFFLE	656.58	657.77
13+81	1381	TAIL OF RIFFLE	656.49	657.69
14+05	1405	POOL MAX DEPTH	655.13	657.63
14+29	1429	HEAD OF RIFFLE	656.39	657.58
14+56	1456	TAIL OF RIFFLE	656.31	657.51
14+81	1481	POOL MAX DEPTH	654.95	657.45
15+05	1505	HEAD OF RIFFLE	656.21	657.39
15+34	1534	TAIL OF RIFFLE	656.13	657.32
15+54	1554	POOL MAX DEPTH	654.78	657.28
15+74	1574	HEAD OF RIFFLE	656.04	657.23
16+00	1600	TAIL OF RIFFLE	655.97	657.17
16+07	1607	POOL MAX DEPTH	654.65	657.15
16+15	1615	HEAD OF RIFFLE	655.94	657.13
16+53	1653	TAIL OF RIFFLE	655.84	657.04
16+61	1661	POOL MAX DEPTH	654.52	657.02
16+69	1669	HEAD OF RIFFLE	655.81	657.00
17+05	1705	TAIL OF RIFFLE	655.72	656.91
17+12	1712	POOL MAX DEPTH	654.40	656.90
17+19	1719	HEAD OF RIFFLE	655.69	656.88
17+46	1746	TAIL OF RIFFLE	655.61	656.81
17+67	1767	POOL MAX DEPTH	654.26	656.76
17+88	1788	HEAD OF RIFFLE	655.53	656.71
18+11	1811	TAIL OF RIFFLE	655.46	656.66
18+24	1824	POOL MAX DEPTH	654.13	656.63
18+37	1837	HEAD OF RIFFLE	655.40	656.60
18+69	1869	TAIL OF RIFFLE	655.32	656.52
18+84	1884	POOL MAX DEPTH	653.98	656.48
18+99	1899	HEAD OF RIFFLE	655.26	656.45
19+26	1926	TAIL OF RIFFLE	655.18	656.38
19+46	1946	POOL MAX DEPTH	653.84	656.34
19+65	1965	HEAD OF RIFFLE	655.10	656.29
19+90	1990	TAIL OF RIFFLE	655.03	656.23
19+97	1997	POOL MAX DEPTH	653.71	656.21
20+05	2005	HEAD OF RIFFLE	655.00	656.19
20+34	2034	TAIL OF RIFFLE	654.92	656.12
20+47	2047	POOL MAX DEPTH	653.59	656.09
20+61	2061	HEAD OF RIFFLE	654.87	656.06
20+90	2090	TAIL OF RIFFLE	654.79	655.99
20+96	2096	POOL MAX DEPTH	653.47	655.97
21+03	2103	HEAD OF RIFFLE	654.77	655.96
21+31	2131	TAIL OF RIFFLE	654.69	655.89
21+41	2141	POOL MAX DEPTH	653.37	655.87
21+50	2150	HEAD OF RIFFLE	654.65	655.85
21+78	2178	TAIL OF RIFFLE	654.58	655.78
21+97	2197	POOL MAX DEPTH	653.23	655.73
22+15	2215	HEAD OF RIFFLE	654.50	655.69
22+45	2245	TAIL OF RIFFLE	654.42	655.62
22+54	2254	POOL MAX DEPTH	653.10	655.60
22+63	2263	HEAD OF RIFFLE	654.38	655.57
22+87	2287	TAIL OF RIFFLE	654.31	655.52
23+09	2309	POOL MAX DEPTH	652.96	655.46
23+31	2331	HEAD OF RIFFLE	654.22	655.41
23+68	2368	TAIL OF RIFFLE	654.12	655.32
23+79	2379	POOL MAX DEPTH	652.80	655.30
23+90	2390	HEAD OF RIFFLE	654.08	655.27
24+24	2424	TAIL OF RIFFLE	653.99	655.19
24+42	2442	POOL MAX DEPTH	652.65	655.15
24+59	2459	HEAD OF RIFFLE	653.92	655.10
24+81	2481	TAIL OF RIFFLE	653.85	655.05
25+04	2504	POOL MAX DEPTH	652.50	655.00
25+26	2526	HEAD OF RIFFLE	653.76	654.94
25+49	2549	TAIL OF RIFFLE	653.69	654.89
25+70	2570	POOL MAX DEPTH	652.34	654.84
25+91	2591	HEAD OF RIFFLE	653.60	654.79
26+19	2619	TAIL OF RIFFLE	653.52	654.72
26+28	2628	POOL MAX DEPTH	652.20	654.70
26+38	2638	HEAD OF RIFFLE	653.49	654.67
26+76	2676	TAIL OF RIFFLE	653.38	654.58
26+89	2689	POOL MAX DEPTH	652.05	654.55
27+01	2701	HEAD OF RIFFLE	653.33	654.52
27+37	2737	TAIL OF RIFFLE	653.24	654.44
27+49	2749	POOL MAX DEPTH	651.91	654.41
27+61	2761	HEAD OF RIFFLE	653.19	654.38
27+87	2787	TAIL OF RIFFLE	653.12	654.32
28+09	2809	POOL MAX DEPTH	651.77	654.27
28+30	2830	HEAD OF RIFFLE	653.03	654.21
28+56	2856	TAIL OF RIFFLE	652.96	654.15
28+65	2865	POOL MAX DEPTH	651.63	654.13
28+74	2874	HEAD OF RIFFLE	652.92	654.11
28+99	2899	TAIL OF RIFFLE	652.85	654.05
29+24	2924	POOL MAX DEPTH	651.49	653.99
29+49	2949	HEAD OF RIFFLE	652.74	653.93
29+70	2970	TAIL OF RIFFLE	652.68	653.88
29+87	2987	POOL MAX DEPTH	651.34	653.84
30+04	3004	HEAD OF RIFFLE	652.60	653.80
30+28	3028	TAIL OF RIFFLE	652.54	653.74
30+38	3038	POOL MAX DEPTH	651.21	653.71
30+49	3049	HEAD OF RIFFLE	652.49	653.69
30+75	3075	TAIL OF RIFFLE	652.43	653.63
30+87	3087	POOL MAX DEPTH	651.10	653.60
30+99	3099	HEAD OF RIFFLE	652.38	653.57
31+23	3123	TAIL OF RIFFLE	652.31	653.51
31+41	3141	POOL MAX DEPTH	650.97	653.47
31+58	3158	HEAD OF RIFFLE	652.23	653.43
31+81	3181	TAIL OF RIFFLE	652.17	653.37
32+01	3201	POOL MAX DEPTH	650.82	653.32
32+21	3221	HEAD OF RIFFLE	652.09	653.27
32+46	3246	TAIL OF RIFFLE	652.02	653.21
32+62	3262	POOL MAX DEPTH	650.68	653.18
32+78	3278	HEAD OF RIFFLE	651.95	653.14
33+10	3310	TAIL OF RIFFLE	651.86	653.06

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PROJECT: BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE: TYPICAL CROSS-SECTIONS & LONGITUDINAL PROFILE SCHEDULES
STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
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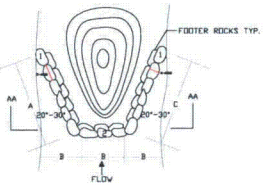
PROJECT NUMBER: E-726-L8
DRAWN BY: BRU
CHECKED BY: BJE, AWD
DATE: OCTOBER 29, 2010
SCALE: NTS
DETAILS
SHEET NUMBER: 8
OF 17

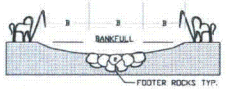
10/29/2010 3:23:15 PM, DRAFT

D-1 / 9 CROSS-ROCK VANE DETAILS (TYPICAL)
NTS

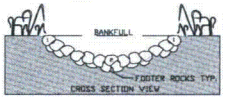
PLAN VIEW



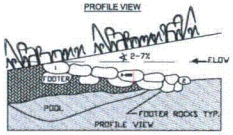
CROSS-SECTION VIEW (AA-AA)



NOTE:
SEE GENERAL IN-STREAM STRUCTURE NOTES FOR SPECIFIC ROCK SIZES.



PROFILE VIEW



GENERAL IN-STREAM ROCK STRUCTURE NOTES

1. ALL IN-STREAM STRUCTURES SHALL BE CONSTRUCTED UNDER THE DIRECT SUPERVISION OF AND SUBJECT TO THE APPROVAL OF AN ENGINEER EXPERIENCED IN THE PRINCIPLES OF FLUVIAL GEOMORPHOLOGY. IF IN-STREAM STRUCTURE CONSTRUCTION AND PERFORMANCE ARE NOT IN ACCORDANCE WITH THE DETAILS AND SPECIFICATIONS, THE IN-STREAM STRUCTURE SHALL BE RE-SET OR RECONSTRUCTED IN ACCORDANCE WITH THE DESIGN DETAILS AND SPECIFICATIONS.

2. IN-STREAM STRUCTURES AND BEDDING SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS SHOWN AND SHALL ACHIEVE THE FOLLOWING MINIMUM FLUVIAL GEOMORPHOLOGIC OBJECTIVES: 1) TO ALLOW NORMAL BED LOAD SEDIMENT TRANSPORT TO OCCUR, 2) TO ALLOW AQUATIC ORGANISMS (YR PRH) TO HAVE FREE MIGRATION ACCESS ACROSS THE STRUCTURE, 3) TO MAINTAIN STREAM BANK AND BED STABILIZATION, 4) TO PROVIDE HABITAT FOR FISH AND OTHER AQUATIC ORGANISMS, AND 5) TO REDIRECT FLOW VELOCITY VECTORS AWAY FROM THE STREAM BANK TO PREVENT EROSIVE FORCES AT THE BANK. THE CONTRACTOR IS RESPONSIBLE FOR MEETING THESE FLUVIAL GEOMORPHOLOGIC OBJECTIVES.

3. IN-STREAM STRUCTURES SHALL BE CONSTRUCTED OF ANGULAR, FLAT, OR CUBED ROCK. INDIVIDUAL ROCK FRAGMENTS SHALL BE DENSE, SOUND, AND FREE FROM CRACKS, SEAMS AND OTHER DEFECTS CONDUCIVE TO ACCELERATED WEATHERING. THE DRY WEIGHT DENSITY OF EACH ROCK SHALL BE 100 POUNDS PER CUBIC FOOT OR GREATER. NO CONCRETE, MAN-MADE ROCKS, OR SOFT ROCKS (SUCH AS SHALE) SHALL BE USED FOR THE CONSTRUCTION OF THE IN-STREAM STRUCTURES.

4. CONSTRUCTION OF THE IN-STREAM STRUCTURES REQUIRES INDIVIDUAL SELECTION AND PLACEMENT OF EACH ROCK IN EACH STRUCTURE.

5. FOOTER ROCKS SHALL BE PLACED INDIVIDUALLY AND KEYED INTO CHANNEL BED AND BANK AS SHOWN IN THE CROSS ROCK VANE DETAIL. THE TOP SURFACE OF THE CROSS ROCK VANE THROAT (DIAL CENTER) SHALL BE PLACED AT THE STREAM BED INVERT ELEVATION.

6. THE TOP ROCKS SHALL BE PLACED INDIVIDUALLY ABOVE AND UPSTREAM OF THE FOOTER ROCKS AS SHOWN. THE TOP ROCKS IN THE CROSS ROCK VANE ARMS SHALL BE PLACED TO CREATE A RELATIVELY UNIFORM TOP PLANE SURFACE SLOPING UP TO THE BANKFULL ELEVATION FROM THE STREAM BED INVERT ELEVATION. THE TOP ROCKS SHALL BE PLACED LINEARLY WITH TIGHT, CONTINUOUS SURFACE CONTACT WITH ADJACENT TOP ROCKS.

7. THE DOWNSTREAM ENDS OF THE CROSS ROCK VANE ARMS SHALL EXTEND A MINIMUM OF 5 FEET INTO THE STREAM BANK.

8. NO SIGNIFICANT VOIDS SHALL EXIST BETWEEN ADJOINING FOOTER ROCKS, AND BETWEEN ADJOINING FOOTER AND TOP ROCKS. IN ORDER TO PREVENT WATER-PIPING BETWEEN STRUCTURE ROCKS, THE CONTRACTOR SHALL CHINK BY HAND ALL UNDERSIZABLE VOIDS WITH SMALL BUILDERS, COBBLE, ROCK FRAGMENTS, SAND, AND/OR CLAY. CHINKING SHALL BE CONDUCTED FOR ALL VOIDS GREATER THAN OR EQUAL TO 3 INCHES IN SIZE FOR COBBLE AND GRAVEL BASED STREAMS, AND 6 INCH FOR SAND AND CLAY BASED STREAMS.

9. FOR SAND OR SILT/CLAY STREAM CHANNELS, A GEOTEXTILE FABRIC SHALL BE USED TO SUPPLEMENT THE CHINKING. THE GEOTEXTILE FABRIC SHALL BE PLACED ON THE UPSTREAM FACE OF THE FOOTER AND TOP ROCKS. THE GEOTEXTILE FABRIC SHALL ALSO BE BURIED A MINIMUM OF 12 INCHES INTO THE STREAMBED AND EXTENDED A MINIMUM OF 12 INCHES UPSTREAM.

10. MATERIAL EXCAVATED FOR THE FOOTER ROCKS MAY BE USED MINIMALLY (AT THE DISCRETION OF THE ENGINEER) FOR FILL ON THE UPSTREAM SIDE OF THE CROSS ROCK VANE ARMS. THE CONTRACTOR SHALL REGRADE OR RESHAPE THE CHANNEL AFTER THE CONSTRUCTION OF THE IN-STREAM STRUCTURE TO PROVIDE THE PROPER DESIGN DIMENSIONS.

11. 5" DIRECTED BY THE SUPERVISING ENGINEER, LIVE STAKES, BRANCHES, AND SMALL TREES SHALL BE PLANTED IN A DIAMOND PATTERN ON THE STREAM BANK WHERE THE CROSS ROCK VANE ARM TIES INTO THE BANK. PLANTING SHALL CONTINUE A MINIMUM OF ONE-HALF VANE ARM LENGTH WITH UPSTREAM AND DOWNSTREAM OF THE STRUCTURE ALONG THE STREAM BANKS.

12. INDIVIDUAL ROCKS USED FOR THE CONSTRUCTION OF THE IN-STREAM STRUCTURES SHALL CONFORM TO THE FOLLOWING DIMENSION SPECIFICATIONS:

PROPOSED ROCK SIZE DIMENSIONS - WALKER RUN

	A-AXIS	B-AXIS	C-AXIS
MINIMUM (FT)	1.0	1.0	2.0
MAXIMUM (FT)	2.0	2.0	3.0

14. DIMENSIONS OF IN-STREAM STRUCTURES (DIMENSIONS A, B, AND C) ARE SHOWN IN THE IN-STREAM STRUCTURES SCHEDULE.

GRADE CONTROL STRUCTURE SCHEDULE - SITE A

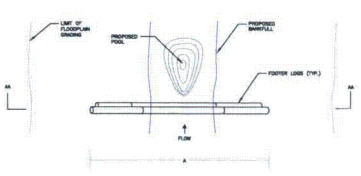
STRUCTURE ID	PROPOSED STATION	LENGTHS IN FEET (SEE DETAIL) A	B	C	INV. ELEV.	BANKFULL ELEV.
CRVP1	0+00	12.0-15.0	4.0-5.0	12.0-15.0	644.47	645.57
LS#1	0+90	20.0+	N/A	N/A	644.28	645.31
LS#2	2+62	20.0+	N/A	N/A	643.96	644.98
LS#3	3+62	20.0+	N/A	N/A	643.86	644.89
LS#4	3+83	20.0+	N/A	N/A	643.78	644.42
LS#5	5+85	20.0+	N/A	N/A	643.11	644.13
LS#6	9+95	20.0+	N/A	N/A	642.81	643.84
LS#7	7+10	20.0+	N/A	N/A	642.47	643.51
CRVP2	7+67	12.0-15.0	4.0-5.0	12.0-15.0	642.12	643.26

GRADE CONTROL STRUCTURE SCHEDULE - SITE B

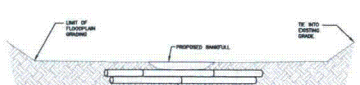
STRUCTURE ID	PROPOSED STATION	LENGTHS IN FEET (SEE DETAIL) A	B	C	INV. ELEV.	BANKFULL ELEV.
CRVP2	9+20	10.0-15.0	4.0-5.0	10.0-15.0	686.34	687.37
LS#8	1+10	20.0+	N/A	N/A	686.04	687.08
LS#9	2+61	20.0+	N/A	N/A	686.47	685.66
LS#10	4+62	20.0+	N/A	N/A	685.06	685.28
LS#11	5+85	20.0+	N/A	N/A	685.46	686.68
LS#12	7+73	20.0+	N/A	N/A	684.90	685.73
LS#13	9+44	20.0+	N/A	N/A	684.34	685.74
LS#14	11+36	20.0+	N/A	N/A	683.11	685.39
LS#15	13+81	20.0+	N/A	N/A	686.49	687.69
LS#16	16+99	20.0+	N/A	N/A	685.87	687.11
LS#17	18+11	20.0+	N/A	N/A	685.46	686.66
LS#18	19+80	20.0+	N/A	N/A	685.82	686.22
LS#19	21+78	20.0+	N/A	N/A	684.98	685.78
LS#20	24+24	20.0+	N/A	N/A	683.98	685.19
LS#21	26+19	20.0+	N/A	N/A	683.52	684.72
LS#22	27+87	20.0+	N/A	N/A	683.12	684.34
LS#23	29+28	20.0+	N/A	N/A	682.66	683.74
LS#24	31+81	20.0+	N/A	N/A	682.11	683.31
CRVP#4	33+13	8.0-9.0	3.0-4.0	8.0-9.0	681.86	683.06

D-2 / 9 LOG SILL DETAILS (TYPICAL)
NTS

PLAN VIEW



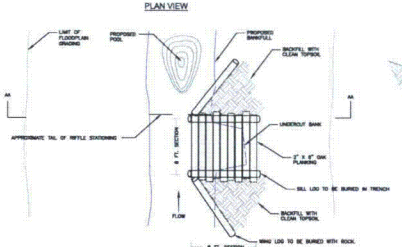
CROSS-SECTION VIEW (AA-AA)



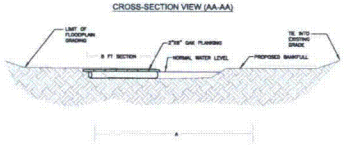
NOTE: LOGS (8-14" DIAMETER) SHALL BE HARVESTED FROM TIMBER CLEARED ON-SITE. LOGS SHALL BE A MINIMUM OF 20 FEET IN LENGTH. TOTAL LENGTH OF LOG SILL MAY VARY DEPENDING ON LOCATION (SEE PLAN VIEW).

D-3 / 9 MUD SILL DETAILS (TYPICAL)
NTS

PLAN VIEW



CROSS-SECTION VIEW (AA-AA)

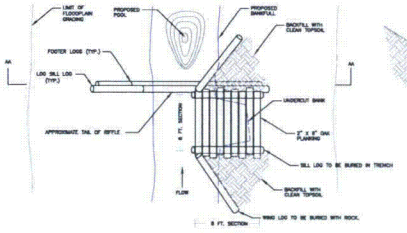


EXAMPLE PHOTO

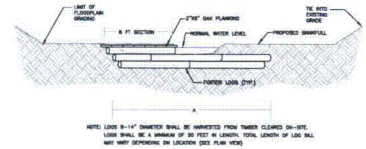
NOTE: 1. LOGS 8"-14" DIAMETER SHALL BE HARVESTED FROM TIMBER CLEARED ON-SITE.
2. MUD SILL TO BE COVERED WITH CLEAN TOPSOIL AND BACKFILLED ON EACH OUTSIDE EDGE.
3. WING LOG AND SILL LOGS TO BE BURIED IN TRENCH WITH ROCK.
4. MUD SILL PLACEMENT IS BASED UPON HABITAT STRUCTURE SCHEDULE AND IS LOCATED BASED UPON DOWNSTREAM EXTENT OF HABITAT STRUCTURE.

D-4 / 9 MUD SILL/LOG SILL COMBINATION DETAILS (TYPICAL)
NTS

PLAN VIEW



CROSS-SECTION VIEW (AA)

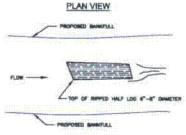


NOTE: LOGS 8-14" DIAMETER SHALL BE HARVESTED FROM TIMBER CLEARED ON-SITE. LOGS SHALL BE A MINIMUM OF 20 FEET IN LENGTH. TOTAL LENGTH OF LOG SILL MAY VARY DEPENDING ON LOCATION (SEE PLAN VIEW).

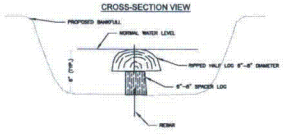
NOTE: 1. LOGS 8"-14" DIAMETER SHALL BE HARVESTED FROM TIMBER CLEARED ON-SITE. LOGS SHALL BE A MINIMUM OF 20 FEET IN LENGTH. TOTAL LENGTH OF LOG SILL MAY VARY DEPENDING ON LOCATION (SEE PLAN VIEW).
2. SEE GRADE CONTROL STRUCTURE SCHEDULE FOR LOG SILL DESIGN ELEVATIONS.
3. MUD SILL TO BE COVERED WITH CLEAN TOPSOIL AND BACKFILLED ON EACH OUTSIDE EDGE.
4. MUD SILL TO BE KEYED INTO LOG SILL STRUCTURE AND PLACED AS SHOWN ON PLAN VIEW.
5. WING LOG AND SILL LOGS TO BE BURIED IN TRENCH WITH ROCK.
6. MUD SILL PLACEMENT IS BASED UPON HABITAT STRUCTURE SCHEDULE AND IS LOCATED BASED UPON DOWNSTREAM EXTENT OF HABITAT STRUCTURE.

D-5 / 9 LOG COVER HABITAT DETAILS (TYPICAL)
NTS

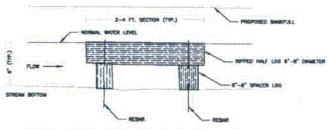
PLAN VIEW



CROSS-SECTION VIEW



PROFILE VIEW



NOTE: 1. LOG COVER STRUCTURE TO BE LOCATED BASED UPON MIDPOINT OF STRUCTURE.
2. SEE HABITAT STRUCTURE SCHEDULE FOR LOCATION OF STRUCTURE

EXAMPLE PHOTO

MUD SILL HABITAT STRUCTURE SCHEDULE - SITE A

STRUCTURE ID	PROPOSED STATION	THALWEG ELEV.	TOP OF STRUCTURE
MSR1	2+52	663.86	664.56
MSR2	3+95	663.38	664.42
MSR3	5+85	662.81	663.84
MSR4	7+10	662.47	663.51

MUD SILL HABITAT STRUCTURE SCHEDULE - SITE B

STRUCTURE ID	PROPOSED STATION	THALWEG ELEV.	TOP OF STRUCTURE
MSR5	1+10	664.04	661.28
MSR6	1+88	659.89	661.04
MSR7	2+80	659.47	660.68
MSR8	4+50	659.08	660.28
MSR9	5+80	658.66	659.88
MSR10	8+72	658.15	659.37
MSR11	9+91	657.43	658.63
MSR12	16+53	655.84	657.04
MSR13	21+31	654.09	655.89
MSR14	28+58	652.96	654.15
MSR15	30+73	652.43	653.63

LOG COVER HABITAT STRUCTURE SCHEDULE - SITE A

STRUCTURE ID	PROPOSED STATION	LENGTH OF LOG COVER	THALWEG ELEV.	TOP OF STRUCTURE
LC#1	2+79	3-5 FT (TYP.)	663.78	664.38
LC#2	4+70	3-5 FT (TYP.)	663.18	663.78
LC#3	6+82	3-5 FT (TYP.)	662.60	663.20

LOG COVER HABITAT STRUCTURE SCHEDULE - SITE B

STRUCTURE ID	PROPOSED STATION	LENGTH OF LOG COVER	THALWEG ELEV.	TOP OF STRUCTURE
LC#4	3+79	3-5 FT (TYP.)	659.24	659.84
LC#5	5+69	3-5 FT (TYP.)	658.38	659.18
LC#6	8+00	3-5 FT (TYP.)	657.88	658.48
LC#7	9+38	3-5 FT (TYP.)	657.58	658.18
LC#8	11+00	3-5 FT (TYP.)	657.18	657.78
LC#9	13+20	3-5 FT (TYP.)	656.64	657.24
LC#10	18+83	3-5 FT (TYP.)	655.19	656.39
LC#11	20+29	3-5 FT (TYP.)	654.96	655.56
LC#12	24+19	3-5 FT (TYP.)	654.00	654.62
LC#13	26+60	3-5 FT (TYP.)	653.42	654.52
LC#14	27+29	3-5 FT (TYP.)	653.28	653.88
LC#15	31+18	3-5 FT (TYP.)	652.35	652.95

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PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
DESIGN DETAILS & SCHEDULES
STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS

NO.	DATE	DESCRIPTION
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PROJECT NUMBER: E-726-L8
DRAWN BY: BRU
CHECKED BY: BJE; AWD
DATE: OCTOBER 29, 2010
SCALE: NTS
DETAILS
SHEET NUMBER: 9 OF 17

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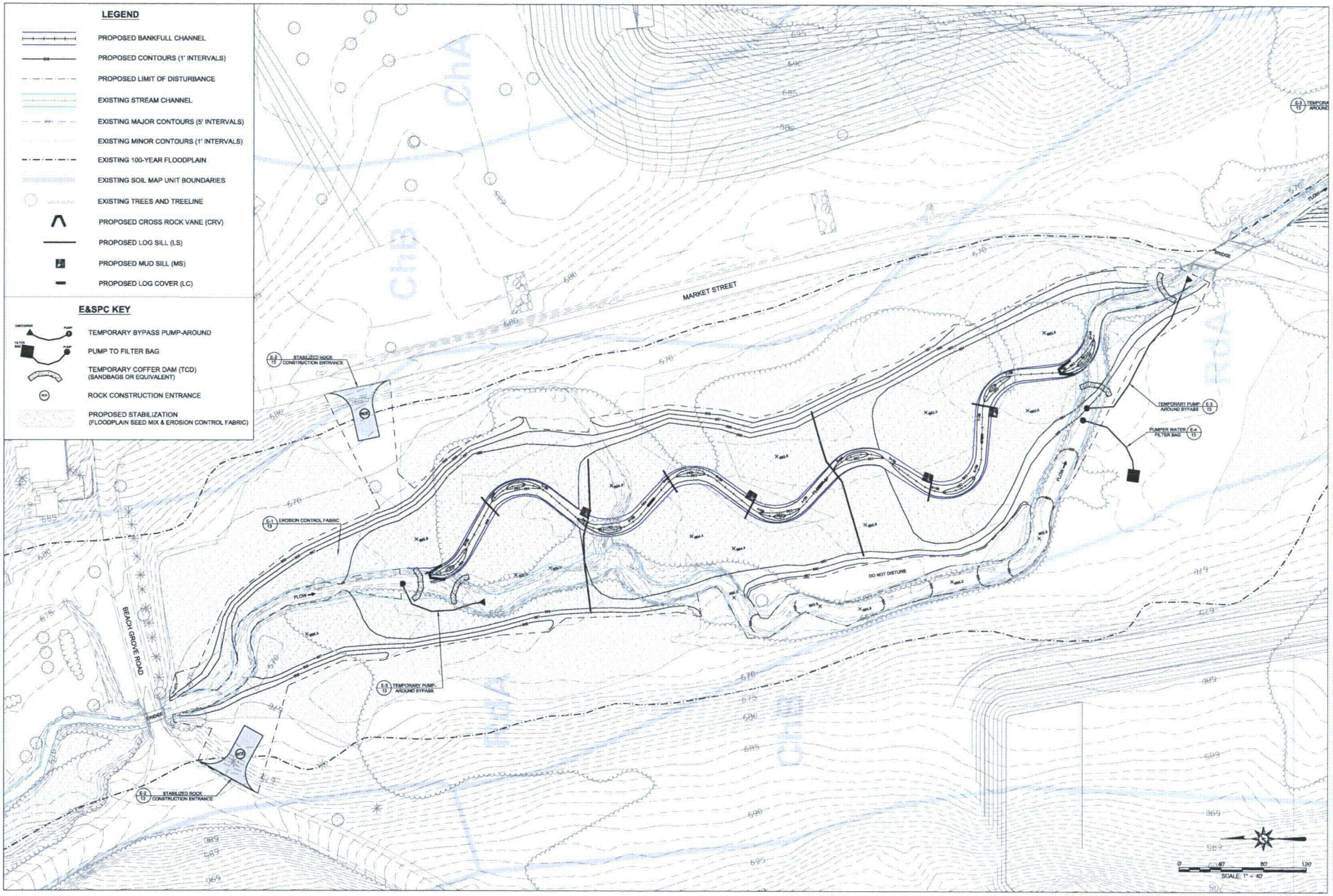

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PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
E&SPC PLAN - SITE A
STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
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PROJECT NUMBER: E-726-L8
DRAWN BY: BRU
CHECKED BY: BJE; AWD
DATE: OCTOBER 29, 2010
SCALE: 1"=40'
E&SPC PLAN - 1
SHEET NUMBER: 10 OF 17

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PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
E&SPC PLAN - SITE B
STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
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PROJECT NUMBER: E-726-L8
DRAWN BY: BRU
CHECKED BY: BJE; AWD
DATE: OCTOBER 29, 2010
SCALE: 1"=40'
E&SPC PLAN - 2
SHEET NUMBER: 11 OF 17

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PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
E&SPC PLAN - SITE B
STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
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PROJECT NUMBER: E-726-L8
DRAWN BY: BRU
CHECKED BY: BJE; AWD
DATE: OCTOBER 29, 2010
SCALE: 1"=40'
E&SPC PLAN - 3
SHEET NUMBER: 12 OF 17

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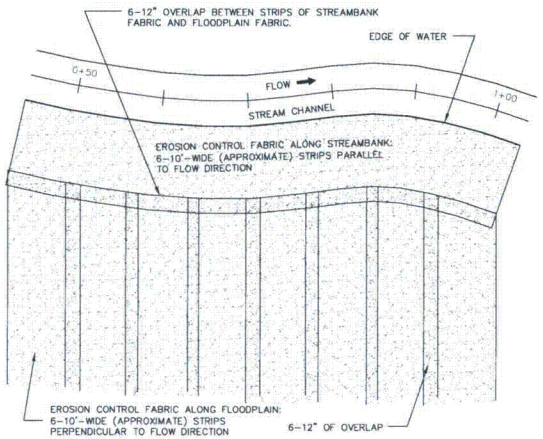
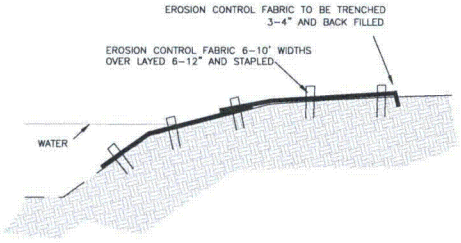
E-1 / 13 EROSION CONTROL FABRIC
NTS

PLAN VIEW



NOTE: EROSION CONTROL FABRIC SHALL EXTEND TO GRADING LIMIT AND SHALL BE TRENCHED INTO EXISTING GROUND.

CROSS-SECTION VIEW



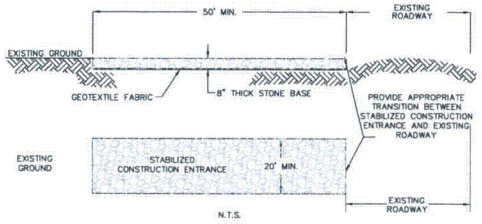
Erosion Control Fabric, (Rolanka BioD-Mat 70 or an equivalent) shall be used to stabilize all graded streambanks and floodplain areas. All slopes 3:1 and steeper that are not within the graded floodplain area shall also be stabilized with erosion control fabric.

SPECIFICATIONS
Rolanka BioD-Mat 70:

Roll size:	9.84' x 165'
Area:	180 SY
Weight:	29oz/SY
Thread:	N/A
Matrix:	100% woven bristle coir twine

For more information, see www.rolanka.com

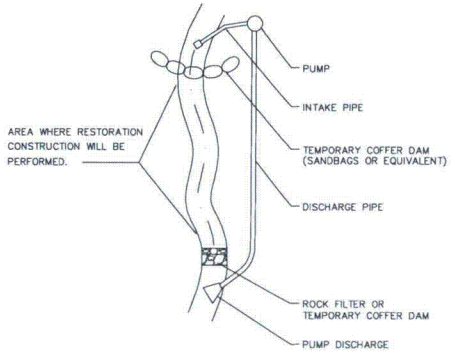
E-2 / 13 STABILIZED ROCK CONSTRUCTION ENTRANCE
NTS



N.T.S.

1. STONE SIZE – AASHTO #1.
2. LENGTH – AS REQUIRED TO BE EFFECTIVE, BUT NOT LESS THAN 50'.
3. THICKNESS – NOT LESS THAN 8".
4. WIDTH – FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS, BUT NOT LESS THAN 20'.
5. WASHING – WHEELS SHALL BE CLEAN PRIOR TO ENTRANCE ONTO EXISTING ROADWAY. WHEN WASHING IS REQUIRED IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATERCOURSE THROUGH USE OF SAND BAGS, GRAVEL, BOARDS, OR OTHER APPROVED METHODS.
6. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO EXISTING ROADWAY, THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO EXISTING ROADWAYS MUST BE REMOVED IMMEDIATELY. CONSTRUCTION ENTRANCE MUST BE INSPECTED DAILY.

E-3 / 13 TEMPORARY PUMP-AROUND BYPASS
NTS



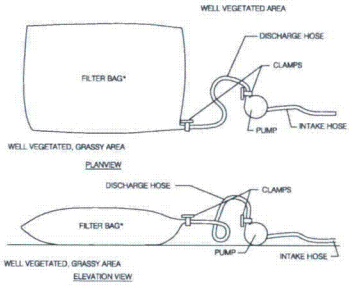
E-4 / 13 PUMPED WATER FILTER BAG
NTS

Filter bags may be used to filter water pumped from disturbed areas prior to discharging to water of the Commonwealth. They may also be used to filter water pumped from the sediment storage areas of sediment basins.

The pumping rate should be specified on the plan drawings next to the typical detail. Pumping rates will vary depending on the size of the filter bag, and the type and amount of sediment discharged to the bag.

Filter bags should be installed according to the details shown in Standard Construction Detail #26.

STANDARD CONSTRUCTION DETAIL #26
PUMPED WATER FILTER BAG



Filter bags shall be made from non-woven geotextile material sewn with high strength, double stitched "J" type seams. They shall be capable of trapping particles larger than 150 micros.

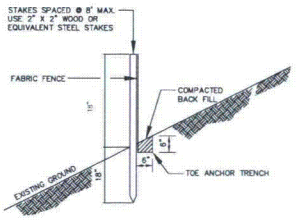
A suitable means of accessing the bag with machinery required for disposal purposes must be provided. Filter bags shall be replaced when they become ½ full. Spare bags shall be kept available for replacement of those that have failed or are filled.

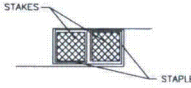
Bags shall be located in well-vegetated (grassy) area, and discharge onto stable, erosion resistant areas. Where this is not possible, a geotextile flow path shall be provided. Bags shall not be placed on slopes greater than 5%.

the pump discharge hose shall be inserted into the bags in a manner specified by the manufacturer and securely clamped.

The pumping rate shall be no greater than 750 gpm or ½ the maximum specified by the manufacturer, whichever is less. Pump intakes should be floating and screened.

E-5 / 13 FILTER FABRIC FENCE
NTS





NOTES:
FILTER FABRIC FENCE MUST BE INSTALLED AT LEVEL GRADE. BOTH ENDS OF EACH FENCE SECTION MUST BE EXTENDED AT LEAST 8 FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT.

SEDIMENT MUST BE REMOVED WHERE ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.

ANY FENCE SECTION WHICH HAS BEEN UNDERMINED OR TOPPED MUST BE IMMEDIATELY REPLACED WITH A ROCK FILTER OUTLET. SEE ROCK FILTER OUTLET DETAIL.

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SHEET TITLE:
E&SPC PLAN - DETAILS
STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
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PROJECT NUMBER: E-726-L8
DRAWN BY: BRU
CHECKED BY: BJE; AWD
DATE: OCTOBER 29, 2010
SCALE: NTS
E&SPC PLAN - 4
SHEET NUMBER: 13 OF 17

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A. GENERAL EROSION AND SEDIMENTATION CONTROL GUIDELINES

CONTRACTORS RESPONSIBILITIES

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE LUZERNE COUNTY CONSERVATION DISTRICT (LCCD) 72 HOURS PRIOR TO CONSTRUCTION AND 72 HOURS PRIOR TO LEAVING THE SITE. ALSO, AT LEAST 3 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR BURIED UTILITIES LOCATIONS.
   LUZERNE COUNTY CONSERVATION DISTRICT
   485 SMITHS POND ROAD
   SHAVERTOWN, PA 18708
   (570) 674-7991
2. A COPY OF THIS E&SC PLAN SHALL BE KEPT AVAILABLE FOR INSPECTION ON THE CONSTRUCTION SITE AT ALL TIMES DURING EARTH MOVING ACTIVITY AND UNTIL THE SITE IS STABILIZED.
3. THE CONTRACTOR SHALL MINIMIZE MUD OR SEDIMENT-LADEN WATER EXITING THE CONSTRUCTION SITE TO THE GREATEST EXTENT POSSIBLE. THE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL DAMAGES TO DOWNSTREAM PROPERTIES AS A RESULT OF HIS/HER FAILURE TO PREVENT SUCH DAMAGES.
4. THE INTENT OF THIS PLAN/NARRATIVE IS TO INDICATE GENERAL MEANS OF COMPLIANCE WITH THE REQUIREMENTS OF THE RULES AND REGULATIONS OF CHAPTER 102 OF THE PENNSYLVANIA CLEAN STREAMS LAW. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO IMPLEMENT THESE METHODS PLUS ADDITIONAL METHODS AS MAY BE NECESSARY BECAUSE OF THE CONDITIONS, AND/OR CONSTRUCTION PROCEDURES IN ORDER TO ASSURE COMPLIANCE WITH APPLICABLE LAW. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL SEDIMENT AND EROSION CONTROL FACILITIES SO THAT THEY PERFORM AS REQUIRED BY LAW.
5. THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS OF THE APPENDIX 64, EROSION CONTROL RULES AND REGULATIONS, TITLE 25, PART 1, DEPARTMENT OF ENVIRONMENTAL PROTECTION, SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE III, WATER RESOURCES, CHAPTER 102, EROSION CONTROL.
6. BEFORE INITIATING ANY REVISIONS TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN OR REVISIONS TO OTHER PLANS WHICH MAY AFFECT THE EFFECTIVENESS OF THE APPROVED E&S CONTROL PLAN, THE OPERATOR MUST RECEIVE APPROVAL OF THE REVISIONS FROM THE LUZERNE COUNTY CONSERVATION DISTRICT.
7. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING A PREPAREDNESS, PREVENTION, AND CONTIGENCY (PPC) PLAN DESCRIBING ANY POTENTIAL HAZARDOUS MATERIALS THAT MAY BE STORED OR USED ON SITE AND EMERGENCY CLEAN-UP OR SPILL REMEDIATION PROCEDURES. THE PPC PLAN SHALL BE KEPT ON THE CONSTRUCTION SITE AT ALL TIMES.

B. GENERAL SEDIMENT AND EROSION CONTROL METHODS/PROCEDURES

1. ALL RELATED SEDIMENT AND EROSION CONTROL FACILITIES SHALL BE IN PLACE AND CAPABLE OF FUNCTIONING AS INTENDED PRIOR TO EARTH MOVING ACTIVITY WITHIN THEIR CONTRIBUTING WATERSHED AREAS. ALL SEDIMENT AND EROSION CONTROL FACILITIES SHALL REMAIN SO UNTIL UNIFORM OF THE UPLAND DRAINAGE AREA IS STABILIZED WITH PERMANENT GROUND COVER.
2. REDUCE BY THE GREATEST EXTENT PRACTICABLE THE AREA AND DURATION OF EXPOSURE OF READILY ERODIBLE SOILS.
3. EXCAVATED MATERIAL (SPOIL) SHALL BE HAULED AWAY FROM THE MITIGATION SITE AND DISPOSED OF WITHIN THE BELL BEND NUCLEAR POWER PLANT PROJECT AREA.
4. EXISTING WETLAND VEGETATION WILL BE PROTECTED TO THE GREATEST EXTENT POSSIBLE.
5. UPON COMPLETION OF EARTH MOVING, DISTURBED AREAS SHALL BE IMMEDIATELY SEEDED, MULCHED, OR OTHERWISE PROTECTED FROM ACCELERATED EROSION AND SEDIMENTATION.
6. THE CONTRACTOR SHALL PROVIDE PROTECTION AGAINST DISCHARGE OF POLLUTANTS SUCH AS CHEMICALS, FUEL, LUBRICANTS, SEWAGE, ETC. INTO STREAMS OR STORM WATER FACILITIES.
7. CONSTRUCTION ACCESS INTO UNPAVED AREAS FROM PAVED AREAS OR STREETS (PUBLIC OR PRIVATE) SHALL BE VIA A STABILIZED CONSTRUCTION ENTRANCE.
8. SEDIMENT SPILLED, DROPPED OR TRACKED ONTO PAVED SURFACES SHALL BE REMOVED IMMEDIATELY.
9. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.
10. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE, THE OPERATOR SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS. DISTURBED AREAS WHICH ARE AT FINISHED GRADE OR WHICH WILL NOT BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.
11. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM 70% UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS.
12. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE BMPS MUST BE STABILIZED IMMEDIATELY.

C. MAINTENANCE OF SEDIMENT AND EROSION CONTROL FACILITIES

1. UNTIL THE SITE ACHIEVES FINAL STABILIZATION, THE OPERATOR SHALL ASSURE THAT THE BEST MANAGEMENT PRACTICES ARE IMPLEMENTED, OPERATED, AND MAINTAINED PROPERLY AND COMPLETELY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL BEST MANAGEMENT PRACTICE FACILITIES. THE OPERATOR WILL MAINTAIN AND MAKE AVAILABLE TO LUZERNE COUNTY CONSERVATION DISTRICT COMPLETE, WRITTEN INSPECTION LOGS OF ALL THOSE INSPECTIONS. ALL MAINTENANCE WORK, INCLUDING CLEANING, REPAIR, REPLACEMENT, REGRADING AND RESTABILIZATION SHALL BE PERFORMED IMMEDIATELY.
2. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS MUST BE MAITAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROL BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, RE-GRADING, RE-SEEDING, RE-MULCHING, AND RE-NETTING, MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.
3. ALL SEDIMENT AND EROSION CONTROL FACILITIES MUST BE MAINTAINED IN OPERATING CONDITION UNTIL UPSTREAM AREAS ARE OF UNIFORM 70% STABILIZED WITH UNIFORM PERENNIAL VEGETATIVE COVER.
4. SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.
5. ALL NON-USABLE MATERIAL AND DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LEGAL MANNER IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.
6. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO ELIMINATE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION.

D. RECYCLING AND DISPOSAL OF WASTE MATERIALS

1. THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1 ET SEQ., AND 287.1 ET SEQ. THE CONTRACTOR SHALL NOT ILLEGALLY BURY, DUMP, OR DISCHARGE ANY BUILDING MATERIAL OR WASTES AT THE SITE.
2. THE OPERATOR SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE LUZERNE COUNTY CONSERVATION DISTRICT, AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL AND/OR ROCK SPOIL AND BORROW AREAS, REGARDLESS OF THEIR LOCATIONS.
3. RE-USE OR RECYCLE SANDBAGS, CULVERTS, AND FLEXIBLE PIPE.
4. PROPERLY DISPOSE OF SEDIMENT FILTER BAGS, SILT FENCE, STAKES, AND FILTER SOCK MATERIAL.
5. DISPERSE COMPOST MATERIAL FROM FILTER SOCKS ON SITE, AS DIRECTED.

E. RESTORATION OF PLANTING AREAS

1. FINAL RESTORATION SHALL BE PERFORMED NO LATER THAN THE START OF THE NEXT PLANTING SEASON FOLLOWING CONSTRUCTION. THE PLANTING SEASON SHALL BE AS ESTABLISHED BY THE U.S. AGRICULTURAL SERVICE FOR THE AREA OF CONSTRUCTION.
2. TOPSOIL SHALL BE FREE FROM SUBSOIL, BRUSH, WEEDS, OR OTHER LITTER, CLAY LUMPS AND STONES, BUT MAY CONTAIN DECAYING VEGETABLE MATTER AS IS PRESENT IN GOOD TOPSOIL.
3. TOPSOIL SHALL BE IMPORTED FROM OFF-SITE IF NECESSARY AS DETERMINED BY PROJECT DESIGNER.
4. PRECAUTIONS SHALL BE EXERCISED AS NECESSARY TO CONFORM WITH LAWS RELATING TO EROSION AND SEDIMENT CONTROL.
5. SEED SHALL NOT HAVE LESS THAN 90% GERMINATION. GERMINATION TESTS OF SEEDS SHALL BE MADE NOT MORE THAN SIX (6) MONTHS PRIOR TO SEEDING. SEED WHICH HAS BECOME WET, MOLDY, OR OTHERWISE DAMAGED SHALL NOT BE USED.
6. THE CONTRACTOR SHALL BE RESPONSIBLE TO PRODUCE A STAND OF GRASS OR WETLAND VEGETATION IN ALL SEEDED OR SODDED AREAS. EROSION, DROUGHT, OR ANY OTHER CONDITION ENCOUNTERED SHALL NOT RELIEVE THE CONTRACTOR OF THIS REQUIREMENT.

F. SITE STABILIZATION

1. EROSION CONTROL FABRIC (ROLANKA BIO-D-MAT 70 OR AN EQUIVALENT) SHALL BE USED TO STABILIZE GRADED STREAM BANKS AND FLOODPLAIN AS SHOWN IN DETAILS. EROSION CONTROL FABRIC SHALL BE OVERLAPPED IN STRIPS THAT ARE PERPENDICULAR TO THE EXISTING STREAM CHANNEL. THE PROPOSED FLOODPLAIN SEED MIX OR AN APPROVED EQUIVALENT SHALL BE APPLIED TO THE GRADED STREAMBANKS AND FLOODPLAIN PRIOR TO INSTALLING EROSION CONTROL FABRIC. ALL GRADED STREAM BANKS SHALL BE STABILIZED BEFORE ACTIVE FLOW IS INTRODUCED INTO THE NEWLY CONSTRUCTED STREAM CHANNEL.
2. ALL DISTURBED AREAS OUTSIDE OF THE PROPOSED FLOODPLAIN SHALL BE SEEDED WITH THE PROPOSED STABILIZATION SEED MIX AND MULCHED UPON THE COMPLETION OF EARTH MOVING ACTIVITIES.
3. MULCH AND STRAW WILL BE SPREAD AT 3 TONS/ACRE. STRAW MULCH SHALL BE APPLIED IN LONG STRANDS, NOT CHOPPED OR FINELY BROKEN.
4. MULCH WITH MULCH CONTROL NETTING OR EROSION CONTROL BLANKETS MUST BE INSTALLED ON ALL SLOPES 3:1 AND STEEPER.

SEEDING RESTORATION TABLE

LOCATION	TOPSOIL	STARTER FERTILIZER	LIME	SEED MIX
STREAMBANKS AND FLOODPLAIN (WETLAND AREAS)	YES	N/A	N/A	FLOODPLAIN SEED MIX SEE BELOW FOR COMPOSITION
UPLAND AREAS	NO	N/A	N/A	CONSERVATION SEED MIX SEE BELOW FOR COMPOSITION
OTHER DISTURBED AREAS	NO	N/A	N/A	STABILIZATION SEED MIX SEE TEMPORARY STABILIZATION MIX FOR APPROPRIATE SPECIES (BASED ON SEEDING WINDOW) AND APPLICATION RATES

NOTE: FERTILIZER AND/OR LIME SHALL NOT BE APPLIED TO THE GRADED STREAM BANKS OR FLOODPLAIN DUE TO THE CLOSE PROXIMITY OF PROPOSED ELEVATIONS TO THE WATER TABLE. IT IS ANTICIPATED THAT THE SPREADING OF TOPSOIL AND THE CLOSE PROXIMITY TO THE EXISTING WATER TABLE WILL PROMOTE RAPID SEED GERMINATION.

Floodplain Seed Mix

%	Botanical Name	Common Name	I.S.
10	*Elymus virginicus, PA*	Virginia Wild Rye, PA Ecotype	FACW
10	*Panicum rigidulum, PA*	Redtop Panic Grass, PA Ecotype	FACW+
8	*Elymus canadensis, PA*	Canada Wild Rye, PA Ecotype	FACU
5	*Carex vulpinoidea, PA Ecotype*	Fox Sedge, PA Ecotype	OBL
5	*Panicum clandestinum*	Deer Tongue 'Tioga', PA Ecotype	FAC+
5	*Elymus riparius, PA*	Riverbank Wild Rye, PA Ecotype	FACW
5	*Agrostis perennans, APB*	Autumn Bentgrass, APB	FACU
5	*Agrostis scabra, PA*	Ticklegrass, PA Ecotype (rough bentgrass)	FAC
5	*Carex scoparia*	Blunt Broom Sedge	FACW
5	*Festuca rubra*	Creeping Red Fescue	FACU
4	*Carex comosa*	Bristly Sedge	OBL
4	*Chasmanthium latifolium, PA*	River Oats, PA Ecotype	FACU
3	*Carex stipata*	Awl Sedge	OBL
3	*Elymus hystrix, PA*	Bottlebrush Grass, PA Ecotype	NI
3	*Juncus effusus, PA*	Soft Rush, PA Ecotype	FACW+
2	*Asclepias incarnata*	Swamp Milkweed	OBL
2	*Bidens aristosa*	Bur Marigold, 'Suther' NC Ecotype	FACW-
2	*Carex lurida*	Lurid Sedge	OBL
2	*Juncus tenuis*	Path Rush	FAC-
2	*Poa palustris*	Fowl Bluegrass	FACW
1	*Aster prenanthoides*	Zigzag Aster	FAC
1	*Aster laevis*	Smooth Blue Aster	NI
1	*Aster novae-angliae*	New England Aster	FACW-
1	*Carex crinita*	Fringed Sedge	OBL
1	*Iris versicolor*	Blue Flag Iris	OBL
1	*Lobelia cardinalis*	Cardinal Flower	FACW+
1	*Lobelia siphilitica*	Great Blue Lobelia	FACW+
1	*Scirpus validus*	Soft-stem Bulrush	OBL
1	*Solidago riddellii*	Riddell's Goldenrod	OBL
1	*Solidago rugosa*	Wrinkle Leaf Goldenrod	FAC
100			

Application Rate: 15-20 lbs/acre

Conservation Seed Mix

%	Botanical Name	Common Name	I.S.
15	*Schizachyrium scoparium, PA*	Little Bluestem, PA	FACU
10	*Elymus virginicus, PA*	Virginia Wild Rye, PA Ecotype	FACW
8	*Panicum rigidulum, PA*	Redtop Panic Grass, PA Ecotype	FACW+
5	*Agrostis perennans, APB*	Autumn Bentgrass, APB	FACU
5	*Agrostis scabra, PA*	Ticklegrass, PA Ecotype (rough bentgrass)	FAC
5	*Carex scoparia*	Blunt Broom Sedge	FACW
5	*Elymus canadensis, PA*	Canada Wild Rye, PA Ecotype	FACU
5	*Festuca rubra*	Creeping Red Fescue	FACU
5	*Panicum clandestinum*	Deer Tongue 'Tioga', PA Ecotype	FAC+
4	*Chasmanthium latifolium, PA*	River Oats, PA Ecotype	FACU
4	*Eupatorium perfoliatum*	Boneset	FACW+
3	*Carex vulpinoidea, PA Ecotype*	Fox Sedge, PA Ecotype	OBL
3	*Elymus hystrix, PA*	Bottlebrush Grass, PA Ecotype	NI
3	*Elymus riparius, PA*	Riverbank Wild Rye, PA Ecotype	FACW
3	*Juncus effusus, PA*	Soft Rush, PA Ecotype	FACW+
2	*Asclepias incarnata*	Swamp Milkweed	OBL
2	*Asclepias tuberosa*	Butterfly Milkweed	NI
2	*Helianthus helianthoides*	Ox Eye Sunflower	NI
2	*Juncus tenuis*	Path Rush	FAC-
2	*Poa palustris*	Fowl Bluegrass	FACW
2	*Vernonia noveboracensis*	New York Ironweed	FACW+
1	*Aster novae-angliae*	New England Aster	FACW
1	*Aster prenanthoides*	Zigzag Aster	FAC
1	*Bidens aristosa*	Bur Marigold, 'Suther' NC Ecotype	FACW-
1	*Onoclea sensibilis*	Sensitive Fern	FACW
1	*Solidago rugosa*	Wrinkle Leaf Goldenrod	FAC
100			

Application Rate: 15-20 lbs/acre

Temporary Stabilization Seed Mix

%	Botanical Name	Common Name	Seeding Window	Application Rate
100	*Secale cereale*	Cereal Rye	Sep. 1 - Oct. 15	30 lbs/acre
100	*Avena sativa*	Oats	May 1 - Sept. 15	30 lbs/acre

SERIAL NUMBER: #20XXXX639

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Land studies

PROJECT: BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE: E&SPC PLAN - NOTES
STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
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PROJECT NUMBER: E-726-L8
DRAWN BY: BRU
CHECKED BY: BJE, AWD
DATE: OCTOBER 29, 2010
SCALE: NTS
E&SPC PLAN - 5
SHEET NUMBER: 14 OF 17

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CONSTRUCTION SCHEDULES

GENERAL CONSTRUCTION NOTES

- AT LEAST 7 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES THE OPERATOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES INCLUDING BUT NOT LIMITED TO: THE LANDOWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, AND A REPRESENTATIVE FROM THE LUZERNE COUNTY CONSERVATION DISTRICT FOR AN ON-SITE PRE-CONSTRUCTION MEETING. ALSO, AT LEAST 3 DAYS BEFORE STARTING ANY EARTH DISTURBANCE ACTIVITIES, ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM INCORPORATED AT 1-800-242-1776 FOR BURIED UTILITIES LOCATIONS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE LUZERNE COUNTY CONSERVATION DISTRICT (LCCD) 72 HOURS PRIOR TO CONSTRUCTION AND 72 HOURS PRIOR TO LEAVING THE SITE.
- ALL BMPS WILL BE INSTALLED AT THE APPROPRIATE LOCATIONS BEFORE WORK BEGINS.
- THE PROPOSED STREAM & WETLAND MITIGATION PLAN WILL BE PERFORMED ALONG TWO SEPARATE SEGMENTS INCLUDING: *SITE A - WALKER RUN NORTH MARKET STREET* AND *SITE B - WALKER RUN SOUTH MARKET STREET*. BECAUSE THE TWO RESTORATION SEGMENTS ARE SEPARATE FROM ONE ANOTHER, CONSTRUCTION MAY BE PERFORMED WITH TWO SEPARATE CREWS WORKING AT BOTH RESTORATION SEGMENTS SIMULTANEOUSLY.
- WHENEVER POSSIBLE, STREAM & FLOODPLAIN GRADING AND STABILIZATION SHALL BE COMPLETED IN PORTIONS ACCORDING TO A DAILY DISTURBANCE ZONE ESTABLISHED AT THE BEGINNING OF EACH WORK DAY TO MINIMIZE THE AMOUNT OF TOTAL DISTURBANCE.
- STREAM & FLOODPLAIN EXCAVATION SHALL BE SEQUENCED IN A MANNER THAT WORK WILL BE COMPLETED IN THE DRY AND TIME SPENT IN ACTIVE FLOW SHALL BE REDUCED TO THE GREATEST EXTENT POSSIBLE. ALL FLOW DIVERSIONS SHALL INTRODUCE FLOWS INTO NEWLY CONSTRUCTED CHANNELS SLOWLY, AND IN-STREAM WORK SHALL OCCUR ONLY DURING LOW FLOW CONDITIONS.
- EXCAVATED SPOIL MATERIAL SHALL BE STOCKPILED ON-SITE IN APPROVED STOCKPILE LOCATIONS AND/OR TRANSPORTED TO AN APPROVED OFF-SITE SPOIL AREA. THE HAUL TRUCKS SHALL ACCESS THE PROJECT SITE VIA ROCK CONSTRUCTION ENTRANCES. THE HAUL TRUCKS SHALL REMAIN ON UNDISTURBED GROUND, GRAVEL, OR PAVED ROADWAYS FOR THE DURATION OF THE HAULING PROCESS. IF MATERIAL IS GENERATED FASTER THAN THE HAUL TRUCK CAN REMOVE IT, THE EXCAVATED MATERIAL SHALL BE MOVED TO THE TEMPORARY STOCKPILE LOCATIONS SHOWN ON THE PLAN WHERE IT MAY BE LOADED INTO THE HAUL TRUCKS AS NECESSARY.
- TOPSOIL EXCAVATION SHALL BE LIMITED TO AREAS THAT ARE DISTURBED DURING EACH WORK DAY. IN OTHER WORDS, TOPSOIL SHALL NOT BE EXCAVATED FROM AREAS BEYOND THE LIMIT OF EACH DAY'S DISTURBANCE ZONE. EXCAVATED TOPSOIL SHALL BE STOCKPILED SEPARATE FROM OTHER EXCAVATED MATERIAL WITHIN TEMPORARY STOCKPILE AREAS. A 4-6" THICK LAYER OF TOPSOIL SHALL BE SPREAD THROUGHOUT PROPOSED FLOODPLAIN AREA TO ACHIEVE FINAL GRADE. UNUSED TOPSOIL WILL BE TRANSPORTED TO THE APPROVED OFF-SITE SPOIL AREA.
- 18" FILTER FABRIC FENCE SHALL BE INSTALLED AROUND THE BASE OF ALL STOCKPILES AS SHOWN ON PLAN.
- AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENT.
- ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE SHALL BE COMPLETED BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE AND ARE NECESSARY TO PERFORM GRADING AND TO PROVIDE SUITABLE ACCESS.

SITE A: WALKER RUN-NORTH MARKET STREET

CONSTRUCTION NOTES:

A. CHANNEL AND FLOODPLAIN EXCAVATION ALONG SEGMENT A WILL TAKE PLACE IN THE DRY. AN 8- TO 10-FOOT WIDE (APPROXIMATE) SWATH ALONG THE STREAMBANKS OF EACH COMPLETED PORTION SHALL BE STABILIZED WITH ROLANKA BIOD-MAT 70 (OR EQUIVALENT) EROSION CONTROL FABRIC. THE PROPOSED WETLAND SEED MIX AS SPECIFIED IN THE SEEDING RESTORATION TABLE (OR EQUIVALENT) SHALL BE APPLIED PRIOR TO INSTALLING EROSION CONTROL FABRIC. ALL GRADED BANKS SHALL BE PROPERLY STABILIZED BEFORE FLOW IS DIRECTED INTO THE RELOCATED CHANNEL.

B. TEMPORARY COFFER DAMS (SANDBAGS OR AN EQUIVALENT) SHALL BE INSTALLED IN THE STREAM AS NECESSARY AT THE UPSTREAM AND DOWNSTREAM LOCATIONS WHERE THE RELOCATED CHANNEL TIES INTO THE EXISTING CHANNEL. THESE TEMPORARY COFFER DAMS WILL DIRECT FLOW AROUND EACH TIE-IN LOCATION WORK AREA UNTIL THE AREA IS GRADED AND PROPERLY STABILIZED. TEMPORARY PUMP AROUND OF BASE FLOW CONDITIONS WILL OCCUR TO REDUCE WORKING IN ACTIVE FLOW CONDITIONS

C. AFTER FLOW HAS BEEN DIRECTED INTO THE STABILIZED RELOCATED CHANNEL, A FILTER BAG SHALL BE INSTALLED AT THE DOWNSTREAM END OF THE ABANDONED CHANNEL SEGMENT TO FILTER ANY REMAINING SEDIMENT-LADEN WATER THAT IS PUSHED OUT OF THE ABANDONED CHANNEL WHILE IT IS BEING FILLED.

D. GRADED AREAS WITHIN THE PROPOSED FLOODPLAIN OF SEGMENT A SHALL BE SEEDED WITH THE PROPOSED WETLAND SEED MIX AS SPECIFICED IN THE SEEDING RESTORATION TABLE (OR AN APPROVED EQUIVALENT) AND STABILIZED WITH AN EROSION CONTROL FABRIC AS SPECIFIED IN THE DETAILS WITHIN 48 HOURS OF COMPLETING FINAL GRADE OR BY THE END OF THE WORK DAY PRIOR TO ANY FORCASTED RAIN EVENT. THE EROSION CONTROL FABRIC WILL BE LAID OUT IN OVERLAPPING STRIPS PERPENDICULAR TO THE DIRECTION OF FLOOD FLOWS WITHIN THE EXISTING VALLEY.

E. ALL REMAINING DISTURBED AREAS OUTSIDE OF THE PROPOSED FLOODPLAIN OF EACH RESTORATION SEGMENT WILL BE STABILIZED WITH THE PROPOSED STABILIZATION SEED MIX AS SPECIFIED IN THE SEEDING RESTORATION TABLE AND MULCH.

CONSTRUCTION SEQUENCE:

1. THE PROPOSED LIMIT OF DISTURBANCE WILL BE IDENTIFIED ON-SITE PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES.
2. INSTALL ROCK CONSTRUCTION ENTRANCES.
3. PERFORM CLEARING AND GRUBBING AS NECESSARY.
4. ALL CONSTRUCTION WORK ON THE PROPOSED CHANNEL WILL BE CONSTRUCTED UNDER DRY CONDITIONS AND SEPARATE FROM THE EXISTING CHANNEL.
5. STRIP TOPSOIL FROM PROPOSED FLOODPLAIN EXCAVATION AREA AND STOCKPILE IN DESIGNATED AREAS AS SHOWN ON GRADING PLAN.
6. IN A DOWNSTREAM TO UPSTREAM DIRECTION, EXCAVATE FLOODPLAIN TO DESIGN SUBGRADE ELEVATIONS LEAVING AN EARTHEN BERM FROM STA. 8+05 TO STA. 8+20 AND FROM STA. 0+00 TO STA. 0+15 ALONG THE PROPOSED CHANNEL.
7. IN A DOWNSTREAM TO UPSTREAM DIRECTION, CONSTRUCT NEW STREAM CHANNEL TO DESIGN ELEVATIONS AND DIMENSIONS AS SPECIFIED IN STREAM DESIGN SCHEDULES LEAVING THE EARTHEN BERMS AT THE UPSTREAM AND DOWNSTREAM TIE-IN LOCATION TO PREVENT FLOW FROM ACCESSING THE NEW CHANNEL PRIOR TO STABILIZATION.
8. INSTALL HABITAT AND GRADE CONTROL STRUCTURES AS SPECIFIED IN HABITAT AND GRADE CONTROL STRUCTURE SCHEDULE, EXCEPT CROSS ROCK VANE AT STA. 0+00. THIS STRUCTURE WILL BE INSTALLED DURING THE TIE-IN OF THE OLD CHANNEL TO THE NEW CHANNEL.
9. STABILIZE BANKS OF RELOCATED CHANNEL WITH EROSION CONTROL FABRIC AS SPECIFIED IN DETAILS.
10. APPLY TOPSOIL AS NECESSARY TO GRADED FLOODPLAIN AREAS AS DIRECTED BY ON-SITE STREAM DESIGNER IF SUITABLE GROWTH MEDIUM IS NOT PRESENT DURING FLOODPLAIN EXCAVATION.
11. STABILIZE GRADED FLOODPLAIN WITH THE PROPOSED WETLAND SEED MIX AS SPECIFIED IN THE SEEDING RESTORATION TABLE AND EROSION CONTROL FABRIC AS SPECIFIED IN DETAILS.
12. REPEAT STAGES 5-11 ACCORDING TO EACH ESTABLISHED DAILY DISTURBANCE ZONE.
13. INSTALL TEMPORARY COFFER DAM AT DOWNSTREAM TIE-IN LOCATION AND INSTALL PUMP AROUND AS SHOWN ON PLAN.
14. CONSTRUCT AND GRADE STREAM CHANNEL AND FLOODPLAIN AT DOWNSTREAM TIE-IN LOCATION TO DESIGN ELEVATIONS AND DIMENSIONS WHERE EARTHEN BERM WAS LOCATED. STABILIZE GRADED BANKS AT TIE-IN LOCATION WITH WETLAND SEED MIX AS SPECIFIED IN THE SEEDING RESTORATION TABLE AND EROSION CONTROL FABRIC AS SPECIFIED IN THE DETAILS.
15. INSTALL TEMPORARY COFFER DAM AT UPSTREAM TIE-IN LOCATION AND INSTALL PUMP AROUND.
16. INSTALL CROSS ROCK VANE AT STA. 0+00 AND GRADE STREAM CHANNEL AND FLOODPLAIN AT UPSTREAM TIE-IN LOCATION TO DESIGN ELEVATIONS AND DIMENSIONS WHERE EARTHEN BERM WAS LOCATED. STABILIZE GRADED BANKS AT TIE-IN LOCATION WITH WETLAND SEED MIX AS SPECIFIED IN THE SEEDING RESTORATION TABLE AND EROSION CONTROL FABRIC AS SPECIFIED IN THE DETAILS..
17. REMOVE TEMPORARY COFFER DAM AT UPSTREAM TIE-IN LOCATION AND DIVERT FLOW INTO STABILIZED RELOCATED CHANNEL.
18. REMOVE TEMPORARY COFFER DAM.
19. INSTALL FILTER BAG AT DOWNSTREAM END IN THE ABANDONED STREAM CHANNEL TO PUMP AND COLLECT SEDIMENT LADEN WATER DURING BACKFILLING OF ABANDONED CHANNEL TO DESIGN ELEVATIONS.
20. COMPLETE ANY REMAINING FLOODPLAIN GRADING.
21. STABILIZE GRADED FLOODPLAIN WITH THE PROPOSED WETLAND SEED MIX AS SPECIFIED IN THE SEEDING RESTORATION TABLE AND EROSION CONTROL FABRIC AS SPECIFIED IN DETAILS.
22. REMOVE ROCK CONSTRUCTION ENTRANCES.
23. STABILIZE ALL REMAINING DISTURBED AREAS OUTSIDE THE FLOODPLAIN AREA WITH PROPOSED STABILIZATION SEED MIX AS SPECIFIED IN THE SEEDING RESTORATION TABLE AND MULCH.
24. INSTALL PROPOSED RIPARIAN VEGETATION ALONG GRADED STREAM BANKS AND WITHIN GRADED FLOODPLAIN.

SITE B: WALKER RUN-SOUTH MARKET STREET

CONSTRUCTION NOTES:

A. CHANNEL AND FLOODPLAIN EXCAVATION ALONG SEGMENT B WILL TAKE PLACE IN THE DRY. AN 8- TO 10-FOOT WIDE (APPROXIMATE) SWATH ALONG THE STREAMBANKS OF EACH COMPLETED PORTION SHALL BE STABILIZED WITH ROLANKA BIOD-MAT 70 (OR EQUIVALENT) EROSION CONTROL FABRIC. THE PROPOSED WETLAND SEED MIX AS SPECIFIED IN THE SEEDING RESTORATION TABLE (OR EQUIVALENT) SHALL BE APPLIED PRIOR TO INSTALLING EROSION CONTROL FABRIC. ALL GRADED BANKS SHALL BE PROPERLY STABILIZED BEFORE FLOW IS DIRECTED INTO THE RELOCATED CHANNEL.

B. TEMPORARY COFFER DAMS (SANDBAGS OR AN EQUIVALENT) SHALL BE INSTALLED IN THE STREAM AS NECESSARY AT THE UPSTREAM AND DOWNSTREAM LOCATIONS WHERE THE RELOCATED CHANNEL TIES INTO THE EXISTING CHANNEL. THESE TEMPORARY COFFER DAMS WILL DIRECT FLOW AROUND EACH TIE-IN LOCATION WORK AREA UNTIL THE AREA IS GRADED AND PROPERLY STABILIZED. TEMPORARY PUMP AROUND OF BASE FLOW CONDITIONS WILL OCCUR TO REDUCE WORKING IN ACTIVE FLOW CONDITIONS

C. AFTER FLOW HAS BEEN DIRECTED INTO THE STABILIZED RELOCATED CHANNEL, A FILTER BAG SHALL BE INSTALLED AT THE DOWNSTREAM END OF THE ABANDONED CHANNEL SEGMENT TO FILTER ANY REMAINING SEDIMENT-LADEN WATER THAT IS PUSHED OUT OF THE ABANDONED CHANNEL WHILE IT IS BEING FILLED.

D. GRADED AREAS WITHIN THE PROPOSED FLOODPLAIN OF SEGMENT A SHALL BE SEEDED WITH THE PROPOSED WETLAND SEED MIX AS SPECIFIED IN THE SEEDING RESTORATION TABLE (OR AN APPROVED EQUIVALENT) AND STABILIZED WITH AN EROSION CONTROL FABRIC AS SPECIFIED IN THE DETAILS WITHIN 48 HOURS OF COMPLETING FINAL GRADE OR BY THE END OF THE WORK DAY PRIOR TO ANY FORCASTED RAIN EVENT. THE EROSION CONTROL FABRIC WILL BE LAID OUT IN OVERLAPPING STRIPS PERPENDICULAR TO THE DIRECTION OF FLOOD FLOWS WITHIN THE EXISTING VALLEY.

E. ALL REMAINING DISTURBED AREAS OUTSIDE OF THE PROPOSED FLOODPLAIN OF EACH RESTORATION SEGMENT WILL BE STABILIZED WITH THE PROPOSED STABILIZATION SEED MIX AS SPECIFIED IN THE SEEDING RESTORATION TABLE AND MULCH.

F. CONSTRUCTION OF ACCESS ROAD BRIDGE ABUTMENTS SHOULD OCCUR DURING THE CONSTRUCTION ACTIVITY OF THE PROPOSED STREAM CHANNEL TO AVOID IMPACTS AND DISTURBANCES TO RESTORED WETLANDS AND STREAM CHANNEL ALONG WALKER RUN.

CONSTRUCTION SEQUENCE:

1. THE PROPOSED LIMIT OF DISTURBANCE WILL BE IDENTIFIED ON-SITE PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES.
2. INSTALL ROCK CONSTRUCTION ENTRANCES.
3. PERFORM CLEARING AND GRUBBING AS NECESSARY.
4. ALL CONSTRUCTION WORK ON THE PROPOSED CHANNEL WILL BE CONSTRUCTED UNDER DRY CONDITIONS AND SEPARATE FROM THE EXISTING CHANNEL.
5. STRIP TOPSOIL FROM PROPOSED FLOODPLAIN EXCAVATION AREA AND STOCKPILE IN DESIGNATED AREAS AS SHOWN ON GRADING PLAN.
6. IN A DOWNSTREAM TO UPSTREAM DIRECTION, EXCAVATE FLOODPLAIN TO DESIGN SUBGRADE ELEVATIONS LEAVING AN EARTHEN BERM FROM STA. 32+70 TO STA. 32+85 AND STA. 0+00 TO STA. 0+15 ALONG THE PROPOSED CHANNEL.
7. IN A DOWNSTREAM TO UPSTREAM DIRECTION, CONSTRUCT NEW STREAM CHANNEL TO DESIGN ELEVATIONS AND DIMENSIONS AS SPECIFIED IN STREAM DESIGN SCHEDULES LEAVING THE EARTHEN BERMS AT THE UPSTREAM AND DOWNSTREAM TIE-IN LOCATION TO PREVENT FLOW FROM ACCESSING THE NEW CHANNEL PRIOR TO STABILIZATION.
8. INSTALL HABITAT AND GRADE CONTROL STRUCTURES AS SPECIFIED IN HABITAT AND GRADE CONTROL STRUCTURE SCHEDULE, EXCEPT CROSS ROCK VANE AT STA. 33+10 AND STA. 0+25. THESE STRUCTURES WILL BE INSTALLED DURING THE TIE-IN OF THE OLD CHANNEL TO THE NEW CHANNEL.
9. STABILIZE BANKS OF RELOCATED CHANNEL WITH EROSION CONTROL FABRIC AS SPECIFIED IN DETAILS.
10. APPLY TOPSOIL AS NECESSARY TO GRADED FLOODPLAIN AREAS AS DIRECTED BY ON-SITE STREAM DESIGNER IF SUITABLE GROWTH MEDIUM IS NOT PRESENT DURING FLOODPLAIN EXCAVATION.
11. STABILIZE GRADED FLOODPLAIN WITH THE PROPOSED WETLAND SEED MIX AS SPECIFIED IN THE SEEDING RESTORATION TABLE AND EROSION CONTROL FABRIC AS SPECIFIED IN DETAILS.
12. REPEAT STAGES 5-11 ACCORDING TO EACH ESTABLISHED DAILY DISTURBANCE ZONE.
13. INSTALL TEMPORARY COFFER DAM AT DOWNSTREAM TIE-IN LOCATION AND PUMP AROUND AS SHOWN ON PLAN.
14. CONSTRUCT AND INSTALL CROSS ROCK VANE GRADE CONTROL STRUCTURE AT STA. 33+10 AND GRADE STREAM CHANNEL AND FLOODPLAIN AT DOWNSTREAM TIE-IN LOCATION TO DESIGN ELEVATIONS AND DIMENSIONS WHERE EARTHEN BERM WAS LOCATED. STABILIZE GRADED BANKS AT TIE-IN LOCATION WITH WETLAND SEED MIX AS SPECIFIED IN THE SEEDING RESTORATION TABLE AND EROSION CONTROL FABRIC AS SPECIFIED IN DETAILS.
15. INSTALL TEMPORARY COFFER DAM AT UPSTREAM TIE-IN LOCATION AND PUMP AROUND.
16. INSTALL CROSS ROCK VANE AT STA. 0+25 AND GRADE STREAM CHANNEL AND FLOODPLAIN AT UPSTREAM TIE-IN LOCATION TO DESIGN ELEVATIONS AND DIMENSIONS WHERE EARTHEN BERM WAS LOCATED. STABILIZE GRADED BANKS AT TIE-IN LOCATION WITH WETLAND SEED MIX AS SPECIFIED IN THE SEEDING RESTORATION TABLE AND EROSION CONTROL FABRIC AS SPECIFIED IN DETAILS.
17. REMOVE TEMPORARY COFFER DAM AT UPSTREAM TIE-IN LOCATION AND DIVERT FLOW INTO STABILIZED RELOCATED CHANNEL.
18. REMOVE TEMPORARY COFFER DAM.
19. INSTALL FILTER BAG AT DOWNSTREAM END IN THE ABANDONED STREAM CHANNEL TO PUMP AND COLLECT SEDIMENT LADEN WATER DURING BACKFILLING OF ABANDONED CHANNEL TO DESIGN ELEVATIONS.
20. COMPLETE ANY REMAINING FLOODPLAIN GRADING.
21. STABILIZE GRADED FLOODPLAIN WITH THE PROPOSED WETLAND SEED MIX AS SPECIFIED IN THE SEEDING RESTORATION TABLE AND EROSION CONTROL FABRIC AS SPECIFIED IN DETAILS.
22. REMOVE ROCK CONSTRUCTION ENTRANCES.
23. STABILIZE ALL REMAINING DISTURBED AREAS OUTSIDE THE FLOODPLAIN AREA WITH PROPOSED STABILIZATION SEED MIX AS SPECIFIED IN THE SEEDING RESTORATION TABLE AND MULCH.
24. INSTALL PROPOSED RIPARIAN VEGETATION ALONG GRADED STREAM BANKS AND WITHIN GRADED FLOODPLAIN.

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PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
E&SPC PLAN - CONSTRUCTION SCHEDULES
STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
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PROJECT NUMBER: E-726-L8
DRAWN BY: BRU
CHECKED BY: BJE; AWD
DATE: OCTOBER 29, 2010
SCALE: NTS
E&SPC PLAN - 6
SHEET NUMBER: 15 OF 17

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Herbaceous

Key	%	Botanical Name	Common Name	Size	Qty.	Spacing	I.S.	Notes
WM1	15.00%	*Boltonia asteroides*	Thousand-flowered Aster	Quart	88	24"	FACW	
	20.00%	*Carex crinita*	Fringed Sedge	Quart	118	24"	OBL	
	15.00%	*Juncus effusus*	Soft Rush	Quart	88	24"	OBL	
	10.00%	*Scirpus validus*	Soft Stemmed Bullrush	Quart	59	24"	OBL	
	30.00%	*Iris versicolor*	Blue Flag	Quart	177	24"	OBL	
	10.00%	*Pontederia cordata*	Pickerelweed	Quart	59	24"	OBL	
	100.00%				590			
WM2	15.00%	*Asclepias incarnata*	Swamp Milkweed	Quart	118	24"	FACW+	
	20.00%	*Carex crinita*	Fringed Sedge	Quart	157	24"	OBL	
	20.00%	*Juncus effusus*	Soft Rush	Quart	157	24"	OBL	
	10.00%	*Lobelia siphilitica*	Great Blue Lobelia	Quart	79	24"	FACW+	
	15.00%	*Aster novae-angliae*	New England Aster	Quart	118	24"	FACW	
	20.00%	*Chelone glabra*	White Turtlehead	Quart	157	24"	FACW	
	100.00%				738			
WM3	20.00%	*Eupatorium perfoliatum*	Common Boneset	Quart	144	24"	FACW+	
	20.00%	*Carex lurida*	Lurid Sedge	Quart	144	24"	OBL	
	15.00%	*Scirpus validus*	Soft Stemmed Bullrush	Quart	108	24"	OBL	
	15.00%	*Carex vulpinoidea*	Fox Sedge	Quart	108	24"	OBL	
	10.00%	*Peltandra virginica*	Arrow Arum	Quart	72	24"	OBL	
	20.00%	*Veronia novenboracensis*	New York Ironweed	Quart	144	24"	FACW	
	100.00%				770			
CM1	30.00%	*Carex crinita*	Fringed Sedge	Quart	575	24"	FACW+	
	15.00%	*Carex lurida*	Lurid Sedge	Quart	287	24"	OBL	
	20.00%	*Carex stipata*	Awl-Fruited Sedge	Quart	383	24"	OBL	
	10.00%	*Carex stricta*	Tussock Sedge	Quart	192	24"	OBL	
	25.00%	*Carex vulpinoidea*	Fox Sedge	Quart	479	24"	OBL	
	100.00%				1916			

Trees

Key	%	Botanical Name	Common Name	Size	Qty.	Spacing	I.S.	Notes
AR	20.00%	*Acer rubrum*	Red Maple	#15	20	20-30'	FAC	
AS	12.00%	*Acer saccharinum*	Silver Maple	#15	12	20-30'	FACW	
CO	10.00%	*Carya ovata*	Shagbark Hickory	#15	10	20-30'	FACU	Upland areas only
NS	8.00%	*Nyssa sylvatica*	Black Gum	#15	8	20-30'	FAC	Do not plant in areas with frequent standing water
PO	10.00%	*Platanus occidentalis*	American Sycamore	#15	10	20-30'	FACW	
QB	10.00%	*Quercus bicolor*	Swamp White Oak	#15	10	20-30'	FACW	
QP	30.00%	*Quercus palustris*	Pin Oak	#15	30	20-30'	FACW	
	100.00%				100			

Shrubs

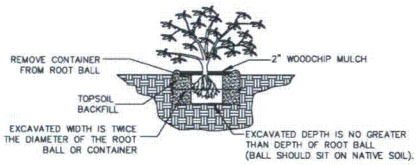
Key	%	Botanical Name	Common Name	Size	Qty.	Spacing	I.S.	Notes
	10.00%	*Alnus rugosa*	Speckled Alder	#5	49	4-6'	FACW	
	15.00%	*Alnus serrulata*	Smooth Alder	#5	73	4-6'	OBL	
	5.00%	*Aronia arbutifolia*	Red Chokeberry	#5	24	4-6'	FACW	
	5.00%	*Cephalanthus occidentalis*	Buttonbush	#5	24	4-6'	OBL	
	5.00%	*Cornus amomum*	Silky Dogwood	#5	24	4-6'	FACW	
	12.00%	*Cornus racemosa*	Grey Dogwood	#5	58	4-6'	FAC	
	10.00%	*Ilex verticillata*	Winterberry	#5	49	4-6'	FACW	1 male for every 8 females
	15.00%	*Lindera benzoin*	Spicebush	#5	73	4-6'	FACW	
	8.00%	*Vaccinium corymbosum*	Highbush Blueberry	#5	39	4-6'	FACW	
	7.00%	*Viburnum dentatum*	Arrowwood	#5	34	4-6'	FAC	
	8.00%	*Viburnum trilobum*	Cranberry Bush	#5	39	4-6'	FACW	
	100.00%				485			

Wetland Mix 1 (WM1)
Wetland Mix 2 (WM2)
Wetland Mix 3 (WM3)
Channel Mix 1(CM1)
Proposed Tree
Proposed Shrub

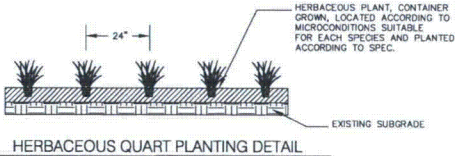
BEACH GROVE ROAD

DO NOT DISTURB

SCALE: 1" = 50'



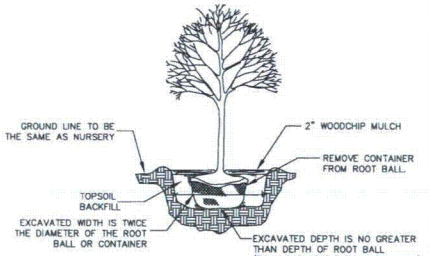
L-1 / 16 TYPICAL SHRUB PLANTING - CONTAINER
N.T.S.



L-2 / 16 HERBACEOUS QUART PLANTING DETAIL
N.T.S.

PLANT SPECIFICATIONS :

1. ALL PLANTS SHALL BE NURSERY GROWN IN A CLIMATE SIMILAR TO THAT OF THE LOCALITY OF THE PROJECT.
2. SET PLANTS AT SAME FINISHED GRADE AS GROWN IN THE NURSERY.
3. ALL PLANTS SHALL HAVE A NORMAL HABIT OF GROWTH AND SHALL BE SOUND, HEALTHY AND VIGOROUS, THEY SHALL BE FREE FROM DISEASE, INSECTS, INSECT EGGS, AND LARVAE.
4. ALL PLANTING SHALL BE PERFORMED IN CONFORMANCE WITH GOOD NURSERY AND LANDSCAPE PRACTICE.



L-3 / 16 TREE PLANTING DETAIL
N.T.S.

PA 042334
717-627-4440
fax: 717-627-4660
landstudies.com
land@landstudies.com
315 North Street | Lititz, PA 17543
Land studies

PROJECT:
BELL BEND NUCLEAR POWER PLANT
PPL BELL BEND, LLC.
38 BOMBOY LANE, SUITE 2
BERWICK, PENNSYLVANIA 18603

SHEET TITLE:
LANDSCAPE PLAN - SITE A
STREAM & WETLAND MITIGATION PLAN - WALKER RUN SITE
SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
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PROJECT NUMBER: E-726-L8
DRAWN BY: BRU
CHECKED BY: BJE, AWD
DATE: OCTOBER 29, 2010
SCALE: 1"=50'
LANDSCAPE PLAN - 1
SHEET NUMBER: 16 OF 17

10/29/2010 3:38:56 PM, DRAFT

Herbaceous

Key	%	Botanical Name	Common Name	Size	Qty.	Spacing	I.S.	Notes
WM1	15.00%	*Boltonia asteroides*	Thousand-flowered Aster	Quart	579	0.25	FACW	
	20.00%	*Carex crinita*	Fringed Sedge	Quart	772	0.25	OBL	
	15.00%	*Juncus effusus*	Soft Rush	Quart	579	0.25	OBL	
	10.00%	*Scirpus validus*	Soft Stemmed Bullrush	Quart	386	0.25	OBL	
	30.00%	*Iris versicolor*	Blue Flag	Quart	1158	0.25	OBL	
	10.00%	*Pontederia cordata*	Pickerelweed	Quart	386	0.25	OBL	
	100.00%				3860			
WM2	15.00%	*Asclepias incarnata*	Swamp Milkweed	Quart	334	0.25	FACW+	
	20.00%	*Carex crinita*	Fringed Sedge	Quart	446	0.25	OBL	
	20.00%	*Juncus effusus*	Soft Rush	Quart	446	0.25	OBL	
	10.00%	*Lobelia siphilitica*	Great Blue Lobelia	Quart	223	0.25	FACW+	
	15.00%	*Aster novae-angliae*	New England Aster	Quart	334	0.25	FACW	
	20.00%	*Chelone glabra*	White Turtlehead	Quart	446	0.25	FACW	
	100.00%				2367			
WM3	20.00%	*Eupatorium perfoliatum*	Common Boneset	Quart	778	0.25	FACW+	
	20.00%	*Carex lurida*	Lurid Sedge	Quart	778	0.25	OBL	
	15.00%	*Scirpus validus*	Soft Stemmed Bullrush	Quart	584	0.25	OBL	
	15.00%	*Carex vulpinoidea*	Fox Sedge	Quart	584	0.25	OBL	
	10.00%	*Peltandra virginica*	Arrow Arum	Quart	389	0.25	OBL	
	20.00%	*Veronia noveboracensis*	New York Ironweed	Quart	778	0.25	FACW	
	100.00%				3754			
CM1	30.00%	*Carex crinita*	Fringed Sedge	Quart	1555	0.25	FACW+	
	15.00%	*Carex lurida*	Lurid Sedge	Quart	777	0.25	OBL	
	20.00%	*Carex stipata*	Awl-Fruited Sedge	Quart	1036	0.25	OBL	
	10.00%	*Carex stricta*	Tussock Sedge	Quart	518	0.25	OBL	
	25.00%	*Carex vulpinoidea*	Fox Sedge	Quart	1295	0.25	OBL	
	100.00%				5182			

Trees

%	Botanical Name	Common Name	Size	Qty.	Spacing	I.S.	Notes
20.00%	*Acer rubrum*	Red Maple	#15	45	20-30'	FAC	
12.00%	*Acer saccharinum*	Silver Maple	#15	27	20-30'	FACW	
10.00%	*Carya ovata*	Shagbark Hickory	#15	23	20-30'	FACU	Upland areas only
8.00%	*Nyssa sylvatica*	Black Gum	#15	18	20-30'	FAC	Do not plant in areas with frequent standing water
10.00%	*Platanus occidentalis*	American Sycamore	#15	23	20-30'	FACW	
10.00%	*Quercus bicolor*	Swamp White Oak	#15	23	20-30'	FACW	
30.00%	*Quercus palustris*	Pin Oak	#15	68	20-30'	FACW	
100.00%				225			

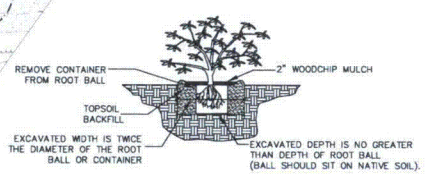
Shrubs

%	Botanical Name	Common Name	Size	Qty.	Spacing	I.S.	Notes
10.00%	*Alnus rugosa*	Speckled Alder	#5	109	4-6'	FACW	
15.00%	*Alnus serrulata*	Smooth Alder	#5	163	4-6'	OBL	
5.00%	*Aronia arbutifolia*	Red Chokeberry	#5	54	4-6'	FACW	
5.00%	*Cephalanthus occidentalis*	Buttonbush	#5	54	4-6'	OBL	
5.00%	*Cornus amomum*	Silky Dogwood	#5	54	4-6'	FACW	
12.00%	*Cornus racemosa*	Grey Dogwood	#5	130	4-6'	FAC-	
10.00%	*Ilex verticillata*	Winterberry	#5	109	4-6'	FACW	1 male for every 8 females
15.00%	*Lindera benzoin*	Spicebush	#5	163	4-6'	FACW	
8.00%	*Vaccinium corymbosum*	Highbush Blueberry	#5	87	4-6'	FACW	
7.00%	*Viburnum dentatum*	Arrowwood	#5	76	4-6'	FAC	
8.00%	*Viburnum trilobum*	Cranberry Bush	#5	87	4-6'	FACW	
100.00%				1086			

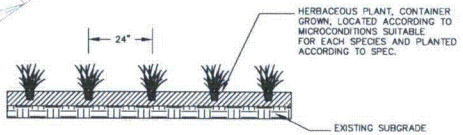
Wetland Mix 1 (WM1)
Wetland Mix 2 (WM2)
Wetland Mix 3 (WM3)
Channel Mix 1(CM1)
Proposed Tree
Proposed Shrub

0 60' 120' 180'
SCALE: 1" = 60'

MARKET STREET



L-1 / 17 TYPICAL SHRUB PLANTING - CONTAINER
N.T.S.



L-2 / 17 HERBACEOUS QUART PLANTING DETAIL
N.T.S.

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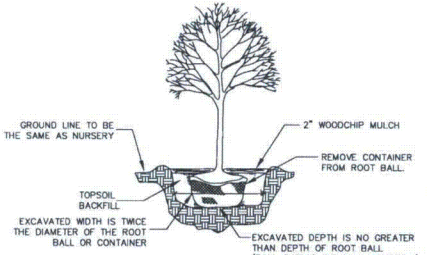

L-3 / 17 TREE PLANTING DETAIL
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SHEET TITLE: LANDSCAPE PLAN - SITE B
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SALEM TOWNSHIP
LUZERNE COUNTY, PENNSYLVANIA

REVISIONS		
NO.	DATE	DESCRIPTION
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PROJECT NUMBER: E-726-L8
DRAWN BY: BRU
CHECKED BY: BJE, AWD
DATE: OCTOBER 29, 2010
SCALE: 1"=60'
LANDSCAPE PLAN - 2
SHEET NUMBER: 17 OF 17

10/29/2010 3:40:51 PM, DRAFT