

BETHLEHEM CENTER II

241 N.Y.S. ROUTE 9W

TOWN OF BETHLEHEM

ALBANY COUNTY, NEW YORK

PROJECT CONTACT LIST

CONSULTANTS	DEVELOPER	GOVERNMENTAL APPROVAL AGENCIES
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SURVEY L. SUPPERLY & ASSOCIATES 1000 W. COLUMBIAN AVE., ROOM 203 LATHAM, NY 12110 (518) 782-8000	SEWER TOWN OF BETHLEHEM DEPARTMENT OF PUBLIC WORKS - SEWER DIVISION TOWN HALL, ROOM 203 LATHAM, NY 12110 (518) 433-2125	FIRE DEPARTMENT ELSMAR FIRE COMPANY A, INC 15 WEST POPULAR DRIVE DELMAR, NY 12054 (518) 439-9141
CIVIL ENGINEER NIGRO COMPANIES 200 FIRST FEDERAL PLAZA 28 EAST MAIN STREET ROCHESTER, NY 14614 MR. PETE GOVENCO, P.E. (585) 232-5135	ELECTRIC & GAS NAGARA MOHAWK POWER CORPORATION 1000 W. COLUMBIAN AVE. ALBANY, NEW YORK 12204-2535 MRS. LINDA HEWITT (518) 433-3015	
GEOTECHNICAL ENGINEER GFFORD ENGINEERING 825 PEARSE ROAD ROCHESTER, NY 14609 MR. GREG GIFFORD (518) 382-2545	TELEPHONE VERIZON ALBANY, NEW YORK 12202 MR. SHERMAN LANE (518) 431-6386	
	STORM DRAINAGE BERGMAN ASSOCIATES 200 FIRST FEDERAL PLAZA 28 EAST MAIN STREET ROCHESTER, NY 14614 MR. PETE GOVENCO, P.E. (585) 232-5135	
	UNDERGROUND UTILITY STATEMENT PROTECTIVE ORGANIZATION 1-800-982-7982	

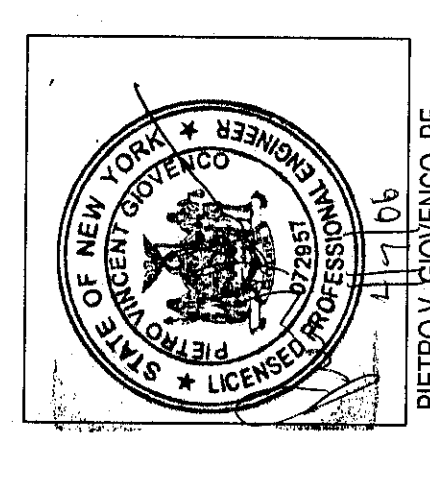
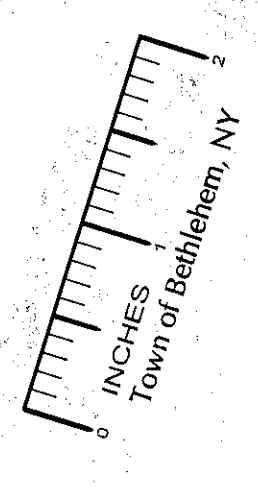


SITE LOCATION MAP
SCALE: 1"=1,000'

REVISED 10/14/05

PREPARED FOR:
Nigro Companies
20 Corporate Woods Blvd.
Albany, NY 12211

PREPARED BY:
B E R G M A N N
associates
Engineers / Architects / Surveyors
280 First Federal Plaza
Albany, New York 12211
585.232.5135 / 585.232.4652 fax



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PLANNING BOARD
TOWN OF BETHLEHEM

PLANNING BOARD
TOWN OF BETHLEHEM
ALBANY COUNTY, NEW YORK
This Site Plan Approved.
Title: Bethlehem Center II
Date: 5/14/06
Chairman: [Signature]

CV-1
PIETRO V. GOVENCO, PE
NYS LICENSE #072957
REVISED 3/20/05
SPA 118A

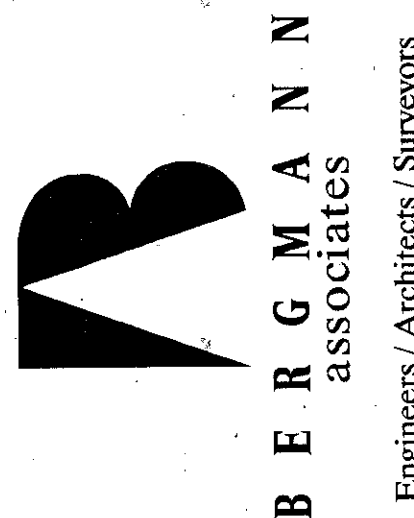
SHEET INDEX

DRAWING NO.	TITLE	REVISION DATE
CV-1	COVER SHEET	3/20/06
F-08184	ALTAZON LAND TITLE SURVEY	02/16/05
F-00076	BOUNDARY & TOPOGRAPHIC SURVEY OF A PORTION OF LANDS OWNED BY SOUTHCATE COMPANY	02/16/05
C100	CONSTRUCTION PHASING PLAN	3/22/06
C101	SITE PLAN	3/20/06
C102	UTILITY PLAN	3/20/06
C103	EARTHWORK AND GRADING PLAN	3/20/06
C104	EROSION AND SEDIMENT CONTROL PLAN PHASE I	2/01/06
C105	EROSION AND SEDIMENT CONTROL PLAN PHASE II	3/22/06
L101	LANDSCAPE PLAN	3/22/06
L102	LANDSCAPE DETAILS	2/01/06
C301	MISCELLANEOUS DETAILS	2/01/06
C302	MISCELLANEOUS DETAILS	2/01/06
C303	MISCELLANEOUS DETAILS	2/01/06
C304	MISCELLANEOUS DETAILS	2/01/06
C305	RETAINING WALL PLAN AND DETAILS	10/14/05
C306	RETAINING WALL NOTES	10/14/05
C307	RETAINING WALL NOTES	10/14/05
C308	SANITARY SEWER PROFILES	3/20/06
C701	LIGHTING PHOTOMETRIC PLAN	3/22/06

NOT APPROVED: THIS PLAN HAS NOT RECEIVED FINAL APPROVAL OF ALL REVIEWING AGENCIES. THIS PLAN IS SUBJECT TO REVISIONS UNTIL ALL APPROVALS ARE OBTAINED AND SHOULD NOT BE USED FOR CONSTRUCTION PURPOSES.

**BETHLEHEM
CENTER II**
241 NYS Route 9W
BETHLEHEM, NY

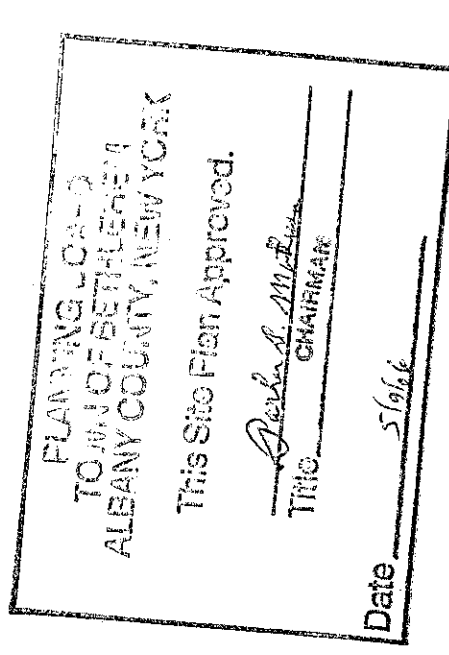
**NIGRO
COMPANIES**
20 CORPORATE WOODS BLVD.
ALBANY, NEW YORK 12211



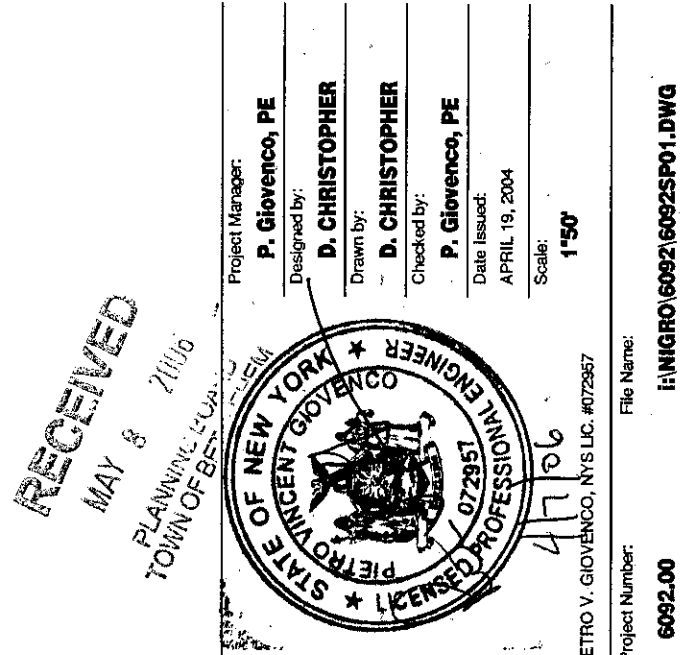
**BERGMANN
associates**
Engineers / Architects / Surveyors
200 First Federal Plaza
28 East Main Street, Rochester, New York 14614
585.232.5155 / 585.232.4657 fax

NO.	DATE	DESCRIPTION	REV.	BY
1	12/16/04	REV. PER PER. CHIEF	DOC	PVG
2	3/19/05	REV. PER TOWN ENG.	DOC	PVG
3	08/01/05	REV. PER TOWN ENG.	DOC	PVG
4	10/14/05	MINOR REVISIONS	DOC	PVG
5	2/10/06	REVISED BUILDING ENVELOPE	DOC	PVG
6	3/23/06	REVISED BUILDING ENVELOPE	DOC	PVG
7	3/19/06	ADDED PARKING SPACE	DOC	PVG
8	3/30/06	REVISED ASPHALT FRONT OF PETSMAST	DOC	PVG

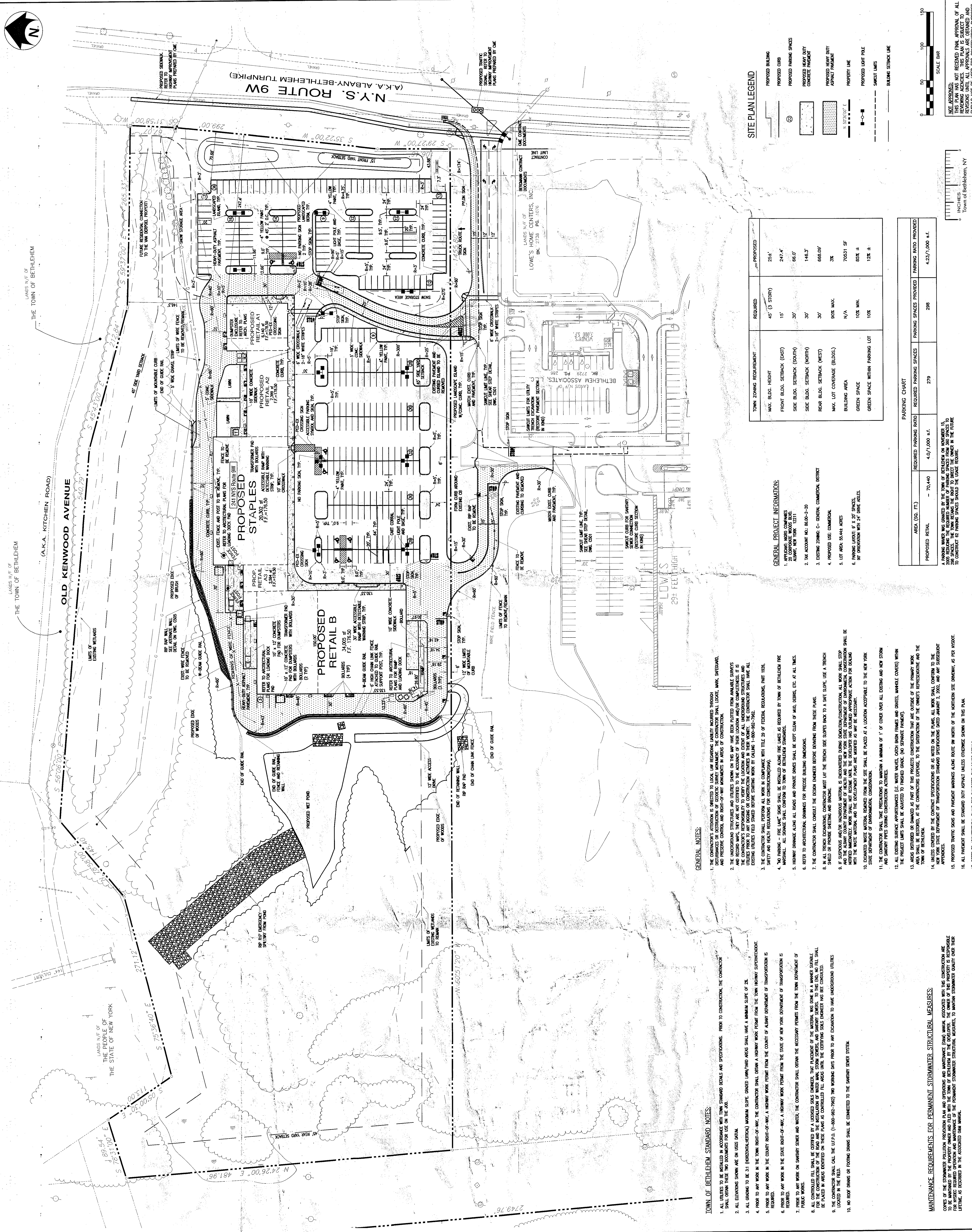
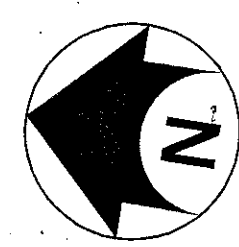
NOTE:
This site plan is a proposed alteration of addition to this drawing is a violation of the New York State Education Law Article 145, Section 7209.



SITE PLAN

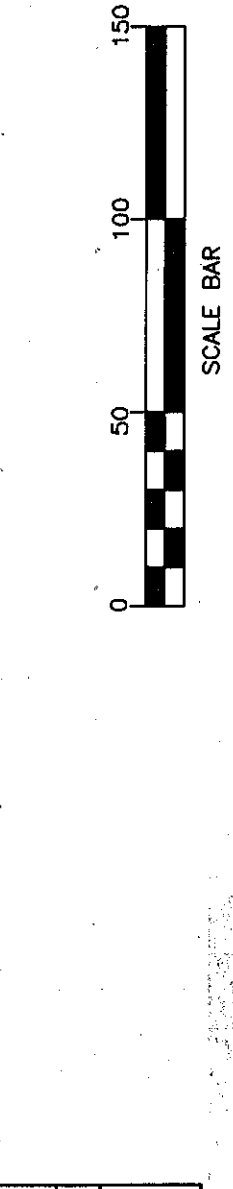


C101



SITE PLAN LEGEND

	PROPOSED BUILDING
	PROPOSED CURB
	PROPOSED PARKING SPACES
	PROPOSED NEW DUTY CONCRETE PAVEMENT
	PROPOSED NEW DUTY ASPHALT PAVEMENT
	PROPERTY LINE
	PROPOSED LIGHT POLE
	STREET LIMITS
	BUILDING SETBACK LINE



NOT APPROVED:
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GENERAL PROJECT INFORMATION:

1. APPLICANT: NIGRO COMPANIES, INC., 20 CORPORATE WOODS BLVD., ALBANY, NEW YORK 12211
2. TAX ACCOUNT NO.: 86-00-2-20
3. EXISTING ZONING: C - GENERAL COMMERCIAL DISTRICT
4. PROPOSED USE: COMMERCIAL
5. LOT AREA: 56,446 SQ. FT.
6. PARKING: 298 SPACES
7. LOT AREA: 56,446 SQ. FT.
8. LOT AREA: 56,446 SQ. FT.
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15. LOT AREA: 56,446 SQ. FT.
16. LOT AREA: 56,446 SQ. FT.
17. LOT AREA: 56,446 SQ. FT.

TOWN ZONING REQUIREMENT	REQUIRED	PROPOSED
MAX. BLDG. HEIGHT	45' (3 STORIES)	25.4'
FRONT BLDG. SETBACK (EAST)	15'	241.4'
FRONT BLDG. SETBACK (WEST)	30'	66.0'
FRONT BLDG. SETBACK (NORTH)	30'	144.3'
FRONT BLDG. SETBACK (SOUTH)	30'	668.08'
REAR BLDG. SETBACK (EAST)	30'	33'
REAR BLDG. SETBACK (WEST)	30'	70531.5'
REAR BLDG. SETBACK (NORTH)	30'	658.08'
REAR BLDG. SETBACK (SOUTH)	30'	658.08'
MAX. LOT COVERAGE (BLOSS.)	N/A	100% MIN.
BUILDING AREA	100% MIN.	100% MIN.
GREEN SPACE	100% MIN.	100% MIN.
GREEN SPACE WITHIN PARKING LOT	100% MIN.	100% MIN.

PARKING CHART

AREA (SQ. FT.)	REQUIRED PARKING RATIO	REQUIRED PARKING SPACES	PARKING SPACES PROVIDED	PARKING RATIO PROVIDED
PROPOSED RETAIL	4.0/1,000 s.f.	279	298	4.23/1,000 s.f.

GENERAL NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE TOWN OF BETHLEHEM, NEW YORK, AND THE STATE OF NEW YORK, PRIOR TO CONSTRUCTION.
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TOWN OF BETHLEHEM STANDARD NOTES:

1. ALL UTILITIES TO BE INSTALLED IN ACCORDANCE WITH TOWN STANDARD DETAILS AND SPECIFICATIONS. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN THESE TWO DOCUMENTS FOR USE ON THE JOB.
2. ALL ELEVATIONS SHOWN ARE ON U.S.S. DATUM.
3. ALL GRADING TO BE 3:1 (HORIZONTAL:VERTICAL) MAXIMUM SLOPE. GRADED LANEWAYS/ROADS SHALL HAVE A MINIMUM SLOPE OF 2%.
4. PRIOR TO ANY WORK IN THE TOWN RIGHT-OF-WAY, THE CONTRACTOR SHALL OBTAIN A HIGHWAY WORK PERMIT FROM THE TOWN ENGINEER SUPERINTENDENT.
5. PRIOR TO ANY WORK IN THE COUNTY RIGHT-OF-WAY, A HIGHWAY WORK PERMIT FROM THE COUNTY OF ALBANY DEPARTMENT OF TRANSPORTATION IS REQUIRED.
6. PRIOR TO ANY WORK IN THE STATE RIGHT-OF-WAY, A HIGHWAY WORK PERMIT FROM THE STATE OF NEW YORK DEPARTMENT OF TRANSPORTATION IS REQUIRED.
7. PRIOR TO ANY WORK ON SANITARY SEWER AND WATER, THE CONTRACTOR SHALL OBTAIN THE NECESSARY PERMITS FROM THE TOWN ENGINEER SUPERINTENDENT OF THE TOWN OF BETHLEHEM.
8. ALL CONTROLLED FILL SHALL BE COVERED BY A LICENSED GEOS ENGINEER. THAT PLACEHOLDER OF THE MATERIAL, WAS DONE IN A MANNER SUITABLE FOR THE CONSTRUCTION OF THE ROAD AND THE REGULATION OF WATER MAIN, STORM SEWERS, AND SANITARY SEWERS. TO THE END, NO FILL SHALL BE PLACED IN AREAS IDENTIFIED ON THESE PLANS AS CONTROLLED FILL AREAS UNTIL THE CERTIFYING GEOS ENGINEER HAS BEEN CONSULTED.
9. THE CONTRACTOR SHALL OBTAIN THE U.F.D. (1-800-962-7962) TWO WORKING DAYS PRIOR TO ANY EXCAVATION TO HAVE UNDERGROUND UTILITIES LOCATED IN THE FIELD.
10. NO ROOF DRAIN OR FLOODING DRAIN SHALL BE CONNECTED TO THE SANITARY SEWER SYSTEM.

MAINTENANCE REQUIREMENTS FOR PERMANENT STORMWATER STRUCTURAL MEASURES:

COPIES OF THE STORMWATER POLLUTION PREVENTION PLAN AND OPERATIONS AND MAINTENANCE (O&M) MANUAL ASSOCIATED WITH THIS CONSTRUCTION ARE TO BE MAINTAINED BY THE PROPERTY OWNER AND FILED WITH THE TOWN OF BETHLEHEM BY THE DEVELOPER. THE OWNER OF THE PROPERTY IS RESPONSIBLE FOR INSURE REQUIRED OPERATIONS AND MAINTENANCE OF THE PERMANENT STORMWATER STRUCTURAL MEASURES, TO MAINTAIN STORMWATER QUALITY OVER THEIR LIFETIME, AS REQUIRED BY THE ASSOCIATED O&M MANUAL.

10. THE CONTRACTOR SHALL REFER TO THE BETHLEHEM CENTER II ENGINEERS REPORT SANITARY SEWER AND WATER SYSTEM, DATED APRIL 2005, REVISED SEPTEMBER 2005.

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CENTER II**
241 NYS Route 9W
BETHLEHEM, NY

**NIGRO
COMPANIES**
20 CORPORATE WOODS BLVD.
ALBANY, NEW YORK 12211

**B E R G M A N N
a s s o c i a t e s**
Engineers / Architects / Surveyors
200 First Federal Plaza
38 East Main Street, Rochester, New York 14614
585.232.5151 / 585.232.4632 fax

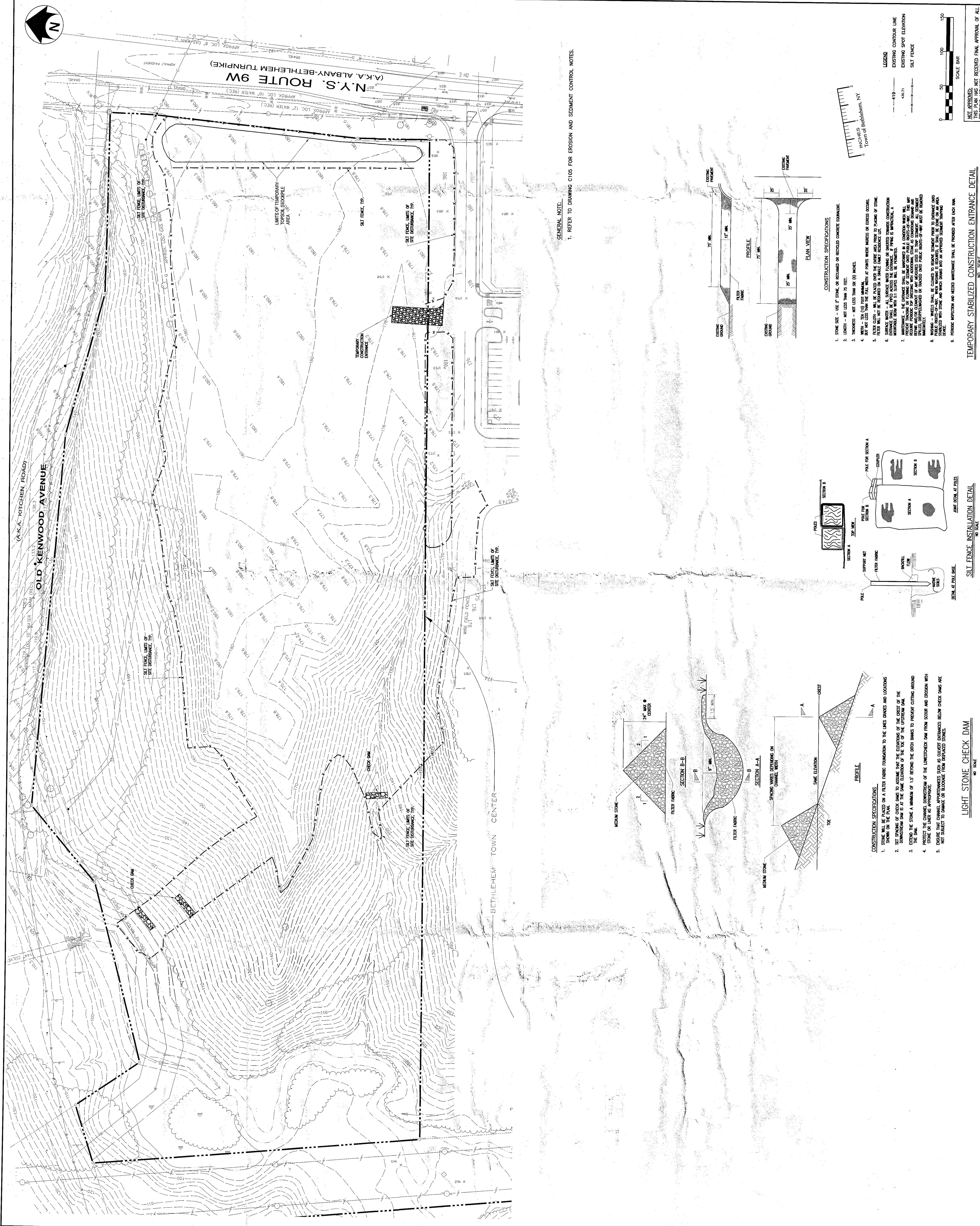
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2	3/18/05	REV. PER T&S COMMENTS	DOC	PWG
3	08/01/05	REV. PER T&S COMMENTS	DOC	PWG
4	08/26/05	REV. PER T&S COMMENTS	DOC	PWG
5	10/14/05	REV. PER T&S COMMENTS	DOC	PWG
6	2/01/06	REV. PER T&S COMMENTS	DOC	PWG

NOTE:
Unintentional addition or deletion to this drawing is a
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CENTER II, INC.
This sub plan approved
Date 3/14/06

**EROSION AND
SEDIMENT CONTROL
PLAN
PHASE I**
RECEIVED
APR 8 2006
TOWN OF BETHLEHEM

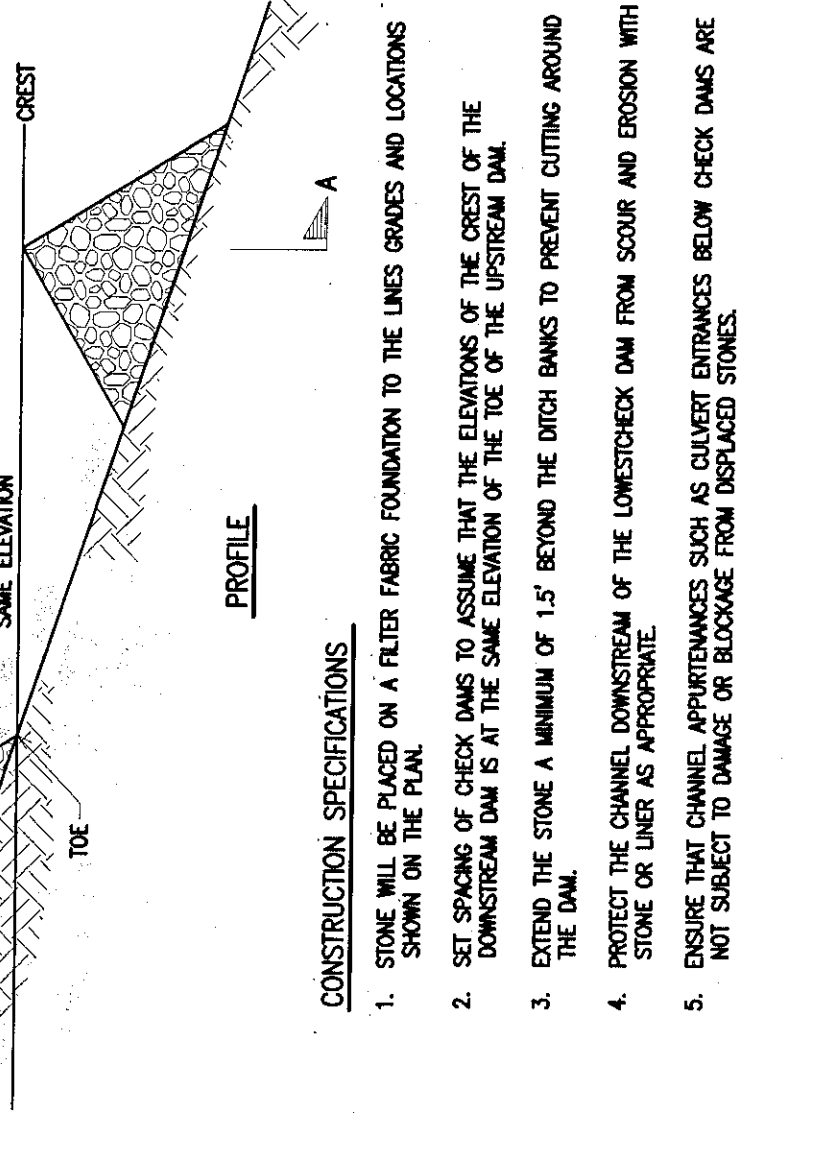
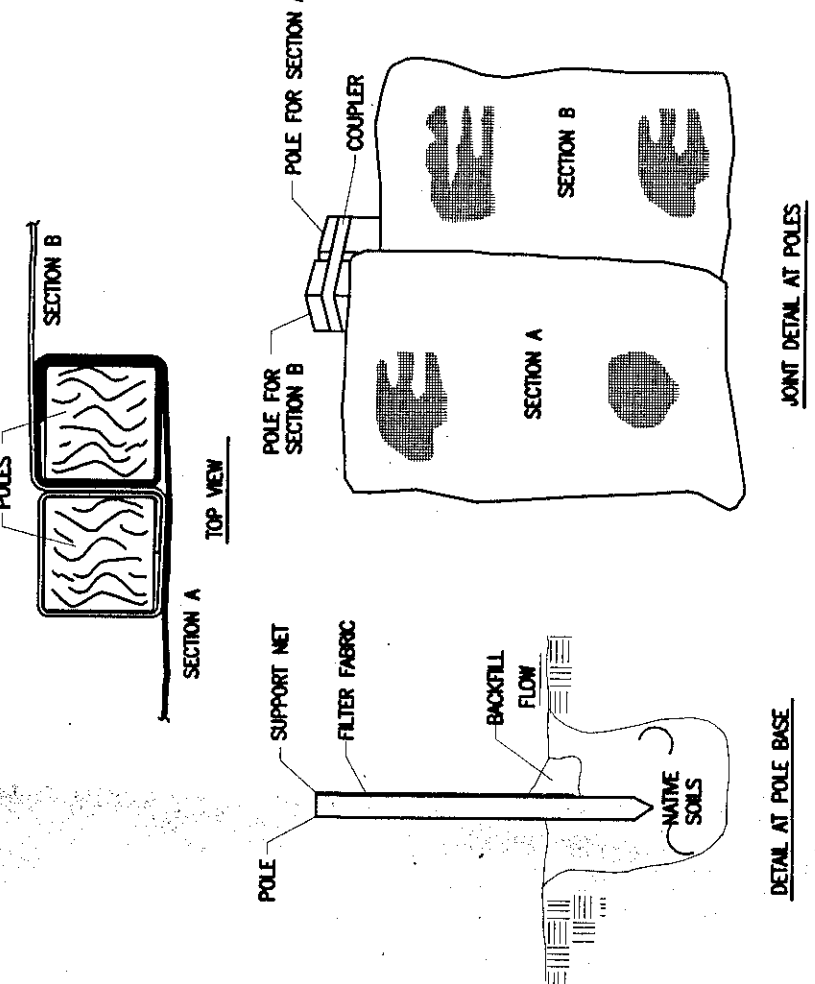
PROJECT NUMBER: 060220
PROJECT NAME: BETHLEHEM CENTER II
DRAWING NUMBER: C104
DATE: APRIL 10, 2004
SCALE: 1"=50'

C104



GENERAL NOTE:
1. REFER TO DRAWING C105 FOR EROSION AND SEDIMENT CONTROL NOTES.

- CONSTRUCTION SPECIFICATIONS
- STONE SIZE - USE 2" STONE OR EQUIVALENT OR RECYCLED CONCRETE EXAMINER.
 - LENGTH - NOT LESS THAN 75 FEET.
 - THICKNESS - NOT LESS THAN 50 (6) INCHES.
 - WIDTH - 100 (100) FEET MINIMUM.
 - DEPTH - NOT LESS THAN THE FULL WIDTH AT POINTS WHERE SIDES OF EXCESS ODDS.
 - FILTER FABRIC SHALL BE PLACED ON A BED OF 1/2" SAND OR EQUIVALENT.
 - MAINTENANCE - THE EXAMINER SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT THE EXAMINER FROM BEING DAMAGED BY THE EXAMINER.
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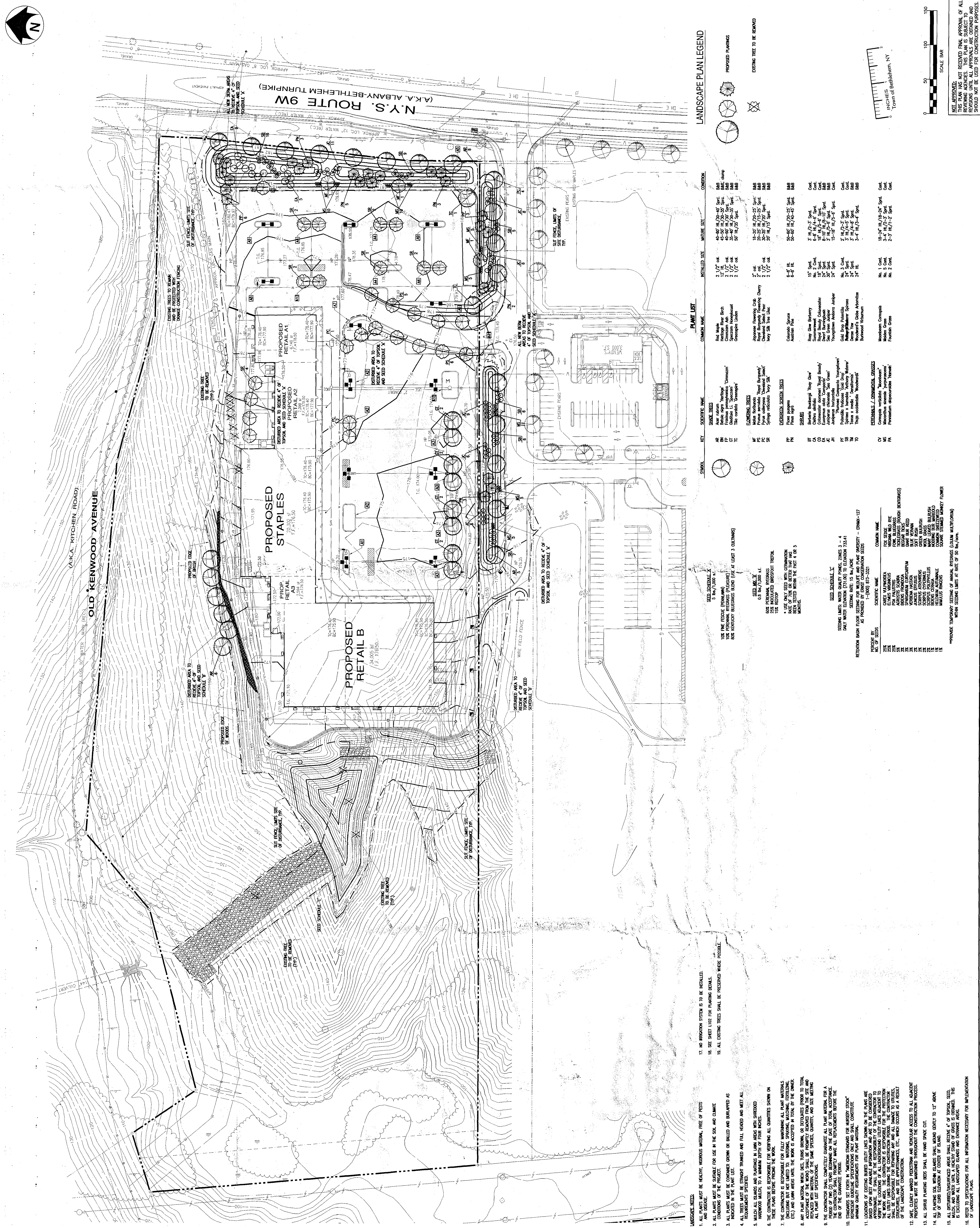


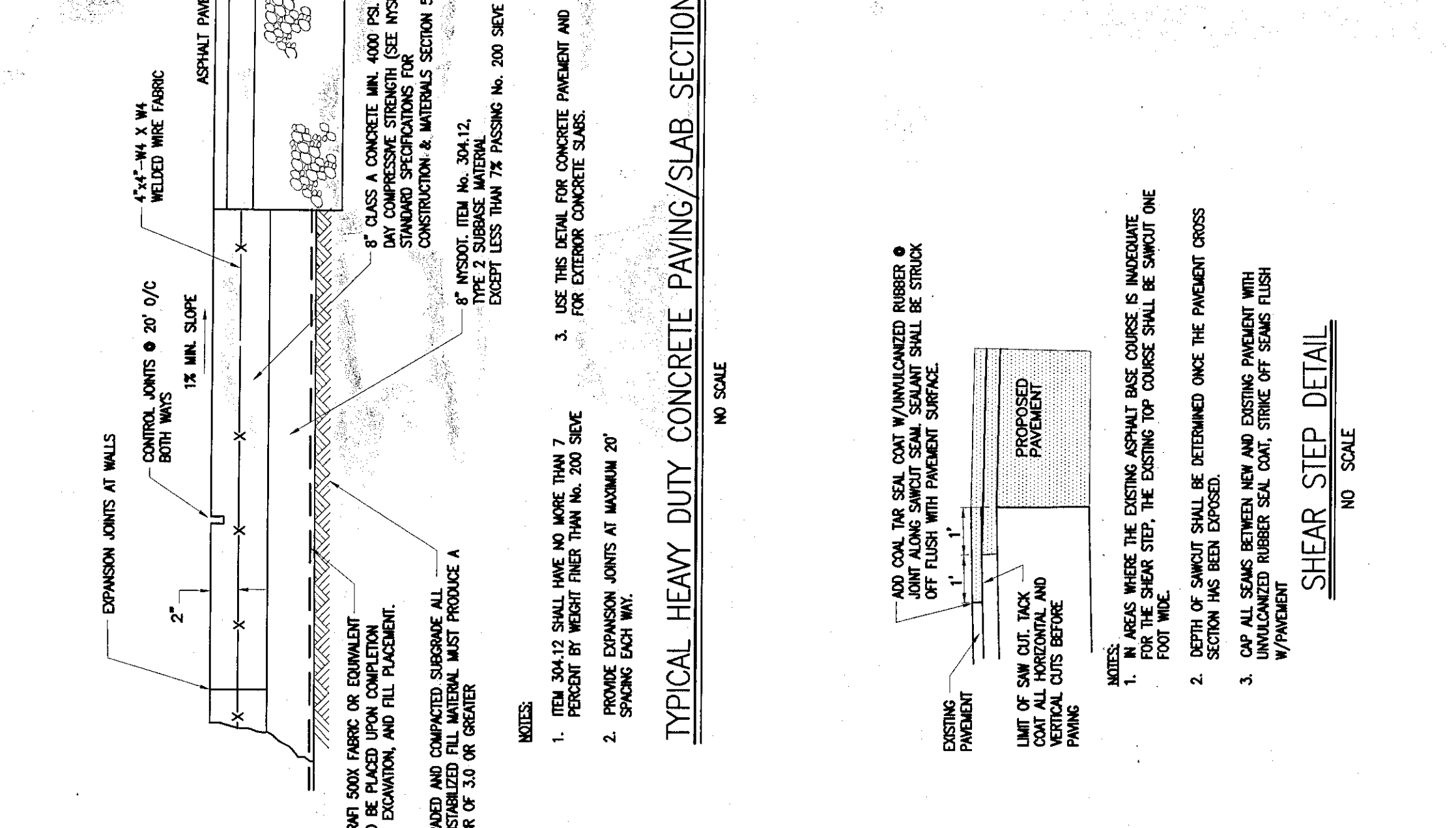
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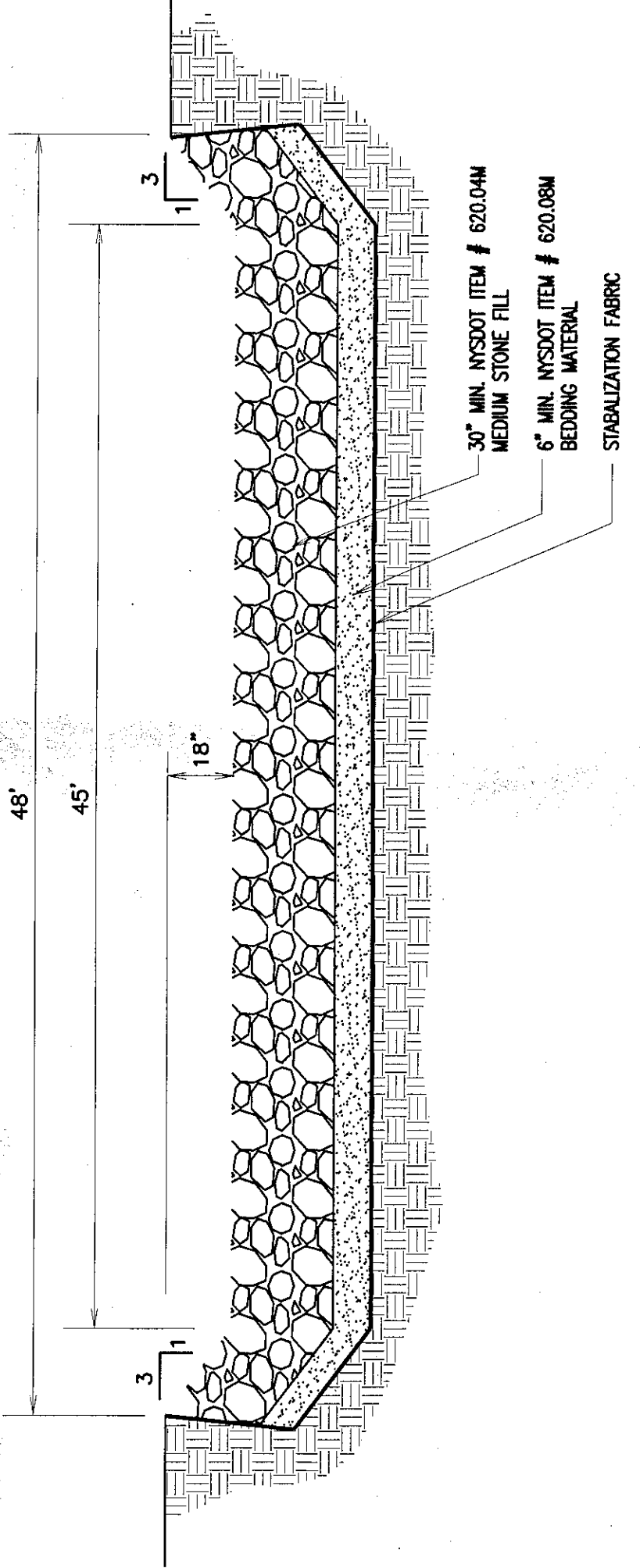
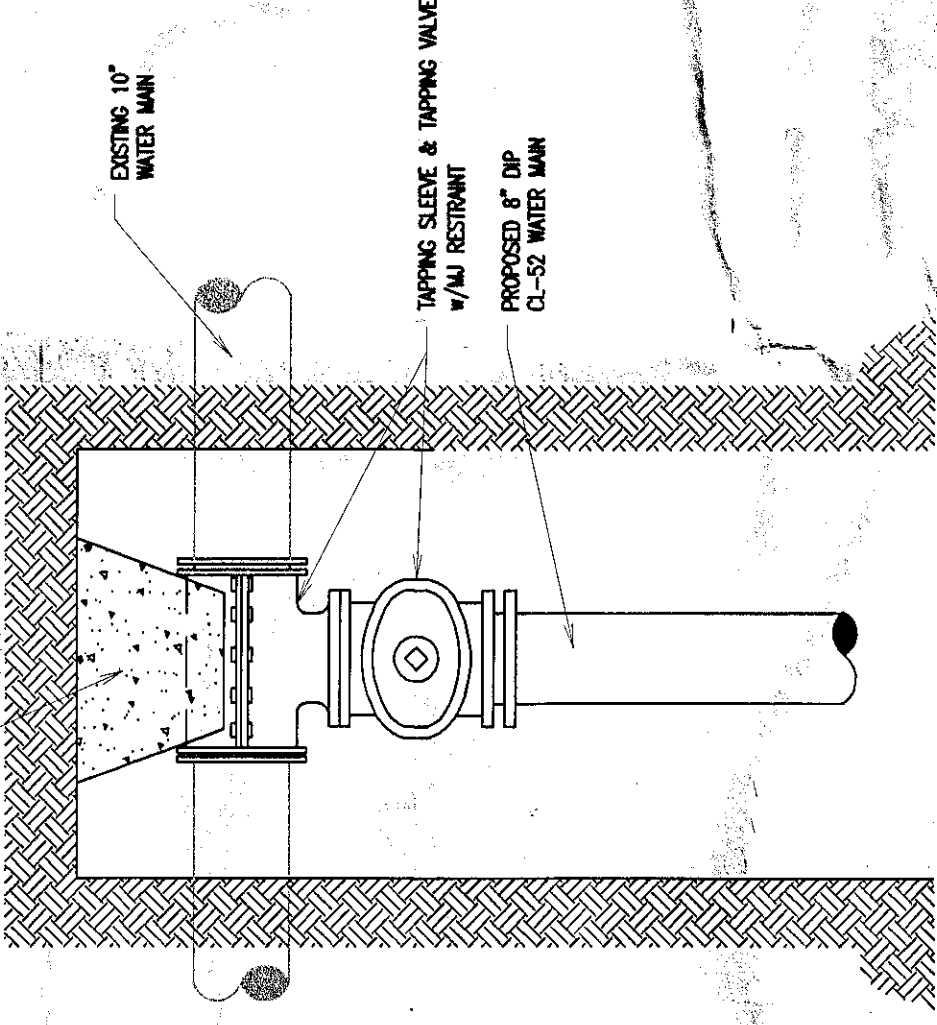
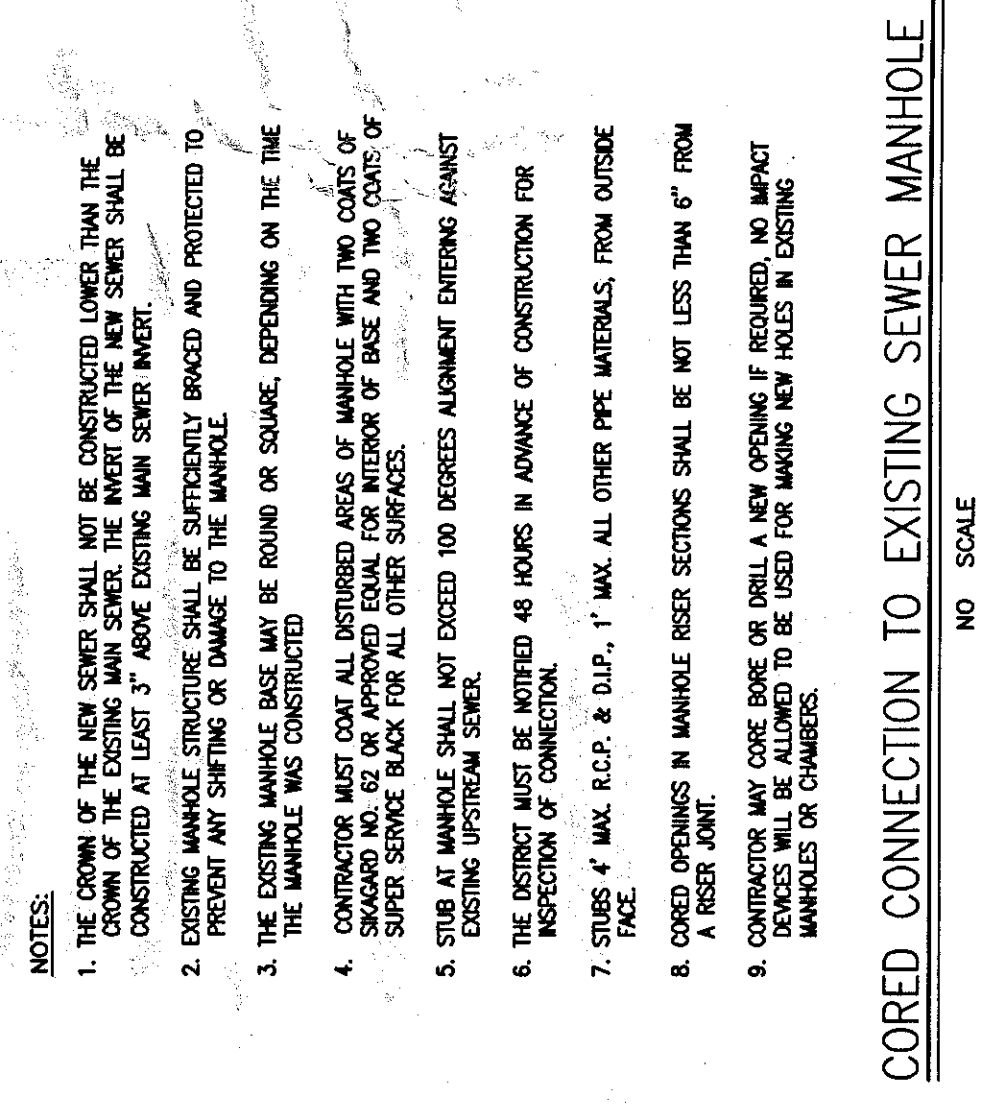
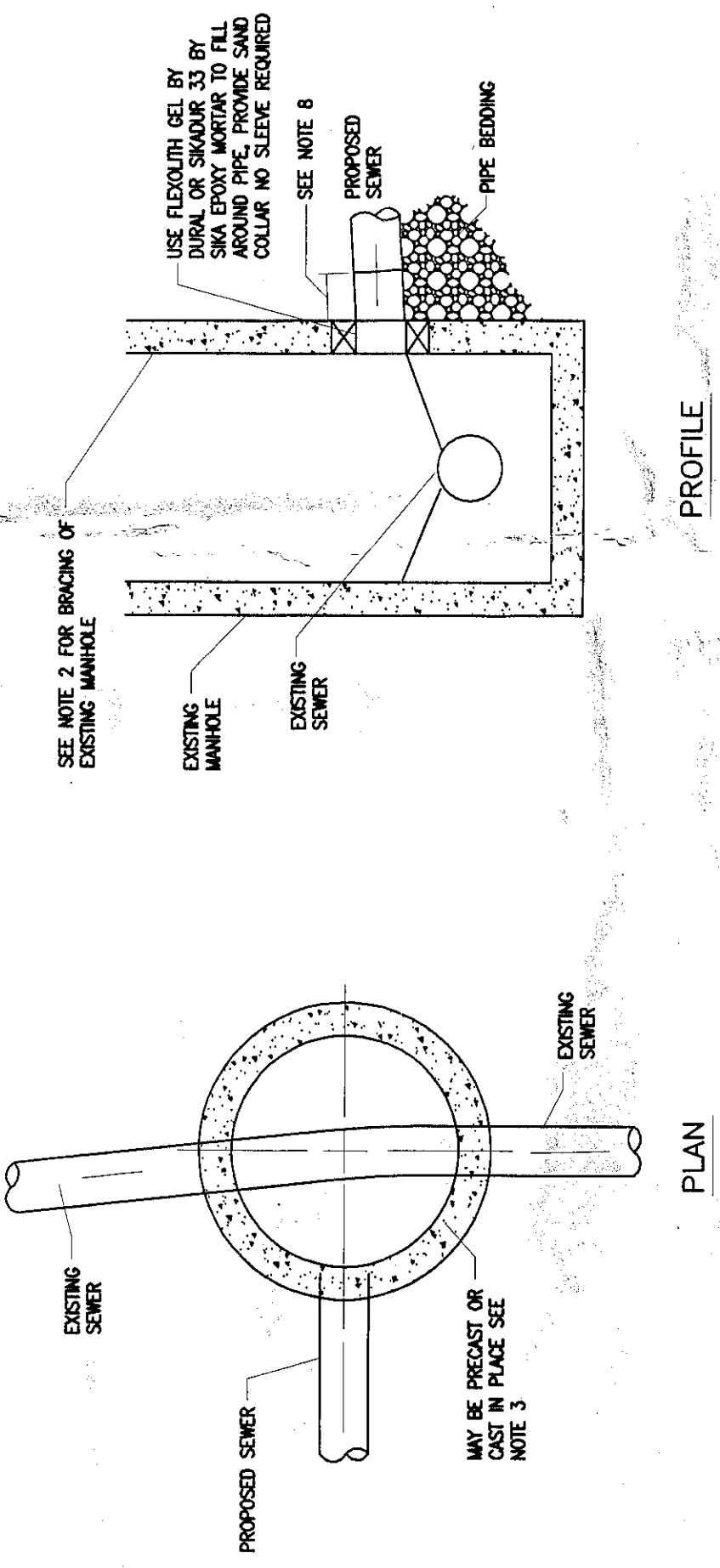
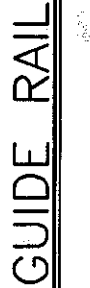
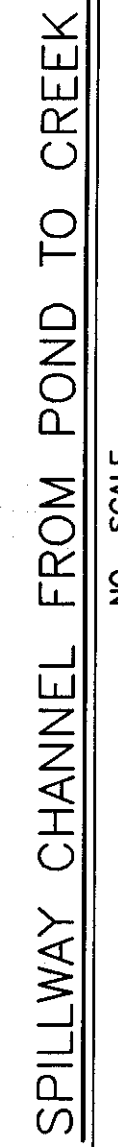
TEMPORARY STABILIZED CONSTRUCTION ENTRANCE DETAIL
NO SCALE

SILT FENCE INSTALLATION DETAIL
NO SCALE

LIGHT STONE CHECK DAM
NO SCALE







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PART 1 - GENERAL

1.0 SECTION INCLUDES

- A. Work under this section includes, but is not limited to, furnishing and installing a factory built duplex pump station as indicated on the project drawings, herein specified, as necessary for proper and complete performance.

1.1. SYSTEM DESCRIPTION

- A. The contractor shall furnish and install one factory built automatically controlled above ground submersible pump valve package capable of handling one unmeasured sewage or sanitary liquid.

- B. The pumps and mechanical drive unit accessories shall be installed in the wet well as shown on the project plans. The pump control panel, liquid level control, valves and piping shall be installed within a factory built fiberglass enclosure.

1.2. MANUFACTURER'S WARRANTY

- A. The pump station manufacturer shall warrant all equipment to be of quality construction, free of defects in material and workmanship. A written warranty shall include specific details described below.

1. Fiberglass components of the station enclosure shall be warranted for 10 years to resist UV damage, corrosion from moisture or corrosive soils, or physical failures occurring in normal service, without the need for special protective coatings, when installed according to the manufacturer's recommendations.

2. The equipment, operation and parts furnished shall be warranted for a period of five (5) years, excepting only those items that are normally consumed in service, such as light bulbs, oil, grease, packing, gaskets, O-rings, etc. The pump station manufacturer shall be solely responsible for the warranty of the station and all components.

- B. Components failing to perform as specified by the engineer, or as represented by the manufacturer, or as proven defective in service during the warranty period, shall be replaced, repaired, or satisfactorily modified by the manufacturer without cost of parts or labor to the owner.

- C. It is not intended that the station manufacturer assume liability for consequential damages or contingent liabilities arising from failure of any vendor supplied product or part which fails to properly operate, however caused. Consequential damages resulting from defects in design, or delays in delivery are also beyond the manufacturer's scope of liability.

- D. The warranty shall become effective upon the acceptance by the purchaser or the purchaser's authorized agent, or sixty (60) days after installation, or ninety (90) days after shipment, whichever occurs first.

- E. In order to verify responsibility for proper operation of the complete pumping station, it is the intent of these Specifications that all system components be furnished by a single supplier (unitary source). The pumping station must be of standard catalog design, totally warranted by the manufacturer. Under no circumstances will a system consisting of parts supplied and assembled by a manufacturer's representative or distributor be accepted.

PART 2 - PRODUCTS

2.0 MANUFACTURER

- 2.1. The specifications and project drawings depict equipment and materials manufactured by The Grunne-Rapp Company which are deemed most suitable for the service anticipated. It is not intended, however, to eliminate other products of equal quality and performance. The contractor shall prepare his bid based on the specified equipment for purposes of determining low bid. Award of a contract shall constitute an obligation to furnish the specified equipment and materials.

- A. After expiration of the contract, the contractor may offer substitutions to the specified equipment for consideration. The equipment proposed for substitution must be superior in construction and performance to that specified in the contract, and the higher quality must be demonstrated by a list of current users of the proposed equipment to similar installations.

- B. In event the contractor obtains engineer's approval for equipment substitution, the contractor shall, at his own expense, make all resulting changes to the enclosures, buildings, piping or electrical systems as required to accommodate the proposed equipment. Revised detail drawings illustrating the substituted equipment shall be submitted to the engineer prior to acceptance.

- C. It will be assumed that if the cost to the contractor is less for the proposed substitution, then the contract price shall be reduced by an amount equal to the savings.

2.2. STATION ENCLOSURE

- A. The station enclosure shall contain and enclose all valves and associated controls and shall be constructed to enhance serviceability by incorporating the following design characteristics:

1. Two access panels per side of station shall be provided. Panels shall be sized and placed to permit routine maintenance operations through the panel openings of the enclosure. For these purposes, routine maintenance shall include frequently performed adjustments and inspections of the electrical components, controls and valves.

2. The access panels shall be provided with a hinge and latch. Hinge shall be the continuous type. Latch shall engage the enclosure at not less than three places, and shall be protected by a keyed lock.

3. One enclosure side shall contain a screened vent to maximize airflow for enclosure ventilation.

4. Station enclosure, less base, must be removable or able to be disassembled following the removal of reusable hardware.

5. Removal or disassembly of the enclosure shall be accomplished by not more than two maintenance personnel without the use of lifting equipment.

- B. The station enclosure shall be manufactured of molded reinforced orthophthalic polyester resins with a minimum of 30% fiberglass, and a maximum of 70% resin. Resin fillers or extenders shall not be used.

- C. Station base shall be constructed of pre-cast, reinforced concrete bedded inside a fiberglass form covering top and sides, and shall be designed to insure adequate strength to resist deformation of the enclosure during shipping, lifting, or handling. The enclosure base shall function at the wet top and incorporate a duplex access lid, sized for the installation and removal of the specific pumps, and shall be of sufficient size to permit access to the wet well. Color used shall de-emphasize the presence of dirt, grease, etc., and shall be provided with a non-skid surface.

- D. An exhaust blower shall be mounted in the roof of the enclosure. Blower capacity shall be sufficient to change station air a minimum of once every two minutes. Blower motor shall be operated automatically and shall be turned on at approximately 700F and shall be run off at 550F.

- E. Blower motor and control circuit shall be protected by a thermal-magnetic air circuit breaker to provide overcurrent and overload protection. Blower exhaust outlet shall be designed to prevent the entrance of rain, snow, rocks, and foreign material.

- F. A static wet well vent shall be mounted in the station base, and be housed in the station enclosure. The station enclosure shall provide a transition area between the wet well and the vent outlet. The vent shall terminate through the station wall with a screened opening, which shall be designed to prevent the entrance of rain, snow, rocks and foreign material.

- G. The station base shall incorporate a cable transition adapter for the pump cables, level controls, and associated wiring. The adapter shall provide for a vapor tight transition between the wet well and the lift station enclosure. The adapter shall incorporate cable grips for each cable and be provided with a gasket between the adapter and the station for a positive seal. Access doors shall not be considered for cable transition.

- H. The station base shall be furnished with disastress compression sealing devices for all piping penetrations to provide for a vapor tight transition between the wet well and lift station enclosure.

- I. The pump station shall be provided with a 1200/150 watt, 115 volt electric heater with vent, thermostat and grounding pig. Ungroundable heaters shall not be acceptable.

- J. The pump station shall be equipped with a 1" thick closed cell foam insulation, which shall be applied to the roof, doors, and corner panels.

- K. Pump station shall be supplied with a thermostat, which shall monitor motor room temperature. The control shall incorporate a control relay and an unpowered dry contact wired to terminal blocks for field connection to a remote alarm device in the event that the temperature within the enclosure falls below a preset point between 35-100 degrees F.

2.3. PUMP DESIGN

- A. The pump must have the necessary characteristics and be properly selected to deliver 100 GPM at a design dynamic discharge head of 32 feet.

- B. Hydraulic Components and Solids Handling:

1. The pump casing shall be of gray iron with a gray iron or ductile iron slide rail guide shoe attached to the discharge flange as an integral assembly. Casing shall be easily removable from the motor for full inspection of impeller.

2. All pump openings and passages shall be of adequate size to pass 3.15% (maximum spheres (microns)) and any trash or stringy material which can pass through an average house collection system. The impeller shall be recessed into the pump casing and shall not require flow of liquid through the impeller. The impeller and seal housing shall incorporate auxiliary means to hydraulically reduce pressure on the primary seal and force through materials and solids away from the close axial clearance on the backside of the impeller. No impeller clearance adjustment or wear rings shall be required.

3. The impeller shall be a single-vane vortex type with integral vanelets on each vane. The vanelet shall form an L-shaped cross section while face of the vane for improved hydrodynamic efficiency. Impeller shall be of ductile iron and precision balanced. Balancing shall not deform or weaken the impeller. The impeller shall have a tapered locking fit into the shaft and further be secured by a key and locking bolt. Impeller fasteners shall be non-corroding.

- C. Shaft Seal:

1. The pump shaft shall be sealed against leakage by a mechanical seal. The lower wearing shoes shall be silicon carbide. The upper faces shall be carbon and hardened stainless steel. Elastomers shall be viton.

- D. Pump Motor:

1. Motor Description:

- a. The submersible pump motor shall be 2.7 HP and operate in accordance with the electrical specs as indicated above. The motor and pump must be connected to form an integral unit. Motor shall be a squirrel-cage induction type in an air-filled watertight enclosure. The motor shall conform to NEMA design Class B, and incorporate Class F insulation materials to withstand a continuous operating temperature of 155OC (311OF). The pump and motor shall be capable of handling liquids with a maximum temperature of 400C (760OF).

- b. Motor shall be capable of sustaining a minimum of 10 starts per hour. The motor shall operate while only partially submerged and not require a cooling jacket or any other means of auxiliary cooling during normal continuous operation.

- c. Motor housing shall be of cast iron. The motor shall consist of copper windings with copper connectors applied to high grade electrical steel laminations. The motor shall be held securely in place by a least-shrink fit into the motor housing. Any other means of securing the motor, which would require penetration of the motor housing, shall not be considered acceptable.

- d. Motor shall be solid cast and dynamically balanced for vibration-free operation. Rotor end bars and short circuit rings shall be of aluminum. The pump shaft shall be of ANSI type 329 stainless steel or hardened alloy steel with protective stainless steel shaft sleeve, which prevents leaks. The bearings shall be permanently grease lubricated and sealed at the time of installation.

2. Watertight Integrity:

- a. All static seals or water tight sealing surfaces shall be of Viton® "O" ring type. Use of auxiliary sealing components shall not be required. The power and control cables shall enter the motor through a terminal housing. The entrance shall be sealed with a rubber grommet and clamp seal which when compressed longitudinally shall prevent water from entering. The clamp seal shall prevent all leakage and rotation of cable while engaged, yet may be easily removed and reused during routine maintenance. Any other cable entrance design requiring use of gaskets, silicones, or similar caulking materials shall be considered unacceptable.

- b. The pump and electrical cable shall be capable of continuous submergence without loss of waterproof integrity to a depth of 65 feet.

- c. The water tight integrity of the motor housing and shaft seal shall be tested during manufacture by pressurizing the motor cavity and submerging in water with motor operating.

3. Motor Protection:

- a. The motor shall be protected from thermal and moisture damage. Thermal protection shall consist of three separate thermostatic switches embedded into the motor windings. Any moisture in the motor housing shall be detected by a mechanically activated moisture sensing micro-switch. The switch shall be sensitive enough to detect excessive moisture and immediate operation of motor before liquid enters the cavity. Use of probes or floats that rely on the presence of liquid to initiate signal shall not be considered acceptable.

2.4. AUTOMATIC DISCHARGE CONNECTION

- A. Each pump shall be furnished with a submersible discharge connection system to permit removal and installation of the pump without the necessity of an operator entering the wet well. The design must insure an automatic and firm connection of the pump to the discharge piping when lowered into place.

- B. A gray iron or fabricated steel base plate with integral guide rail joints shall be provided along with all hardware and anchor bolts required for permanent installation to the wet well floor. The base plate shall be designed with an integral 900 lb.ow, or adapt to a commercially available elbow for connection to the vertical discharge piping utilizing standard ANSI 125 lbs. flanges.

- C. Each pump shall be provided with a replaceable ductile iron slide rail guide shoe attached to pump discharge flange. A replaceable expense seal shall be provided as an integral part of the guide shoe to form a seal with the base plate connection and eliminate the possibility of leakage and erosive wear during operation. The seal shall contact mating faces in a static position and shall have adequate flexibility to flex under pumping pressure to increase seal efficiency. Metal-to-metal contact at the discharge connection shall not be acceptable.

- D. The contractor shall provide two lengths of 1.5" schedule 40 stainless steel guide rail pipe for each pump.

- E. The guide shoe shall direct the pump down vertical guide rails and onto the discharge connection in a simple linear movement. The building of kinks and grooves on guide rails shall not present problems during the lifting operation. The guide shoe shall be designed with integral hooks at the top to transmit full weight of the pump to the base plate flange. No portion of the pump shall be supported directly on the bottom of the wet well, guide rails, or lifting cable.

- F. Lifting cable shall consist of a stainless steel braided wire cable attached to the pump lifting bail.

- G. All bolts, machine screws, nuts, washers, and lockwashers for complete assembly of access cover, guide rails, and discharge elbow shall be stainless steel.

- H. The wet well access shall be fabricated from welded aluminum sections. A hinged aluminum door shall be provided for each pump. The hinged door shall be fabricated from 1/4" thick aluminum with non-skid diamond tread on upper surface. All hardware on access assembly shall be stainless steel with a flush upper surface without protrusions. For safety, the door shall have a 300 lb. sq. ft. rating and be fitted with a recessed staple for padlock. Door shall be furnished with a flush aluminum drop handle and automatic hold open arm.

- I. The contractor shall provide two lengths of 1.5" schedule 40 stainless steel guide rail pipe for each pump.

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**B E R G M A N N
associates**
Engineers / Architects / Surveyors

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28 East Main Street, Rochester, New York 14614
585.233.5135 / 585.232.4652 fax

NO.	DATE	DESCRIPTION	REV.	ORD.
1	1/6/05	REV. PER TOWN ENG. COMMENT S 12/10/04	DOC	PWG
2	08/01/05	COMMENT S 10/6/20/05	DOC	PWG
3	08/26/05	REDATE ONLY	DOC	PWG

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NO.	DATE	REVISIONS DESCRIPTION	REV.	CK'D
1	4/14/05	NEW DRAWING	000	PAG
2	08/10/05	REDUCE ONLY	000	PAG
3	09/26/05	ADDED PPE UNDER WALL DCC	000	PAG
4	10/14/05	REDUCE ONLY	000	PAG

NOTE: Unauthorized alteration or addition to this drawing is a violation of the Town of State Education Law Article 145, Section 7209.

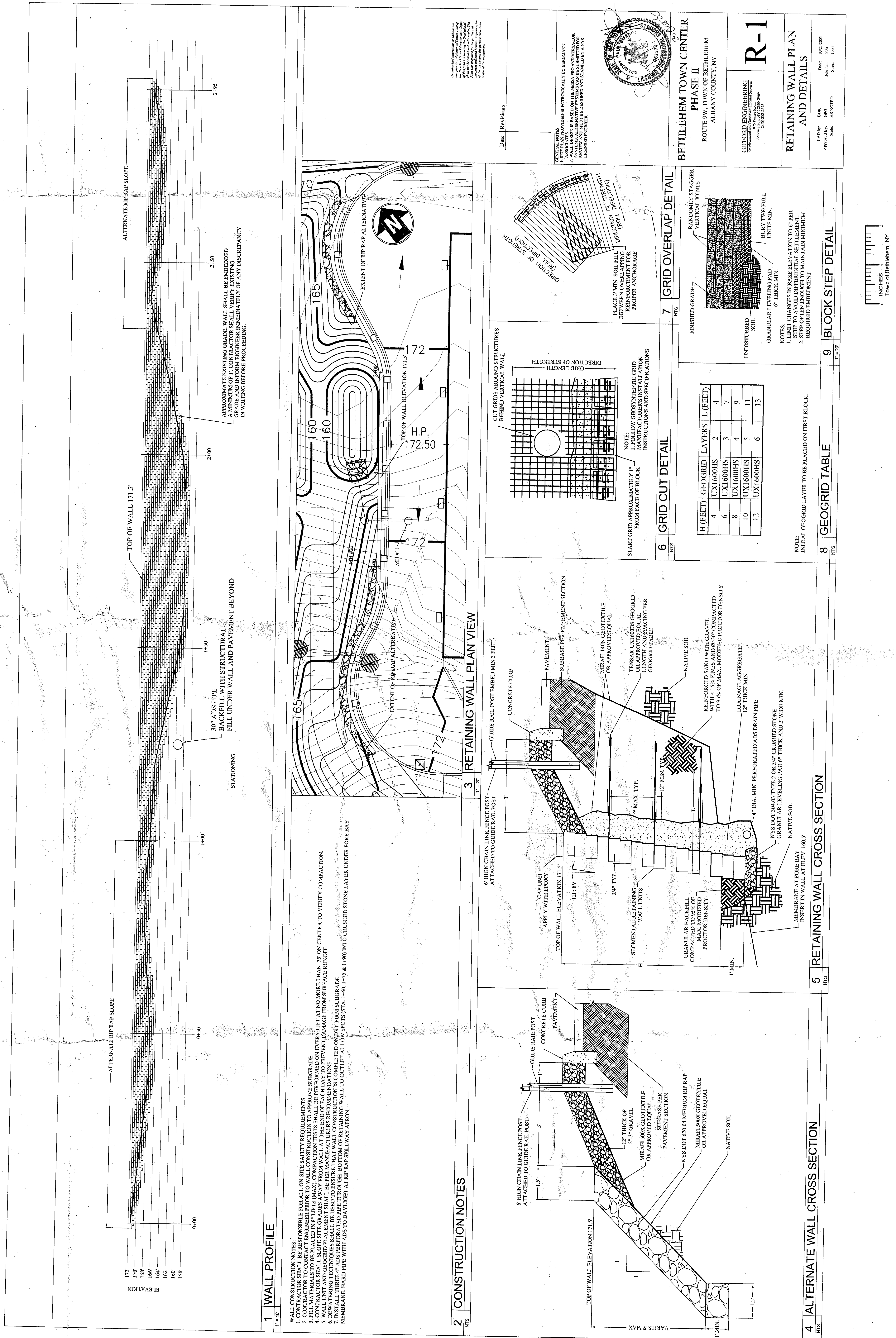
PLANNING BOARD
TOWN OF BETHLEHEM
ALBANY COUNTY, NEW YORK
This Site Plan, approved.
Date: 10/14/05

RETAINING
WALL
PLAN AND DETAILS

RECEIVED
MAY 8 2006
PLANNING BOARD
TOWN OF BETHLEHEM

Project Engineer P. Gifford, PE	Check G. Gifford	Drawn G. Gifford	Scale AS SHOWN
Project Manager P. Gifford, PE	Check P. Gifford	Drawn P. Gifford	Scale AS SHOWN
Project Number 6002.00	File Name L0002.dwg	Drawn Number 10002	Scale AS SHOWN

C505



SEGMENTAL RETAINING WALL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Segmental retaining wall (SRW) units, soil reinforcement, and appurtenances.
- B. Contractor Voluntary Alternates: Proposals for alternate SRW systems may be submitted by the Contractor for consideration and approval by the Owner. Submittal shall be designed and stamped by a NYS licensed engineer. Owner reserves the right to accept or reject any proposed Contractor Voluntary Alternates. Costs associated with submission of Contractor Voluntary Alternates shall be at the expense of Contractor. Proposed alternate SRW systems shall meet the requirements of the "Segmental Retaining Wall Alternate Proposal Requirements" included at the end of this Section.
- 1. Base Bids submitted shall be based on the provisions of this Section only. Construction costs for the Alternate shall not be included in the Bid Form.

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM) Standards
 - 1. ASTM C 140 - Methods of Sampling and Testing Concrete Masonry Units
 - 2. ASTM C 1172 - Standard Specification for Segmental Retaining Wall Units
 - 3. ASTM D 2166 - Triaxial Shear Test
 - 4. ASTM D 3080 - Direct Shear Test
 - 5. ASTM G 51 - Alkalinity
 - 6. ASTM G 53 - Resistivity
- B. National Concrete Masonry Association (NCMA) 1. NCMA - Design Manual for Segmental Retaining Walls
 - 2. NCMA SRWU-2 - Shear Strength Between Segmental Concrete units
- C. American Association of Highway and Transportation Officials (AASHTO)
 - 1. AASHTO - Standard Specifications for Highway Bridges
- 1.3 DEFINITIONS

A. Soil Reinforcement: Structural geogrid or steel strips formed by a regular network of integrally connected tensile elements with apertures of sufficient size to allow interlocking with surrounding soil, rock, or earth and function primarily as structural reinforcement.

- 1. Geosynthetic (extensible) Soil Reinforcement: Polymer product specifically manufactured as soil reinforcement element that meets requirements of this specification.
- 2. Steel (inextensible) Soil Reinforcement: Steel strips, wires, or bars specially configured and coated for soil reinforcement applications.

B. Segmental Concrete Facing Unit: A modular concrete facing unit machine-made from Portland cement, water, and mineral aggregates.

C. Cap Unit: A modular concrete cap unit machine-made.

D. Unit Drainage Fill: Free draining "open" aggregate fill which is within and between the segmental concrete facing units, and extends a minimum of 12" behind the units.

E. Reinforced Backfill: Compacted soil which is within the reinforced soil volume as outlined on Construction Drawings.

F. Foundation Soil: Compacted import or in-situ soil beneath entire wall.

G. Retained Soil: Compacted import or in-situ soil behind reinforced zone of retaining wall.

H. Leveling Pad: Level compacted gravel or unreinforced concrete footing upon which first course of segmental concrete facing units are placed.

1.4 SUBMITTALS

- A. Certificates of Compliance: Submit manufacturer's certification to the Geotechnical Engineering Consultant of Record and the Owner prior to start of work stating that the following meet requirements of this specification.
 - 1. Soil reinforcement
 - 2. Reinforced backfill materials
 - 3. Drainage materials
- B. Samples: Submit samples of SRW units showing finish and color to the Owner for selection prior to delivery of materials as required on Construction Drawings.

1.5 QUALITY ASSURANCE

- A. Qualifications: SRW system installer shall have a minimum of 100,000 square feet of documentable experience installing SRW systems over eight feet in height on minimum of five projects over the previous two years. Provide the Owner a project list with current references and telephone numbers for the proposed SRW installer substantiating the required experience.
- B. Pre-Construction Meeting: A pre-construction meeting shall be conducted by the General Contractor prior to beginning construction on segmental retaining walls. Owner's Construction Manager shall be notified of the date, time, and location of the meeting. Mandatory attendees include the General Contractor, the wall design engineer of record, the project geotechnical engineer, the Contractor's testing agency, and representatives of all sub-contractors involved with the foundation preparation, erection, and backfilling of the SRW. Meeting topics shall include, but are not limited to, schedule and phasing of wall construction, coordination with other on-site construction activities, responsibilities of parties, sources, quality, and acceptance of materials
- 1.6 DELIVERY, STORAGE AND HANDLING

- A. Segmental Concrete Facing Units:
 - 1. Check the materials upon delivery to assure the specified type, grade, color and texture of units have been received.
 - 2. Prevent excessive rain, snow, ice, or other exposures, and the materials which may affix themselves from coming in contact with the materials.
 - 3. Protect the materials from damage.
- B. Soil Reinforcement
 - 1. Check the soil reinforcement upon delivery to assure the proper grade and type of material been received. Provide a product certification with each shipment.
 - 2. Store soil reinforcement material in accordance with manufacturer's recommendations.
- C. Drainage Materials:
 - 1. Store plastic pipe in accordance with the manufacturer's recommendations to prevent deleterious materials from becoming affixed or deterioration from sun exposure.
 - 2. Store drainage aggregate to prevent contamination with other materials.

PART 2 - PRODUCTS

2.1 SEGMENTAL CONCRETE FACING UNITS

- A. Manufacturers: Provide one of the following
 - 1. KEYSTONE
 - 2. VERSA-LOK
 - 3. REINFORCED EARTH COMPANY
 - 4. ANCHOR
 - 5. LUNA WOOD
 - 6. MESA
- B. Color and finish shall be as directed by the Owner or as shown in the Drawings.

C. Facing units shall meet the following structural requirements:

- 1. SRW Shear Capacity: Concrete units shall have a demonstrated shear capacity to withstand laterally applied shear loads as defined in the design calculations. Shear capacity shall be demonstrated through full-scale testing of SRW facing system according to NCMA SRWU-2 test method. Shear capacity shall be defined both with and without the soil reinforcement present at the interface.
- 2. Units shall be manufactured in accordance with ASTM C1372.
- 3. Concrete wall units including cap units shall have minimum 28-day compressive strength of 4,000 psi on the net area and have a maximum absorption rate of 6 percent.
- 4. Cementitious materials used in manufacture of units shall be Type I, Type II or Type III Portland cement in accordance with ASTM C150.
- 5. Units shall be tested for freeze/thaw resistance and thawing under saturated conditions occur. Freeze-thaw durability shall be demonstrated by testing per ASTM C1262. Testing shall be conducted for a minimum 100 cycles, and no more than 100 cycles.
- 6. Other Constituents: Air entraining agents, coloring pigments, integral water repellents, finely ground silica and other constituents shall be previously established as suitable for use in retaining wall units or shall be shown by test or experience not to be detrimental to the durability of segmental concrete facing units or to any material used in mass concrete.
- 7. Dimensional tolerances for exterior molded units shall be in accordance with ASTM C1372. SRW concrete facing unit molded dimensions shall not differ more than ± 1/8 inch from the manufacturer's published tolerances, except for height which shall be ± 1/16 inch. Maximum differential shall be no more than 1/8 inch in height from front to back of unit.
- 8. SRW units shall provide minimum effective in-place weight equivalent to 100 pcf. Fill placed within dimensions of units may be considered as integral to the effective unit weight. This in-place weight shall be used for all design calculations.
- 9. Units shall be sound and free of cracks or other defects that would interfere with the proper placing of the unit or significantly impair the strength or permanence of the construction.

2.2 BASE LEVELING PAD MATERIAL

A. Base leveling pad material shall be crushed dense aggregate base material or lean non-reinforced 2,000 psi concrete.

2.3 UNIT FILL

A. Unit fill shall be free-draining crushed stone or crushed gravel conforming to SRW manufacturer's recommendations.

2.4 SOIL REINFORCEMENT

A. Geosynthetic Soil Reinforcement:

- 1. Properties: The geosynthetic soil reinforcement shall possess minimum strength and durability required by design as determined by product specific testing as defined in the NCMA Design Manual for Segmental Retaining Walls (Section 3.5), including provisions for minimum partial safety factors. Design submittal shall indicate the index tensile strength for each reinforcement type to be used in construction.

- 2. Geogrid:
 - a. Stratagrid
 - b. Nicolon/Mirafi
 - c. Tensar (Black SB Series Geogrids Only)

2.5 DRAINAGE MATERIALS

A. Drainage collection pipe shall be perforated/slotted PVC or corrugated HDPE pipe as specified in Section 02430.

B. Drainage aggregate shall be free-draining material, relative to the surrounding soil conforming to the SRW manufacturer's recommendations in order to prevent build-up of hydrostatic pressure.

C. Drainage geotextile shall be Synthetic Industries 401.

D. Drainage composite shall be J-DRAIN 400 Dimple Core Drainage Composite by JDR Enterprises, Inc., Alpharetta, GA, (800) 843-7569.

2.6 REINFORCED WALL BACKFILL

A. Reinforced soil shall possess the following characteristics:

- 1. Less than 12% pass sieve No. 200 sieve per ASTM D 422 with a maximum size of 3/4 inches (4 inch maximum for steel reinforced systems)
- 2. A liquid limit < 40 and a plasticity index < 10 per ASTM D 4318
- 3. An effective angle of internal friction > 30° per ASTM D 2166 or D 3080 at the compaction standard. Use of an effective friction angle greater than 30 degrees for design shall be verified by appropriate testing submitted to and approved by the owner's engineer prior to construction.
- 4. No organic, deleterious or frozen material

B. Backfill reinforced with geosynthetic shall have a pH in the range of 4 to 8 per ASTM G 51.

2.7 RETAINED BACKFILL OR COMMON BACKFILL

A. Soil placed behind the reinforced backfill shall be satisfactory fill material as specified in Section 02300.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Comply with federal, state and local requirements for execution of the work, including local building codes, NYS Department of Labor and current OSHA excavation regulations. Provide excavation support as required to maintain the stability of the area during excavation and wall construction and to protect existing structures, utilities, landscape features, or property or improvements.
- B. Prior to grading or excavation of the site, confirm the location of the retaining walls and all underground features, including utility locations within the area of construction. Ensure surrounding structures are protected from effects of wall excavation.
- C. Coordinate installation of underground utilities with well installation.
- D. Control surface water drainage and prevent inundation of the retaining wall area during construction.

3.2 EXCAVATION

A. Excavate to lines and grades shown on the Construction Drawings. Take precautions to minimize over-excavation. Over-excavation shall be backfilled with approved compacted material.

B. Inspect excavation prior to placement of leveling pad material.

C. In areas where soft, disturbed or otherwise unsuitable soils are encountered within the zone of the wall loading in the excavations, such unsuitable soils shall be over-excavated to the depths and extents required and replaced with select material and compacted per the contract documents.

D. Fill over-excavated areas in front of wall face with approved compacted material before wall construction reaches 4 feet in height.

E. In areas where a retaining wall or portion of a retaining wall is to be installed into cut, the required excavation shall extend horizontally to the extent of the reinforced zone and vertically to the elevation of the top of the leveling pad. The retained zone shall be bench cut in order to permit controlled placement of retained backfill.

3.3 LEVELING PAD CONSTRUCTION

A. Place leveling pad as shown on the Construction Drawings with 6 inches of crushed dense aggregate base or 8 inches of lean concrete. The leveling pad shall extend laterally a minimum distance of 6 inches from the toe and heel of the lower-most SRW Unit in accordance with manufacturer's recommendations.

B. Foundation soil shall be proofrolled and the top 12 inches compacted to minimum 95 % Modified Proctor Maximum Dry Density (ASTM D 1557) and tested prior to placement of leveling pad materials.

C. Compact granular leveling pad material to provide a level hard surface on which to place the first course of units. Compact with mechanical plate compactors to minimum 95 % of Modified Proctor Maximum Dry Density (ASTM D 1557).

3.4 SRW UNIT INSTALLATION

A. Place first course of SRW units on the leveling pad. Level units side-to-side, front-to-rear and aligned with adjacent units.

B. Ensure units are in full contact with base.

C. Place the front of the units side-by-side without gaps between the fronts of adjacent units. Layout of curves and corners shall be in accordance with SRW manufacturer's installation guidelines.

D. Install mechanical fascia connections per SRW manufacturer's recommendations.

E. Place and compact unit three-foot fill within, between, and behind units. Place and compact infill soil behind drainage fill. Mechanical vibrating plate compactors shall not be used on top of the units. Compact fill between units and the three-foot zone behind the units by running hand-operated compaction equipment just behind units. Compact to minimum 80 % Relative Density (ASTM D 2950).

F. Place core drainage fill in the previous course of units prior to stacking of subsequent segmental retaining wall units.

G. Clean access depths from top of units.

H. Repeat procedure to the extent of wall height.

3.5 SOIL REINFORCEMENT INSTALLATION

A. Soil reinforcement shall be oriented with the highest strength axis perpendicular to the wall alignment.

B. Install soil reinforcement to wall height, horizontal location, and extent as shown on the Drawings.

C. Lay the soil reinforcement horizontally on compacted backfill. Pull geogrid taut and connect to concrete SRW units according to connection detail shown on the Drawings or as recommended by manufacturer prior to backfill placement on geosynthetic reinforcement of all

D. Soil reinforcements shall be continuous throughout their embedment lengths. Spliced connections between shorter pieces will not be allowed.

E. Do not operate tracked construction equipment directly upon soil reinforcement. Provide a minimum fill thickness of 6 inches prior to operation of tracked equipment over soil reinforcement. Keep tracked vehicle turning to minimum to prevent tracks from displacing the fill and damaging soil reinforcement.

F. Rubber-tired equipment may pass over soil reinforcement at low speeds, less than 10 mph, if permitted by the manufacturer. Avoid sudden braking and sharp turning.

G. Changes to soil reinforcement layout, including, but not limited to, length, soil reinforcement type (strength), or elevation, may be made subject to approval of the Engineer.

H. Verify orientation (Roll direction) of geosynthetic reinforcement.

3.6 REINFORCED BACKFILL PLACEMENT

A. Place reinforced backfill, spread and compact in such a manner that will not develop slack in the soil reinforcement in accordance with Manufacturer's recommendations.

B. Place and compact reinforced backfill in lifts not to exceed 8 inches in compacted thickness.

C. Compact reinforced backfill to a minimum of 95 % Modified Proctor Maximum Dry Density (ASTM D 1557) at a moisture content from 2 % below to 2 % above optimum

D. Compact reinforced backfill in all areas to the lines and grades shown on the Construction Drawings including all sloped areas above walls.

E. At the end of each day's operation, slope the last lift of reinforced backfill away from the wall facing to rapidly direct runoff away from the wall face. Do not allow surface runoff from adjacent areas to enter the wall construction site.

A. Retained backfill shall be placed in maximum 8 inch thick compacted lifts and compacted to minimum 95 % Modified Proctor Maximum Dry Density (ASTM D 1557).

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TOWN CENTER II
BETHLEHEM, NY

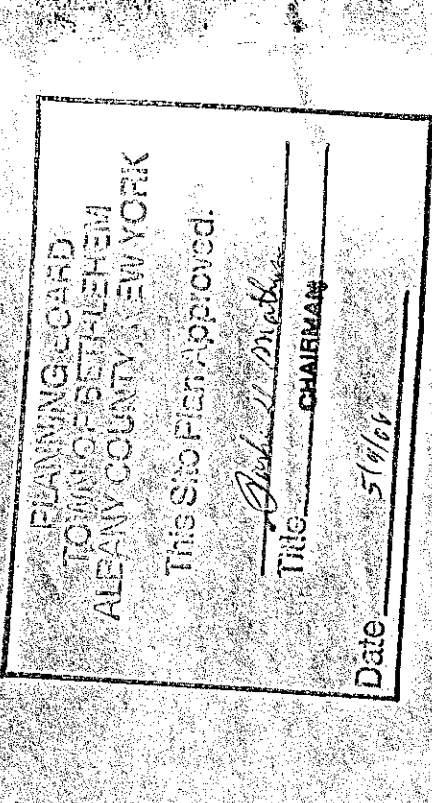
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ALBANY, NEW YORK 12211

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associates
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28 East Main Street, Rochester, New York 14614
585.252.5151 / 585.252.4621 fax

NO.	DATE	REVISIONS	REV.	BY	DATE
1	4/4/05	NEW DRAWING	001	PG	
2	08/09/05	REARRE ONLY	002	PG	
3	09/26/05	REARRE ONLY	003	PG	
4	10/4/05	REARRE ONLY	004	PG	

NOTE:
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violation of the New York State Education Law Article
142, Section 1403.



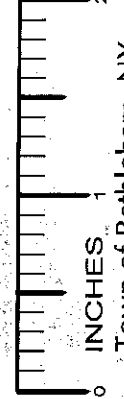
RETAINING
WALL NOTES

RECEIVED
MAY 8 2005
PLANNING BOARD
TOWN OF BETHLEHEM

Project Number	6002-00
Scale	No Scale
Drawn By	P. Bergmann, PE
Checked By	D. Bergmann
Reviewed By	P. Bergmann, PE
Date	MAY 11, 2004

Project Number: 6002-00
Scale: No Scale
Drawn By: P. Bergmann, PE
Checked By: D. Bergmann
Reviewed By: P. Bergmann, PE
Date: MAY 11, 2004

C506



3.8 DRAINAGE SYSTEM

A. Drainage Collection Pipe:

1. Install the drainage collection pipe according to line, grades and sections shown on the Drawings.
2. Install drainage collection pipe to maintain gravity flow of water from reinforced soil zone. Daylight drainage collection pipe at storm sewer manhole or along slope at an elevation lower than lowest point of pipe.
3. Main collection drain pipe shall be minimum 4 inches in diameter. Secondary collection drain pipe shall gravity flow independently or tie into main collection drain pipe with laterals at maximum 40 foot spacing along wall face.

B. Drainage Aggregate:

1. Install drainage aggregate to line, grades, and sections shown on the Drawings.
2. When blanket drain is installed, non-woven geotextile shall be installed prior to aggregate placement in accordance with the Drawings.

C. Drainage Composite:

1. Install drainage composite as shown on the Drawings.
2. Wrap upper ends of drainage composite with approved geotextile fabric.
3. Drainage composite shall extend upwards minimum of 22" of height of backfill and be spaced on horizontal centers to give a minimum of 50% to 100% horizontal coverage as required.
4. Drainage composite shall terminate in a french drain effectively connecting to a collector pipe wrapped in drainage aggregate and an approved geotextile fabric.

3.9 SRW CAP INSTALLATION

A. Place SRW Cap units per manufacturer's recommendations. Backfill and compact to finished grade.

B. Incorporate surface water drainage control (swale) into finished grading at top of wall, as shown on the Drawings.

C. Attach cap units to wall units with construction epoxy. Apply epoxy to bottom surface of cap unit and install on clean units below. Follow epoxy manufacturer's directions to ensure permanent bond.

3.10 CONSTRUCTION

A. SRW Tolerances: Installation of SRW face location shall be within all the following tolerances:

1. Vertical control from plan: ± 1.25 inches over a 10 ft. distance.
2. Horizontal location control from plan:
 - a. Straight lines: ± 1.25 inches over a 10 ft. distance.
 - b. Straight & serpentine radius: ± 1.0 ft.
 - c. Curves and serpentine radius: ± 2.0 ft.
3. Rotation of the wall face during construction:
 - a. Maximum 2.0 degrees from established wall plan batter.
 - b. Maximum ± 10.0 % from total established horizontal setback.
4. Bulging: ± 1.25 inches over a 10.0 ft. distance.

B. Mechanical vibrating plate compactors shall not be used on top of the units. Compact fill between units and the backfill zone behind the units by running hand-operated compaction equipment just behind units. Perform compaction to manufacturer's recommendations.

3.11 FIELD QUALITY CONTROL

A. The Contractor shall engage inspection and testing service agencies, including independent laboratories, to provide quality control and testing services during construction. The Owner may engage a testing and inspection agency for quality assurance, but this does not relieve the General Contractor from providing the specified construction quality control and testing.

B. Testing and inspection services shall be performed by trained and experienced technicians currently qualified for the work to be performed.

C. The testing agency shall submit written reports of inspections to the Contractor on weekly basis. Such reports shall include description of work performed, deficiencies noted in construction, and corrective action taken to resolve such deficiencies. Owner shall be notified directly by the Contractor's testing agency of deficiencies noted by testing agency and provided with a summary and schedule for corrective action. Written reports will also include location, type, and results of all tests taken on the Project.

D. The Contractor shall provide a certification to the Owner that the completed SRW has been installed in accordance with the contract documents.

E. Segmental Retaining Wall Units:

1. Compressive strength test specimens shall conform to the saw-cut coupon provisions of Section 5.2.4 of ASTM C140 with the following exceptions:

- a. Coupon shall have a minimum thickness of 1-1/2 inches.
- b. Coupon shall not be oven dried before testing.
2. The compressive strength shall be considered the average of three or more test coupons.
3. Run compressive strength testing for every 7,500 square feet of installed wall facing material or fraction thereof. The testing shall be performed immediately upon receipt from laboratory.

F. Soil and Backfill Testing: Unless otherwise directed by the Owner or required by this technical scope of work, type and minimum frequency of testing for soils-related portions of construction shall be as follows.

1. Field density tests in accordance with ASTM D 2922:

- a. Subgrade Soils: One test for every 2,500 square feet per lift of material
- b. Base Leveling Pad: One test for every 100 linear feet
- c. Reinforced Backfill: One test for every 2,500 square feet per lift. Every other lift shall be tested.

2. Laboratory moisture-density relationships, ASTM D 1557: One test for every compacted material type.

3. Gradation Analysis, ASTM D 422:

- a. Unit Fill: One test for every 500 cubic yards of material
- b. Reinforced Backfill: One test for every 500 cubic yards of material or when material type changes.

1.1. SEGMENTAL RETAINING WALL ALTERNATE PROPOSAL REQUIREMENTS

I. SUBMITTAL REQUIREMENTS

A. Submittal packages shall include the following:

1. Notarized certificate from General Contractor shall be provided to the Owner prior to start of work stating that the SRW system complies with the criteria referenced in this section.
2. The General Contractor shall provide the SRW system design and supporting signed and sealed structural calculations to the Owner prior to the start of work. The design submitted shall be based on soil parameters, foundation conditions, and loading stated in documentation as outlined in the Construction Documents. General Contractor's Engineer shall provide wall design and analyses utilizing SRW wall computer software.
3. Proprietary product literature indicating specifically which segmental retaining wall units are proposed for use on project, including color, face style and texture.
4. Proprietary product specifications indicating compressive strength, unit weight, mix and percent absorption for the units proposed.

5. Retaining wall shop drawings showing complete wall profiles, reinforcement elevations, reinforcement lengths, reinforcement types, top of wall, bottom of wall, proposed grades at top of wall, proposed grades at bottom of wall, and stations showing beginning and end of wall as well as beginning and end of turns and radii. Shop drawings shall include detail drawings for facing connections, wall penetrations, guard rails, hand rails, leveling pad, drainage swales and typical sections and construction details.

6. Retaining wall shop drawings shall show design parameters for retaining wall, required bearing capacity of foundation soils along with provided factor safety against bearing capacity failures wall subgrade and construction details.

7. Retaining wall shop drawings shall be accompanied by a complete set of construction specifications which conform to the requirements of this section.

8. Retaining wall shop drawings and specifications shall be stamped "FOR BID ONLY-NOT FOR CONSTRUCTION" in red ink

9. Retaining wall shop drawings and specifications shall be accompanied by engineer's design calculations and/or computer output addressing required design parameters according to NCMA recommendations.

10. Four copies of the submittal package shall be provided to the project civil engineer of record for distribution for review as follows:

- a. 2 copies to the owner.
- b. 1 copy to the project geotechnical engineer.
- c. 1 copy to be retained by the civil engineer of record.

B. After submittals are approved, shop drawings shall be provided stamped "FOR CONSTRUCTION"

II. DESIGN

A. Designs for SRWs using extensible (geosynthetic) reinforcement shall be prepared according to design methodology presented in NCMA "Design Manual for Segmental Retaining Walls" and conform to the minimum safety factors as specified in this section. Design submittals not meeting this design criteria or technical/administrative criteria as specified will be rejected in their entirety until complete compliance is achieved. Owner reserves all rights in determining compliance for plan approval and may reject any submittals.

B. Only SRW systems with positive mechanical fascia connections will be considered. Connections shall provide uniform horizontal setback per course, which equates to uniform initial wall batter of between 3 and 12 degrees for installed units

C. Designs submitted using inextensible reinforcements, including Panel Wall Systems, shall be performed per AASHTO Standard Specifications for Highway Bridges. Allowable tensile stress at the end of design service life shall not exceed 25 percent of the yield strength of the reinforcement. For the purpose of this design, the design stress shall be the design stress. Soil pH shall be determined and the geotechnical investigation shall be considered in the determination of anticipated corrosion. Design submittals not meeting this design criteria or technical /administrative criteria as specified will be rejected in their entirety until complete compliance is achieved. Owner reserves all rights in determining compliance for plan approval and may reject any submittals.

D. Soil design parameters shall be as provided in the Construction Documents. Wall Design Engineer of Record shall be responsible for selecting and specifying reinforced fill material. Reinforced fill material shall have minimum angle of internal friction of 30 degrees. General Contractor is responsible for ensuring and documenting the reinforced fill meets the specified parameters for both strength and compaction. Compacted retained soil shall meet the minimum requirements specified in 4.02.D

E. Design Parameters: Design of the SRW system shall be based on the following soil parameters as determined during the geotechnical investigation.

Wall Segment Friction Angle Cohesion Unit Weight

Reinforced Backfill 30 degrees min _____ psf _____ pcf

Foundation _____ degrees _____ psf _____ pcf

F. Design Requirements:

1. Unless otherwise indicated below, SRW design shall be performed in strict accordance with the procedures presented in the NCMA Design Manual for Segmental Retaining Walls.

2. Internal Stability of Walls:

- a. Minimum Factor of Safety on Tensile Overstress 1.2
- b. Minimum Factor of Safety on Geogrid Pullout (peak load criterion) 1.5
- c. Minimum Factor of Safety on Geogrid Pullout (serviceability criterion) 0.75 inches 1.0
- d. Minimum Factor of Safety on Facing Shear (peak load criterion) 1.5
- e. Minimum Factor of Safety on Facing Shear (serviceability criterion) 2% of height of SRW units 1.0
- f. Minimum Factor of Safety Connections (peak load criterion) 1.5
- g. Minimum Factor of Safety Connections (serviceability criterion) 0.75 inches 1.0
- h. Minimum Factor of Safety for Uncertainties 1.5

3. External Stability:

- a. Minimum Factor of Safety Against Base Sliding (static condition) 1.5
- b. Minimum Factor of Safety Against Overturning 2.0
- c. Minimum Factor of Safety for Global Stability 1.5
- d. Minimum Factor of Safety for Bearing Capacity 2.0

4. Design shall address hydrostatic loading, seismic loading, rapid drawdown, surcharge, and backfills where appropriate. Minimum Design Live Load of 125 psf shall be used for all walls. Minimum Design Live Load of 250 psf shall be used for walls supporting entrance drives, service drives and other areas subject to traffic.

5. Minimum geogrid length shall be 70 percent of the wall height. Geogrid reinforcement coverage at each layer shall be 100 percent (no gaps)

6. The maximum vertical distance between layers of soil reinforcement shall be as recommended by the manufacturer, but shall not exceed 31 inches.

BETHLEHEM TOWN CENTER II

BETHLEHEM, NY

NIGRO COMPANIES

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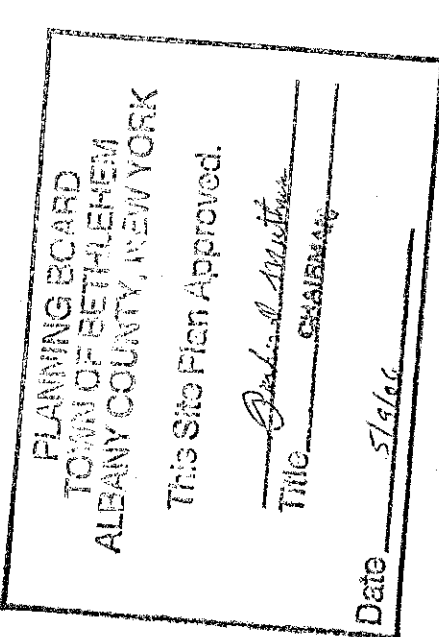


B E R G M A N N
ASSOCIATES
Engineers / Architects / Surveyors

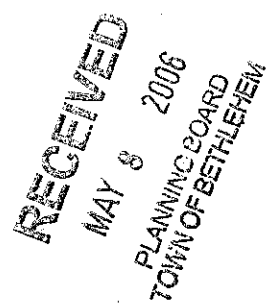
200 Erie Federal Plaza
28 East Main Street, Rochester, New York 14614
585.232.5157 / 585.232.4657 fax

NO.	DATE	REVISIONS	DESCRIPTION	REV.	CHKD.
1	4/4/05	NEW DRAWING		DGC	PAC
2	08/01/05	REDATE ONLY		DGC	PAC
3	08/28/05	REDATE ONLY		DGC	PAC
4	10/14/05	REDATE ONLY		DGC	PAC

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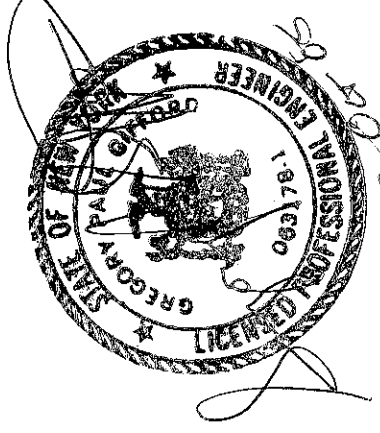


RETAINING WALL NOTES



Project Manager P. Giannone, PE	Drawn By D. Cristofari
Designed By P. Giannone, PE	Checked By P. Giannone, PE
Date MAY 13, 2006	Scale As Shown
Project Number 6662.00	File Name 184992-0002-retaining2.dwg
Drawing Number	

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BETHLEHEM
CENTER II
241 NYS Route 9W
BETHLEHEM, NY

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NO.	DATE	DESCRIPTION	REV.	QCD
1	10/14/05	NEW DRAWING	DCC	PWG
2	2/01/06	REV. PROP. GRADE	DCC	PWG
3	3/22/06	REV. SAN#2 AND GREASE TRAP RM	DCC	PWG
4	3/30/06	REV. SAN LATERAL TO BLDGS.	DCC	PWG

NOTE:
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PLANNING BOARD
TOWN OF BETHLEHEM
ALBANY COUNTY, NEW YORK
This Site Plan, Approved,
The
Date: 5/1/06

SANITARY SEWER
PROFILES

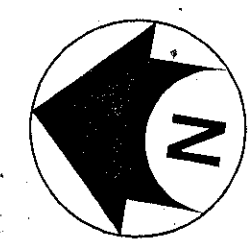
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TOWN OF BETHLEHEM

SEAL OF THE TOWN OF BETHLEHEM
NEW YORK

PLANNING BOARD
TOWN OF BETHLEHEM
ALBANY COUNTY, NEW YORK
APPROVED
DATE: 5/1/06
AS SHOWN

PROJECT NO.: 05010000000000000000
DRAWN BY: B. Christopher
CHECKED BY: B. Christopher
DATE: 5/1/06

NOT APPROVED:
THIS PLAN HAS NOT RECEIVED THE APPROVAL OF ALL
REVISIONS UNTIL ALL APPROVALS ARE OBTAINED AND
SHOULD NOT BE USED FOR CONSTRUCTION PURPOSES.



**BETHLEHEM
CENTER II**
241 NYS Route 9W
BETHLEHEM, NY

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REVISIONS			REV.	GRID
NO.	DATE	DESCRIPTION		
①	1/6/05	REV. PER TOWN ENG. COMMENTS 12/10/04	D0C	PWG
②	08/01/05	REV. PER TOWN ENG.	D0C	PWG
③	09/28/05	REDATE ONLY	D0C	PWG
④	10/14/05	REDATE ONLY	D0C	PWG
⑤	2/01/06	REDATE ONLY	D0C	PWG
⑥	3/22/06	REV. LIGHTING AND	D0C	PWG

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TOWN OF BETHELEHEM
ALBANY COUNTY, NEW YORK

Date _____

LIGHTING PHOTOMETRIC PLAN

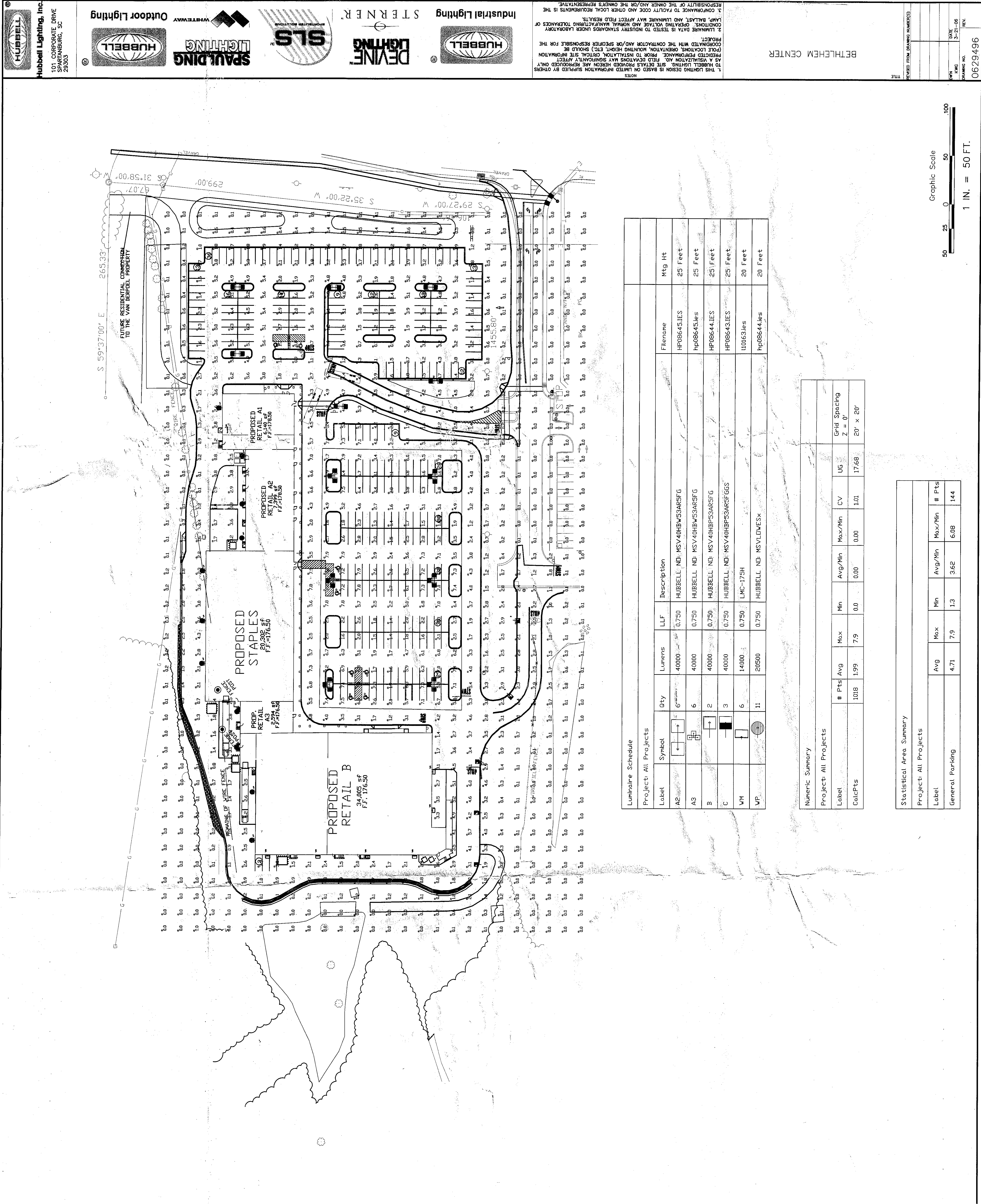
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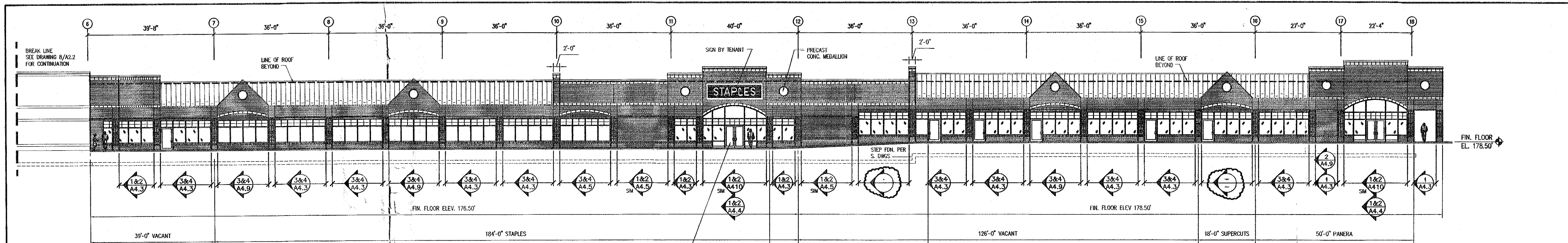


PIETRO V. GIOVENCO, NYS LIC. #075267	AS SHOWN
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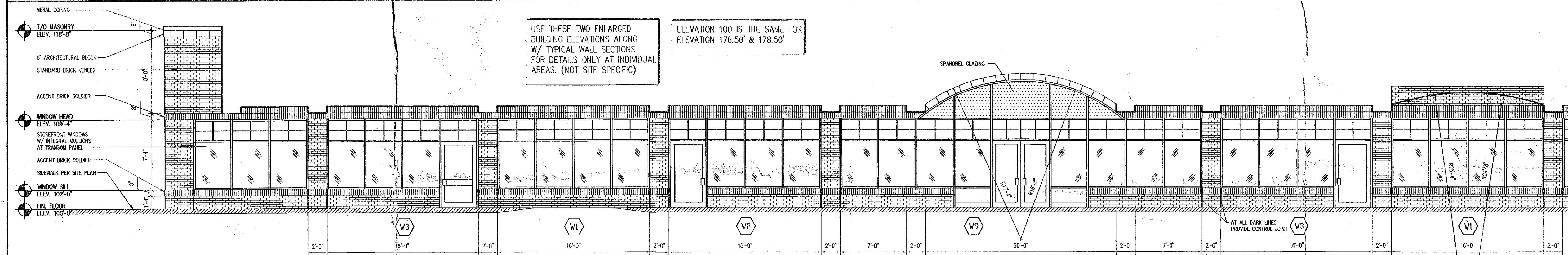
NOT APPROVED:
THIS PLAN HAS NOT RECEIVED FINAL APPROVAL OF ALL REVIEWING AGENCIES. THIS PLAN IS SUBJECT TO REVISIONS UNTIL ALL APPROVALS ARE OBTAINED AND SHOULD NOT BE USED FOR CONSTRUCTION PURPOSES



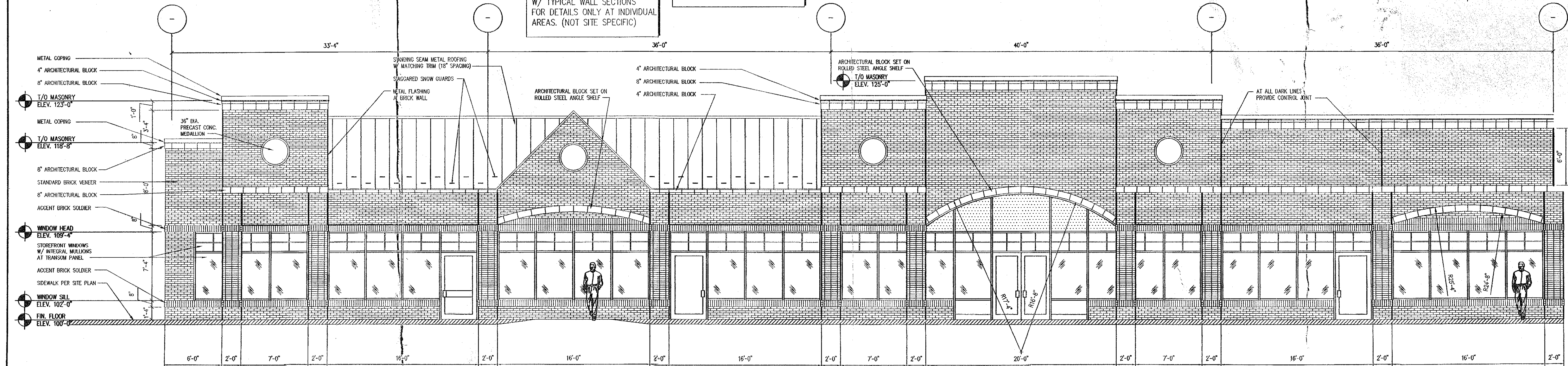


1 SOUTH ELEVATION
1/16" = 1'-0" BUILDING 'A'

PLANNING BOARD
TOWN OF BETHLEHEM
ALBANY COUNTY, NEW YORK
This Site Plan Approved.
Charles J. Mullins
Title: *Chairman*
Date: *5/9/06*



2 PARTIAL FRONT ELEVATION
3/16" = 1'-0" INSIDE OF CANOPY



3 PARTIAL FRONT ELEVATION
3/16" = 1'-0" OUTSIDE OF CANOPY

INCHES
Town of Bethlehem, NY

NORTH:
REF. NORTH

NIGRO COMPANIES
REAL ESTATE DEVELOPMENT & MGMT.
20 Corporate Woods Blvd.
Albany, New York 12211
Phone: (518) 436-8421 Fax: (518) 436-8429

BRITISH AMERICAN
CONSTRUCTION SERVICES L.L.C.
4 British American Boulevard, Latham, NY 12110
Phone: (518) 786-6000 Fax: (518) 786-6001
http://www.britishamerican.com

To the best of my knowledge, information and belief, the plans and specifications are in accordance with applicable requirements of the New York State Uniform Fire Prevention & Building Code, State Energy Conservation Code, local building codes and requirements, as well as National Plumbing and Electrical Codes.

Unauthorized alteration, addition or duplication to this document is prohibited without the expressed written consent of British American Construction Services L.L.C.

PROGRESS DRAWINGS:
CONTRACT DRAWINGS:
CONSTRUCTION DRAWINGS:
ESTIMATED BY:
CHECKED BY:

70,440 S.F. RETAIL PLAZA

BETHLEHEM
CENTER II
BUILDING 'A'
241 NYS Route 9W
BETHLEHEM NY

DRAWING: BUILDING ELEVATIONS
NOTES & DETAILS
BUILDING 'A' & 'B'

SCALE: 1/16" = 1'-0"

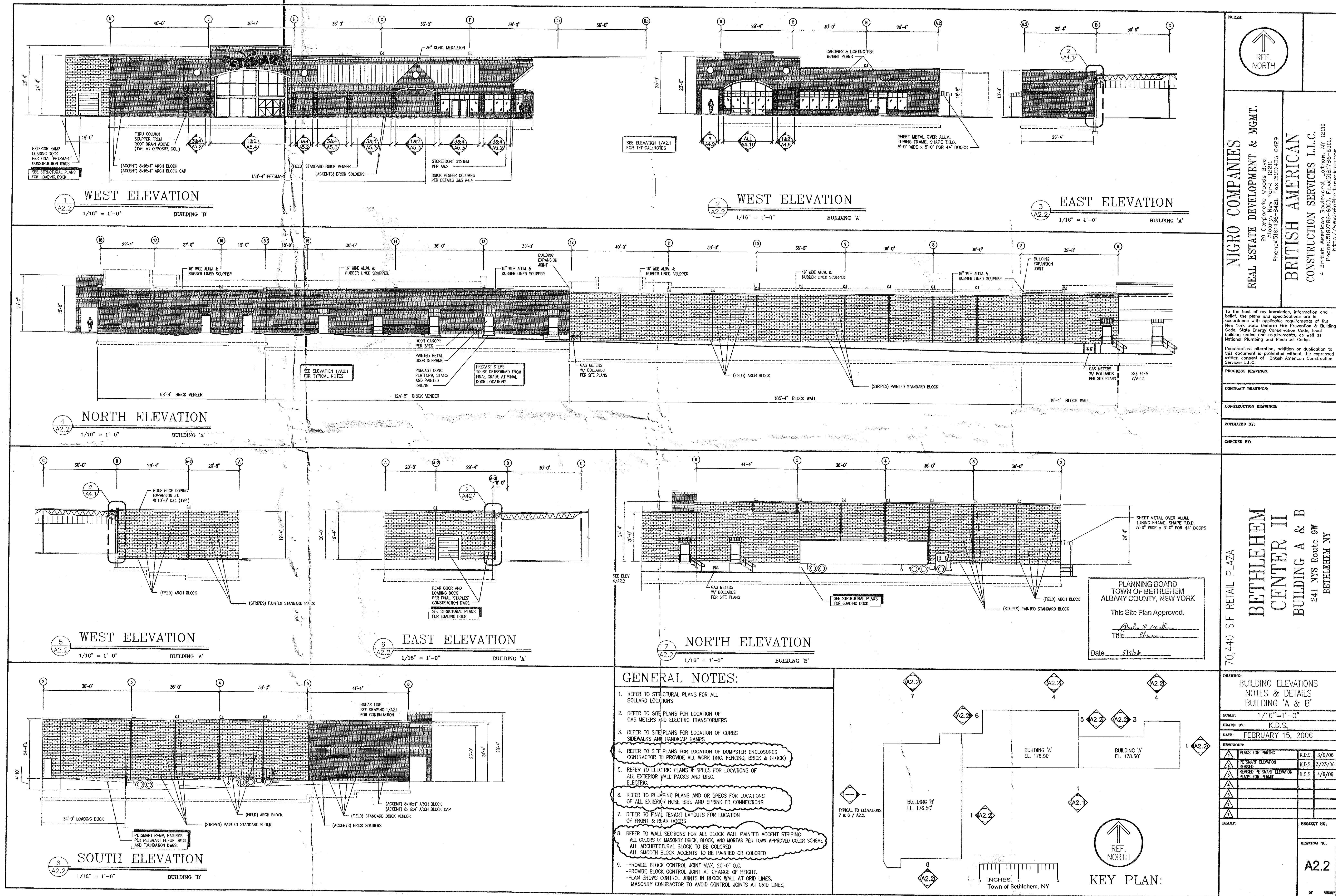
DRAWN BY: K.D.S.
DATE: FEBRUARY 15, 2006

REVISIONS:

NO.	DESCRIPTION	DATE	BY
1	PLANS FOR PRICING	3/9/06	K.D.S.
2	REVISED ELEVATIONS PLANS FOR PERMIT	4/6/06	K.D.S.

STAMP:

PROJECT NO.
DRAWING NO.
A2.1



↑
REF. NORTH

NIGRO COMPANIES
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PROGRESS DRAWINGS: _____

CONTRACT DRAWINGS: _____

CONSTRUCTION DRAWINGS: _____

ESTIMATED BY: _____

CHECKED BY: _____

70,440 S.F. RETAIL PLAZA

BETHLEHEM CENTER II
BUILDING A & B
241 NYS Route 9W
BETHLEHEM, NY

PLANNING BOARD
TOWN OF BETHLEHEM
ALBANY COUNTY, NEW YORK

This Site Plan Approved.
Paul H. Malina
Title: *Chairman*
Date: *5/1/06*

DRAWING:
BUILDING ELEVATIONS
NOTES & DETAILS
BUILDING 'A' & 'B'

SCALE:
1/16" = 1'-0"

DRAWN BY:
K.D.S.

DATE:
FEBRUARY 15, 2006

REVISIONS:
A PLANS FOR PRICING
B PETSMAE ELEVATION
C PETSMAE ELEVATION
D REVISED PETSMAE ELEVATION
E PLANS FOR PRICING

STAMP:
PROJECT NO.
DRAWING NO.
A2.2

KEY PLAN:
↑
REF. NORTH

INCHES
Town of Bethlehem, NY