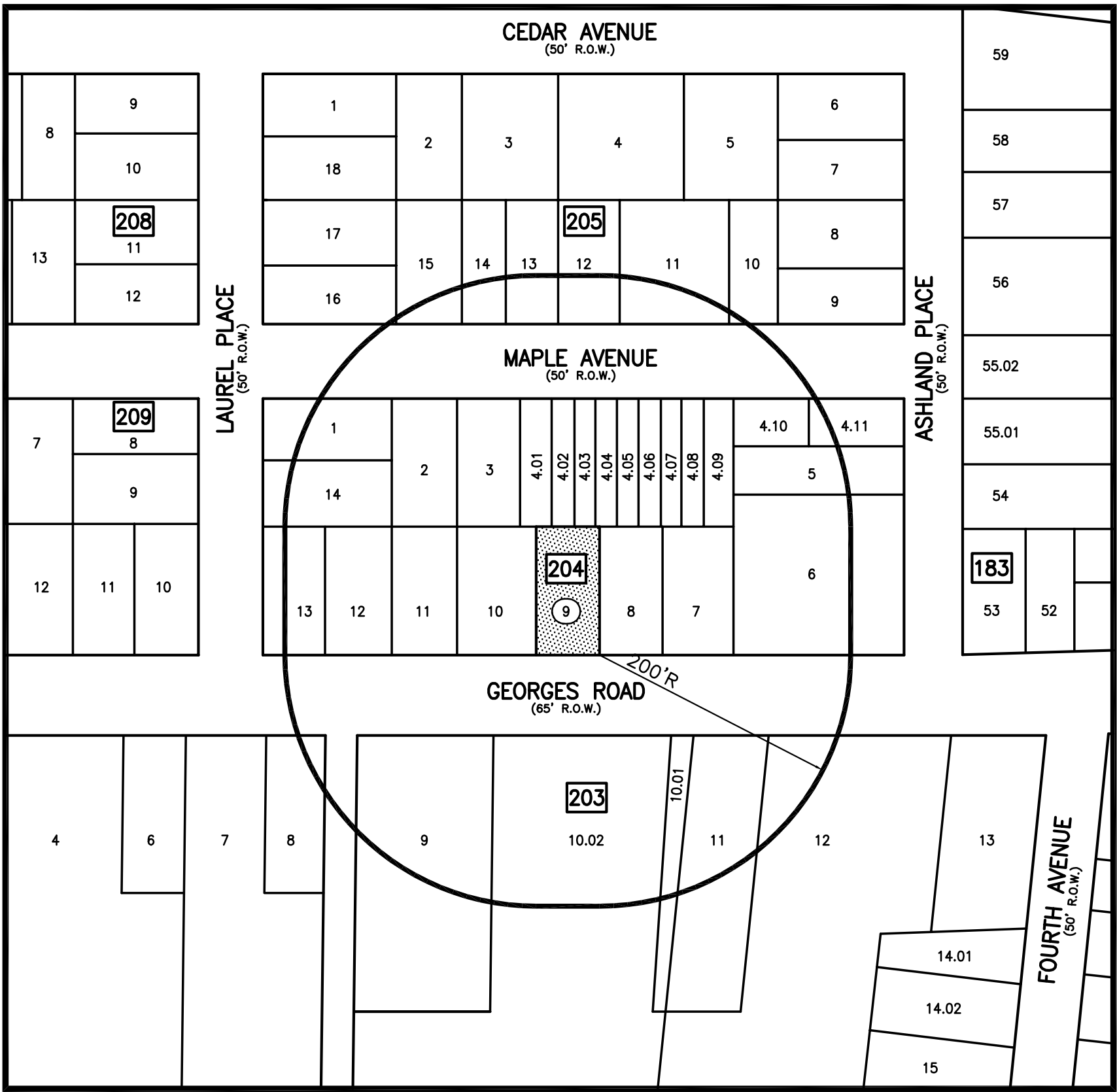
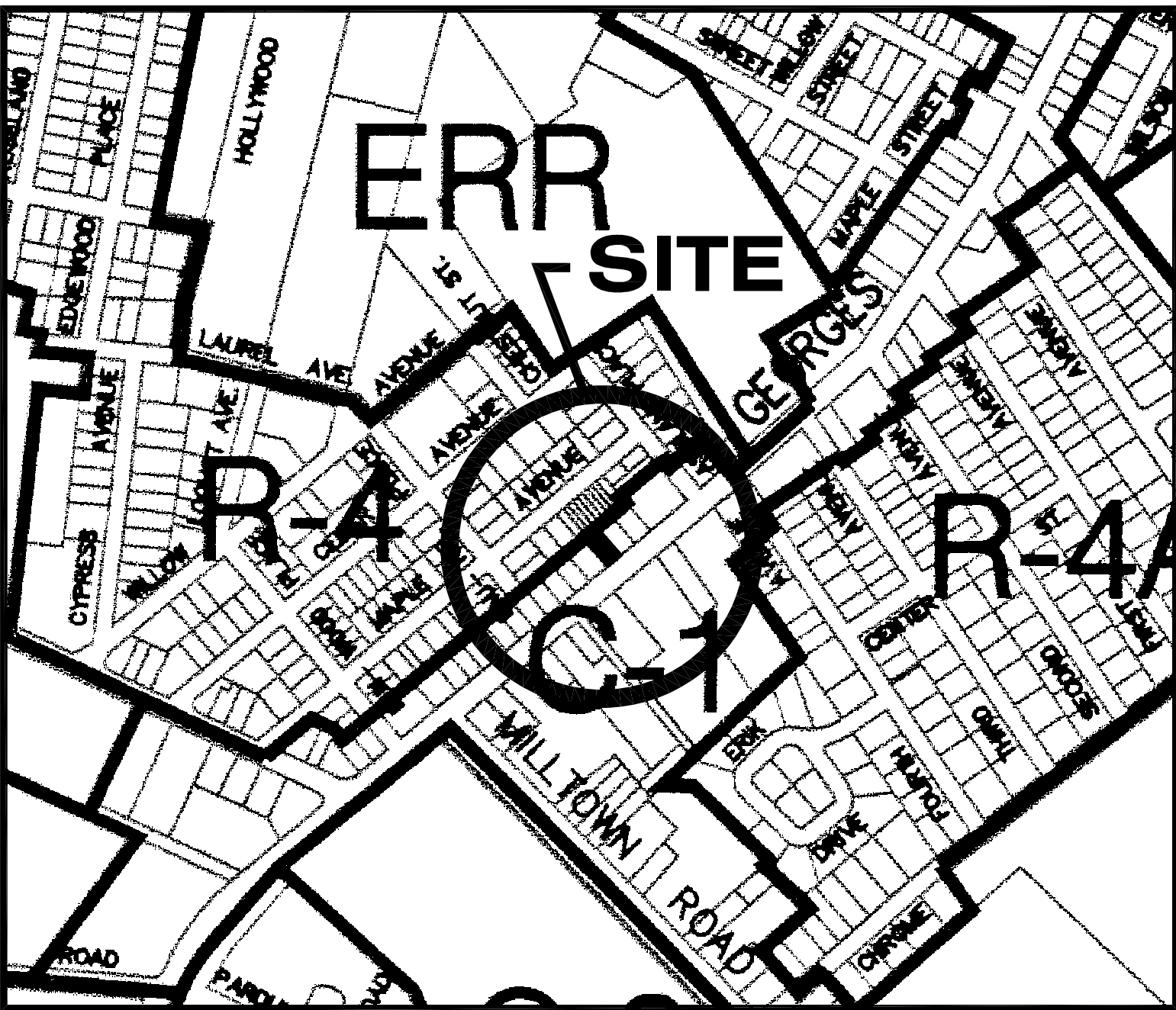
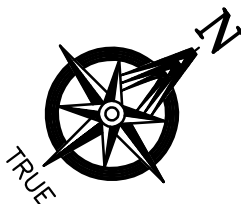


REV:	COMMENT	DATE
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1	REVISE PER RESOLUTION COMPLIANCE.	31MAY19

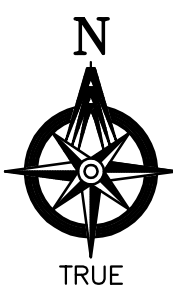
PROPOSED VARIANCE AND SITE PLAN APPLICATION



200' RADIUS MAP
SCALE: 1"=100'



KEY/ZONING MAP
SCALE: 1"=400'



LOCATED AT
643 GEORGES ROAD
BLOCK 204, LOT 9
TOWNSHIP OF NORTH BRUNSWICK
COUNTY OF MIDDLESEX
STATE OF NEW JERSEY
APPLICANT/OWNER
SUE CHAN & YONG ZHANG
643 GEORGES ROAD
NORTH BRUNSWICK, NEW JERSEY 08902

Ronald J. Sadowski, P.E.

10 EDWARD AVENUE
EDISON, N.J. 08820
(732)-744-6392

ronsadowski@verizon.net

200 FOOT PROPERTY OWNERS LIST

Block	Lot	Owner Name	Mailing Address	City, State Zip	Property Location
205	10	BAVA MANIARGIR N & MARIA O	665 MAPLE AVENUE	NORTH BRUNSWICK NJ 08902	665 MAPLE AVENUE
205	11	GABRIEL MICHAEL	2 MAPLE AVENUE	NORTH BRUNSWICK NJ 08902	2 MAPLE AVENUE
205	13	CUFFE THOMAS & JENNIFER	10 MAPLE AVENUE	NORTH BRUNSWICK NJ 08902	10 MAPLE AVENUE
205	15	BLACK GAVIN S & SCHAFER LAURA	14 MAPLE AVENUE	NORTH BRUNSWICK NJ 08902	14 MAPLE AVENUE
205	11	ROCKERS VILLIE & DARLENE	4 MAPLE AVENUE	NORTH BRUNSWICK NJ 08902	4 MAPLE AVENUE
205	14	MALIK SHOMAIL	12 MAPLE AVENUE	NORTH BRUNSWICK NJ 08902	12 MAPLE AVENUE
205	12	BIGGIO FRANK L ALICE & JEAN	8 MAPLE AVENUE	NORTH BRUNSWICK NJ 08902	8 MAPLE AVENUE
204	4.09	SHRVEP OLIVET	38 MAPLE AVENUE	NORTH BRUNSWICK NJ 08902	38 MAPLE AVENUE
204	12	PALLIS ROBERT & GRAY	382 LINCOLN AVENUE	DOYLESTOWN PA 18901	663 GEORGES ROAD
204	14	GUTIERREZ EDWIN & NILDA	1 LAUREL PLACE	NORTH BRUNSWICK NJ 08902	1 LAUREL PLACE
204	10	ZHANG YONG & CHAN SUE	191 FINNEGANS LANE	KENDALL PARK NJ 08824	649 GEORGES ROAD
204	9	CHAN SUE & ZHANG YONG	191 FINNEGANS LANE	KENDALL PARK NJ 08824	643 GEORGES ROAD
204	1	SIBANK OF NY TRUST COMP YLANGCARE	9637 GENTARA WAY	VIRGINIA BEACH VA 23462	9 MAPLE AVENUE
204	4.01	DEL RIO MATILDA	70 MAPLE AVENUE	NORTH BRUNSWICK NJ 08902	70 MAPLE AVENUE
204	8	DEBBIE LLC	65 LAKE VIEW BLVD	EDISON NJ 08817	637 GEORGES ROAD
204	4.03	SIMON CHERYL B	78 MAPLE AVENUE	NORTH BRUNSWICK NJ 08902	78 MAPLE AVENUE
204	4.09	HANAS DIANA	3A MAPLE AVENUE	NORTH BRUNSWICK NJ 08902	3A MAPLE AVENUE
204	4.1	MOROCHO LUIS	1 MAPLE AVENUE	NORTH BRUNSWICK NJ 08902	1 MAPLE AVENUE
204	4.11	IRKINSKHINWA EKALIP	4 ASHLAND PLACE	NORTH BRUNSWICK NJ 08902	4 ASHLAND PLACE
204	8	BARAGE PROPERTIES LLC	1188 DELAWARE DRIVE	BRIDGEWATER NJ 08907	623 GEORGES ROAD
204	4.04	JOHNSON MAURY & ANTOINETTE	50 MAPLE AVENUE	NORTH BRUNSWICK NJ 08902	50 MAPLE AVENUE
204	4.07	NAVARRE EUGENE & SMITH MARY ANN	30 MAPLE AVENUE	NORTH BRUNSWICK NJ 08902	30 MAPLE AVENUE
204	4.03	IMHALENO JOHN	7A MAPLE AVENUE	NORTH BRUNSWICK NJ 08902	7A MAPLE AVENUE
204	8	CULVER GEORGE & BIANCO-CULVER NANCY	2 ASHLAND PLACE	NORTH BRUNSWICK NJ 08902	2 ASHLAND PLACE
204	11	VUK ZELJKO	665 GEORGES ROAD	NORTH BRUNSWICK NJ 08902	665 GEORGES ROAD
204	13	PALLIS ROBERT & GRAY	382 LINCOLN AVENUE	DOYLESTOWN PA 18901	663 GEORGES ROAD
204	1	JONES COLLEEN & REASAN MICHAEL	21 ROBERTS ROAD	NEW BRUNSWICK NJ 08901	3 LAUREL PLACE
204	7	VHS SERVICES LLC	142 RODNEY AVENUE	SOMERSET NJ 08873	631 GEORGES ROAD
204	4.05	POWMESAMY SUBRAMANI & MARDAI	166 JAROD OAKS COURT	LOGANVILLE GA 30052	58 MAPLE AVENUE
204	4.08	SPALDING PAUL & PAMELA	5-A MAPLE AVENUE	NORTH BRUNSWICK NJ 08902	5A MAPLE AVENUE
204	2	HACKEN JOHN R	11 MAPLE STREET	NORTH BRUNSWICK NJ 08902	11 MAPLE STREET
203	10.01	603 GEORGES RD NORTH BRUNSWICK LLC	2066 RICHMOND AVENUE	STATEN ISLAND NY 10314	630 GEORGES ROAD
203	8	SCARCELLA ANTONIO & MARIA	662 GEORGES ROAD	NORTH BRUNSWICK NJ 08902	662-664 GEORGES ROAD
203	11	603 GEORGES RD NORTH BRUNSWICK LLC	2066 RICHMOND AVENUE	STATEN ISLAND NY 10314	630 GEORGES ROAD
203	12	PARK PLAZA CONDO ASSOCIATION	GEORGES ROAD	NORTH BRUNSWICK NJ 08902	GEORGES ROAD
203	9	COSKEY VICTOR D & JUDY M	18 WESTMINSTER DRIVE	COLTS NECK NJ 07722	666 GEORGES ROAD
203	10.02	SCM PROPERTIES LLC & QUAL INN SPORT	10 POLITO AVENUE	LYNDHURST NJ 07071	644 GEORGES ROAD

CABLEVISION OF RARITAN VALLEY
275 CENTENNIAL AVENUE, CN 6805
PISCATAWAY, NJ 08855-6805
ATTN: MARGURITE PRENDERVILLE
CONSTRUCTION DEPARTMENT

DEPARTMENT OF TRANSPORTATION
STATE OF NEW JERSEY
1035 PARKWAY
TRENTON, NJ 08625

SUNOCO PIPELINE L.P.
RIGHT OF WAY
MONTELO COMPLEX
525 FRITZTOWN ROAD
SINKING SPRING, PA 19608

MIDDLESEX COUNTY PLANNING BOARD
40 LIVINGSTON AVENUE
NEW BRUNSWICK, NJ 08902

PUBLIC SERVICE ELECTRIC & GAS CO.
MANAGER - CORPORATE PROPERTIES
80 PARK PLACE, T6B
NEWARK, NJ 07102

VERIZON
N.J. GEN. TAX ADMINISTRATION
540 BROAD STREET - ROOM 305
NEWARK, NJ 07101

NORTH BRUNSWICK TOWNSHIP
710 HERMANN ROAD
NORTH BRUNSWICK, NJ 08902
ATTN: TOWNSHIP CLERK

CONSTRUCTION DEPT. MR. TIM ALLEN
TEXAS EASTERN TRANSMISSION CORP.
501 COOLIDGE STREET
SOUTH PLAINFIELD, NJ 07080

INDEX OF DRAWINGS (PROJECT S18160)

- 1 COVER SHEET
- 2 PROPOSED DEMOLITION AND SITE PLAN
- 3 PROPOSED GRADING, UTILITY, AND LIGHTING PLAN
- 4 SITE PLAN CONSTRUCTION DETAILS
- 5 SOIL EROSION & SEDIMENT CONTROL PLAN & DETAILS
- 6 SOIL EROSION & SEDIMENT CONTROL NOTES & DETAILS
- 7 SOIL EROSION & SEDIMENT CONTROL NOTES & DETAILS
- 8 SOIL EROSION & SEDIMENT CONTROL NOTES & DETAILS

BLOCK:204 LOT 9
ZONE: C-1 NEIGHBORHOOD COMMERCIAL DISTRICT

NORTH BRUNSWICK, NEW JERSEY
SCHEDULE OF AREA, YARD, AND BUILDING REQUIREMENTS

PRELIMINARY AND FINAL SITE PLAN APPLICATION

	REQUIRED	PROPOSED
MINIMUM LOT AREA (FEET)	15,000	5,000 **
MINIMUM LOT WIDTH (FEET)	100	50 **
MINIMUM LOT DEPTH (FEET)	100	100
MINIMUM SETBACKS (FEET)		
FRONT	35	9.3 **
SIDE (ONE)	10	2.0 **
SIDE (TOTAL)	20	23.5 **
REAR	20	10.0 **
MINIMUM REAR YARD BUFFER FROM RESIDENTIAL ZONE (FEET)	30	0 **
MAXIMUM PRINCIPAL BUILDING COVER (%)	40	42.8 **
MAXIMUM TOTAL IMPERVIOUS COVER (%)	80	93.6 **
MAXIMUM BUILDING HEIGHT (STORIES)	2.5	2
MAXIMUM BUILDING HEIGHT (FEET)	30	26.5

[**] INDICATES VARIANCE.

NORTH BRUNSWICK, NEW JERSEY
OFF STREET PARKING - DESIGN STANDARDS

643 GEORGES ROAD

PARKING REQUIREMENTS	REQUIRED	PROPOSED
90' PARKING STALL DIMENSIONS STALL WIDTH (FEET) STALL DEPTH (FEET)	9 18	9 18
ADA ACCESSIBLE PARKING STALL DIMENSIONS STALL WIDTH (FEET) 8' PARKING, 5' AISLE STALL DEPTH (FEET)	13 18	18 18
90' PARKING (FEET)	25	24.2 **
OFF-STREET PARKING REQUIREMENTS RETAIL & SERVICE STORES 1 PER 200 SQ.FT. GFA (850 SQ.FT.)	5	
OFF-STREET PARKING REQUIREMENTS RESIDENTIAL (RSIS STANDARDS) 2.0 FOR EA. 2-BEDROOM UNITS (2 UNITS)	4	
TOTAL PARKING SPACES	9	9

[**] INDICATES A NEW VARIANCE.

APPROVED BY THE ZONING BOARD OF THE NORTH
BRUNSWICK TOWNSHIP AT THE REGULAR MEETING OF _____

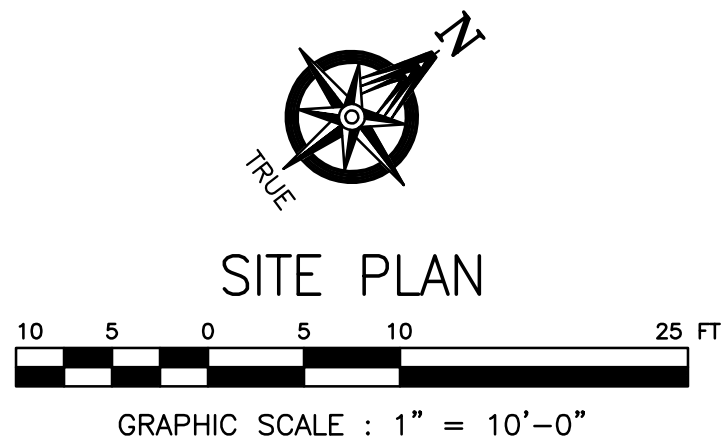
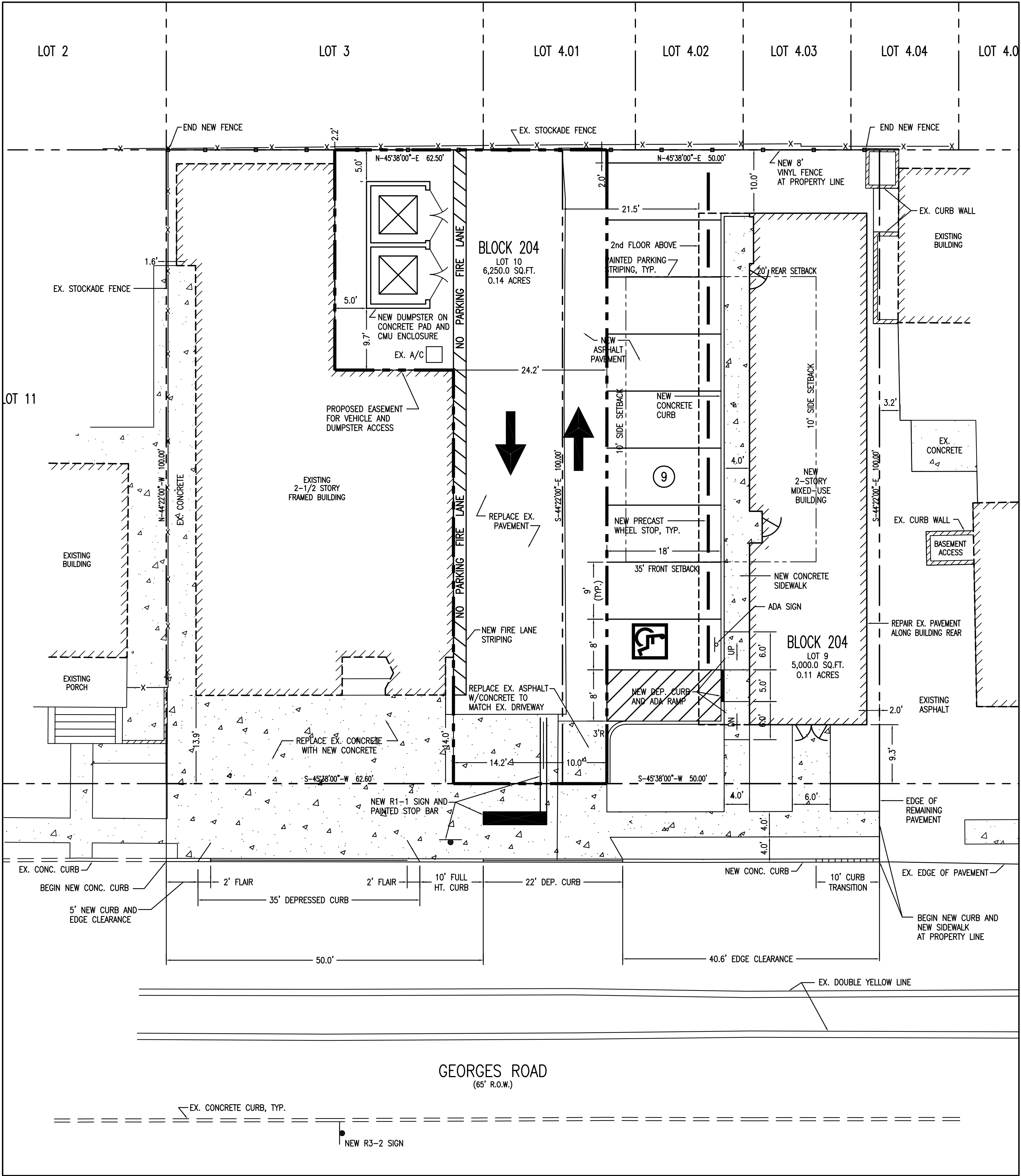
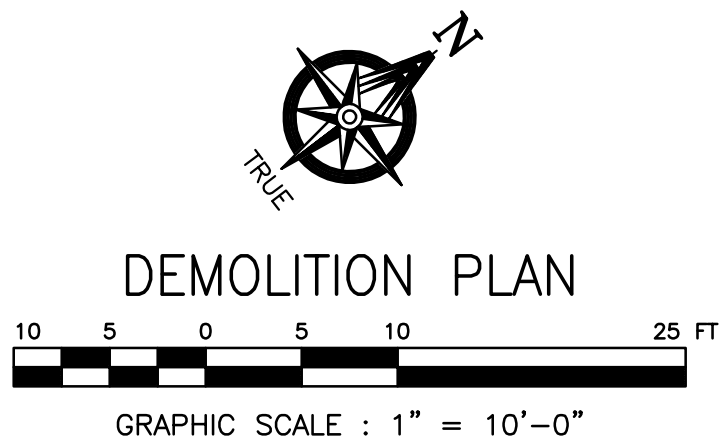
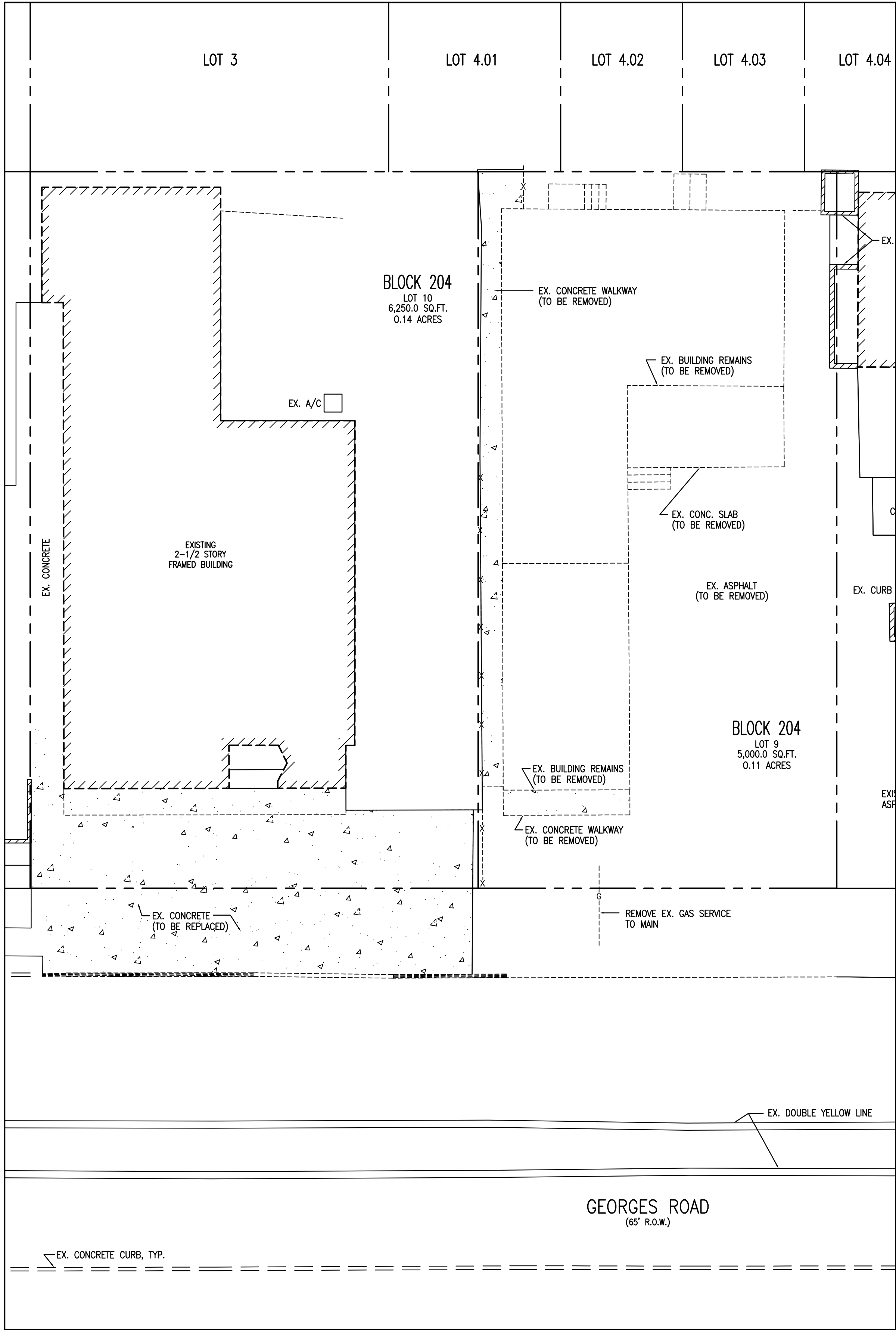
CHAIRPERSON _____ DATE _____

SECRETARY _____ DATE _____

TOWNSHIP ENGINEER _____ DATE _____

Ronald J. Sadowski
RONALD J. SADOWSKI
NJPE #38261

1
S18160



REFERENCES		
PROPOSED SITE PLAN DRAWINGS DATED SEPTEMBER 9, 2018, PREPARED BY KURT LUDWIG, AIA, INC. 77 NORTH MAIN STREET, MILLTOWN, NJ 08850.		
REV	REVISION DESCRIPTION	DATE
0	FOR BOARD APPROVAL.	17DEC18
1	REVISE PER RESOLUTION COMPLIANCE.	31MAY19
2	ADD EASEMENT FOR REVIEW.	17JUL19
3	REVISE IMPROVEMENTS ALONG FRONTAGE PER NJDOT REVIEW COMMENTS.	02MAR20

SITE PLAN NOTES:

- THE SITE HAS BEEN DESIGNED TO MEET THE REQUIREMENTS SET FORTH IN THE U.S. ACCESS BOARD'S "PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES" (PROWAG) AND "ADA ACCESSIBILITY GUIDELINES" (ADAAG).

WATER UTILITY NOTE:

- ALL EXISTING WATER SERVICE TO THE PROPERTIES MUST BE DISCONNECTED AT THE WATERMAIN.
- WHEN NEW SERVICE(S) ARE INSTALLED, A REPRESENTATIVE FROM AMERICAN WATER MUST BE ON-SITE TO INSPECT THE TAPPING OF THE WATER MAIN.
- ONCE THE WATER SERVICE SIZE IS DETERMINED, A WATER METER MUST BE PURCHASED THROUGH AMERICAN WATER WITH FEES BASED ON METER SIZE.
- FIRE SERVICE CANNOT BE UTILIZED FOR DOMESTIC WATER. IF FIRE SERVICE IS REQUIRED, IT MUST BE A SEPARATE, METERED SERVICE. METER TO BE PURCHASED THROUGH AMERICAN WATER.
- WATER PRESSURE AND FLOW TESTS, ARE TO BE PERFORMED BY A CERTIFIED TESTING COMPANY. A WRITTEN REQUEST TO AMERICAN WATER MUST BE SUBMITTED TO AMERICAN WATER FOR TEST SCHEDULING. RESULTS OF FLOW TESTS MUST BE SUBMITTED TO AMERICAN WATER IN WRITING.

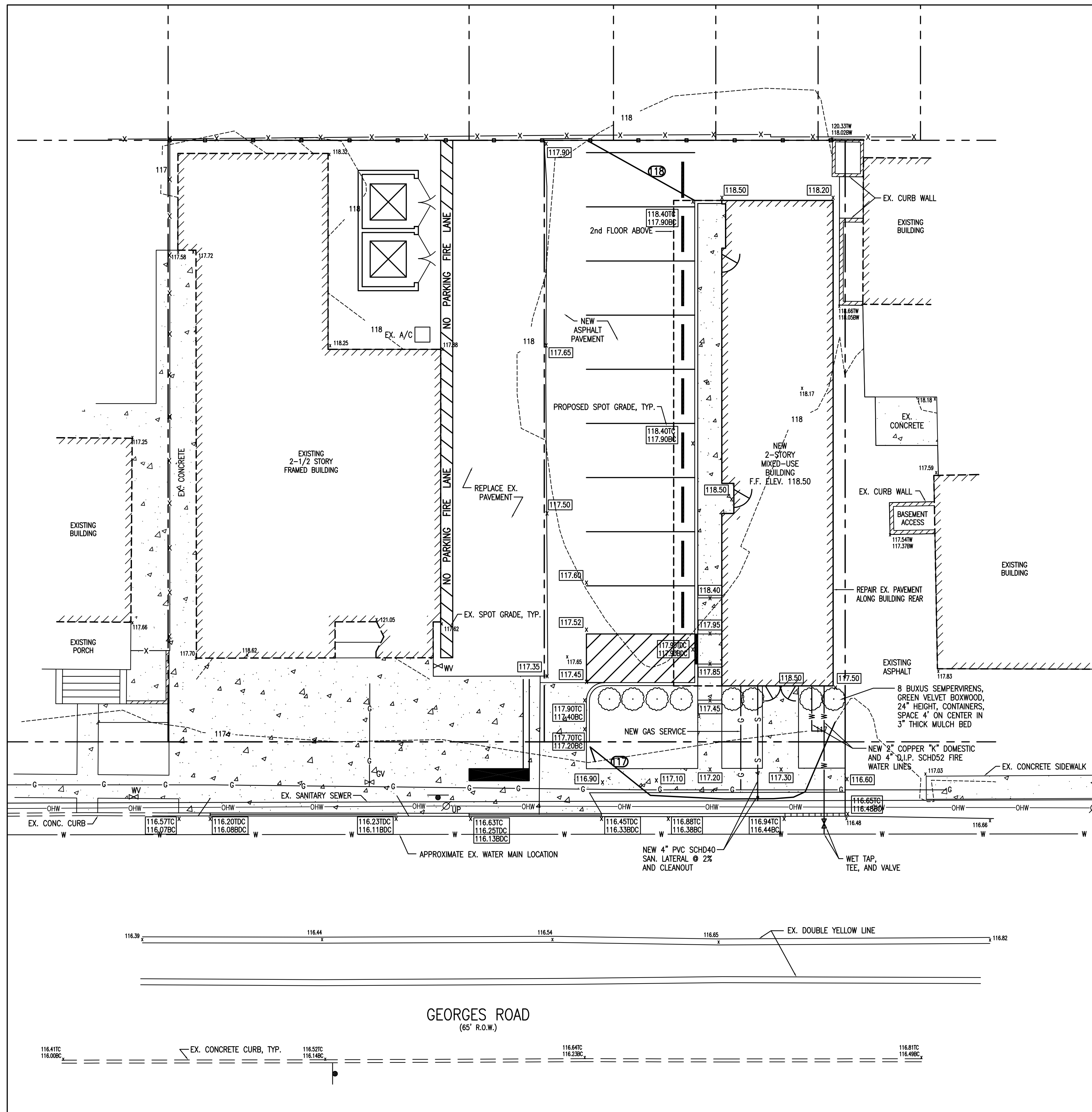
Owner / Project

VARIANCE AND SITE PLAN
APPLICATION
643 GEORGES ROAD
BLOCK 204, LOT 9
NORTH BRUNSWICK, NEW JERSEY

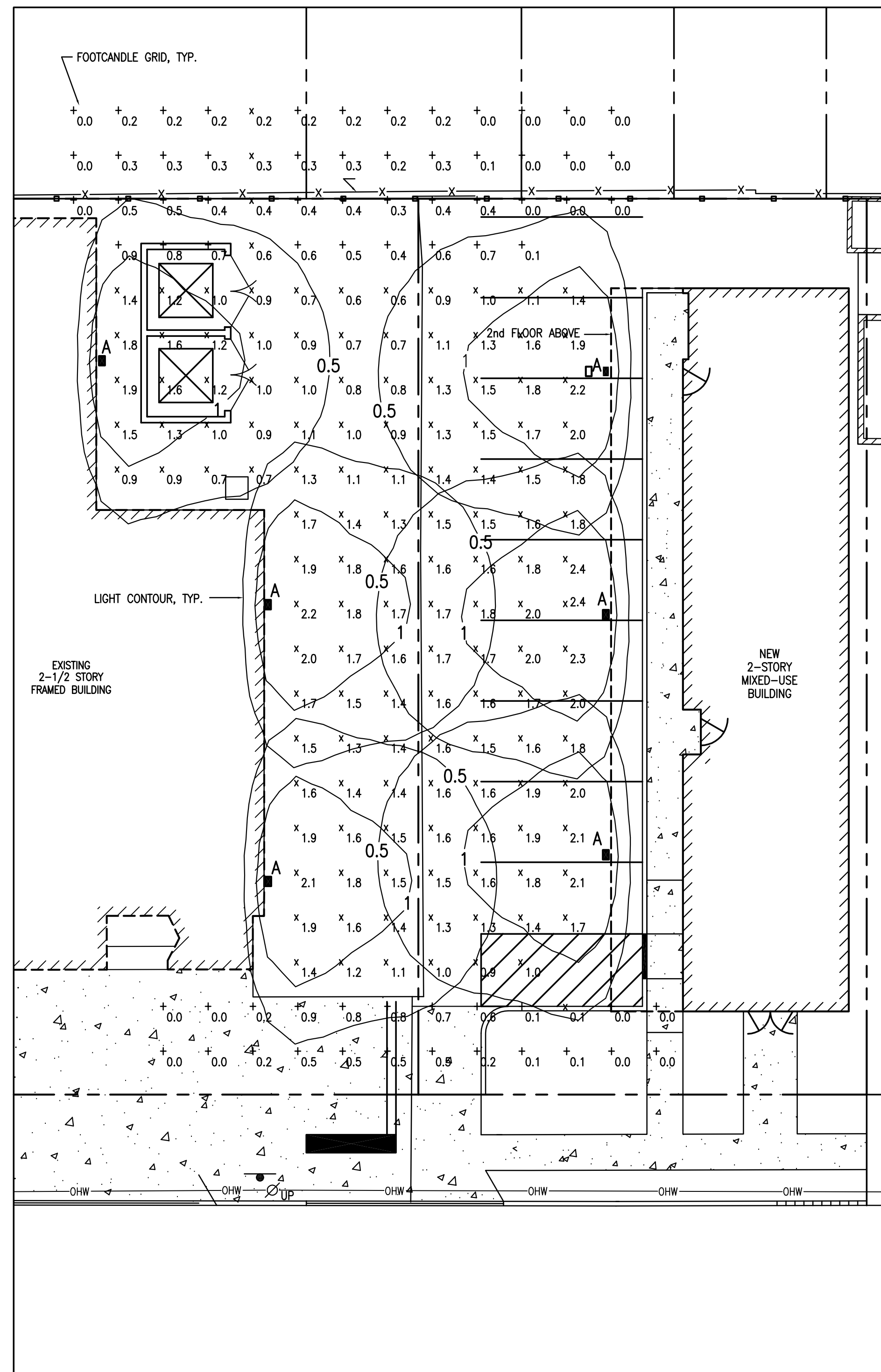
RONALD J. SADOWSKI, P.E.
ENGINEERING & CONSTRUCTION MANAGEMENT
10 EDWARD AVENUE
EDISON, NEW JERSEY 08820
(732) 744-6392
ronsadowski@verizon.net

PROPOSED DEMOLITION PLAN
AND
SITE PLAN

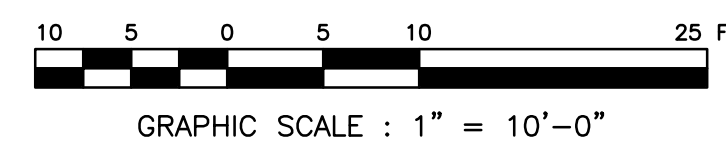
DRAWN CHECKED	RJS RJS	SCALE DATE	AS NOTED 17DEC18
PROJECT NO. S18160		DRAWING NO. 2	



GRADING & UTILITY PLAN



LIGHTING PLAN



DESCRIPTION	SYMBOL	AVERAGE	MAXIMUM	MINIMUM	MAX/MIN	AVG/MIN
OVERALL @ GRADE	+	1.0 fc	2.4 fc	0.0 fc	N/A	N/A
PARKING @ GRADE	x	1.4 fc	2.2 fc	0.6 fc	3.7:1	2.3:1

SYMBOL	LABEL	QUANTITY	CATALOG NUMBER	DESCRIPTION	LAMP	LUMENS PER LAMP	LLF	WATTS
■	A	6	WST LED P1 40K VF 1VOLT COLOR A3	WST LED, PERFORMANCE PACKAGE 1, 4000 K, VISUAL COMFORT FORWARD THROW, 1VOLT	LED	1639	0.85	12

18' WALL MOUNTING HEIGHT

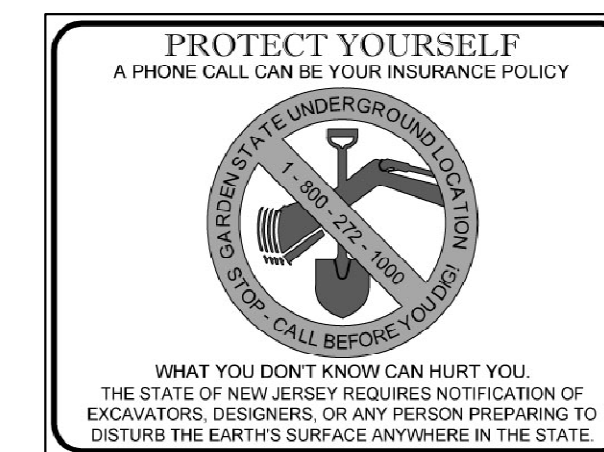
REFERENCES		
PROPOSED SITE PLAN DRAWINGS DATED SEPTEMBER 9, 2018, PREPARED BY KURT LUDWIG, AIA, INC. 77 NORTH MAIN STREET, MILLTOWN, NJ 08850.		
REV	REVISION DESCRIPTION	DATE
0	FOR BOARD APPROVAL.	17DEC18
1	REVISE PER RESOLUTION COMPLIANCE.	31MAY19
2	ADJUST GRADES ALONG FRONTAGE AND PROVIDE SINGLE WATER TAP PER NJDOT COMMENTS.	02MAR20

SITE PLAN NOTES:

1. THE SITE HAS BEEN DESIGNED TO MEET THE REQUIREMENTS SET FORTH IN THE U.S. ACCESS BOARD'S "PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES" (PROWAG) AND "ADA ACCESSIBILITY GUIDELINES" (ADAAG).

WATER UTILITY NOTE:

1. ALL EXISTING WATER SERVICE TO THE PROPERTIES MUST BE DISCONNECTED AT THE WATERMAIN.
2. WHEN NEW SERVICE(S) ARE INSTALLED, A REPRESENTATIVE FROM AMERICAN WATER MUST BE ON-SITE TO INSPECT THE TAPPING OF THE WATER MAIN.
3. ONCE THE WATER SERVICE SIZE IS DETERMINED, A WATER METER MUST BE PURCHASED THROUGH AMERICAN WATER WITH FEES BASED ON METER SIZE.
4. FIRE SERVICE CANNOT BE UTILIZED FOR DOMESTIC WATER. IF FIRE SERVICE IS REQUIRED, IT MUST BE A SEPARATE, METERED SERVICE. METER TO BE PURCHASED THROUGH AMERICAN WATER.
5. WATER PRESSURE AND FLOW TESTS, ARE TO BE PERFORMED BY A CERTIFIED TESTING COMPANY. A WRITTEN REQUEST TO AMERICAN WATER MUST BE SUBMITTED TO AMERICAN WATER FOR TEST SCHEDULING. RESULTS OF FLOW TESTS MUST BE SUBMITTED TO AMERICAN WATER IN WRITING.

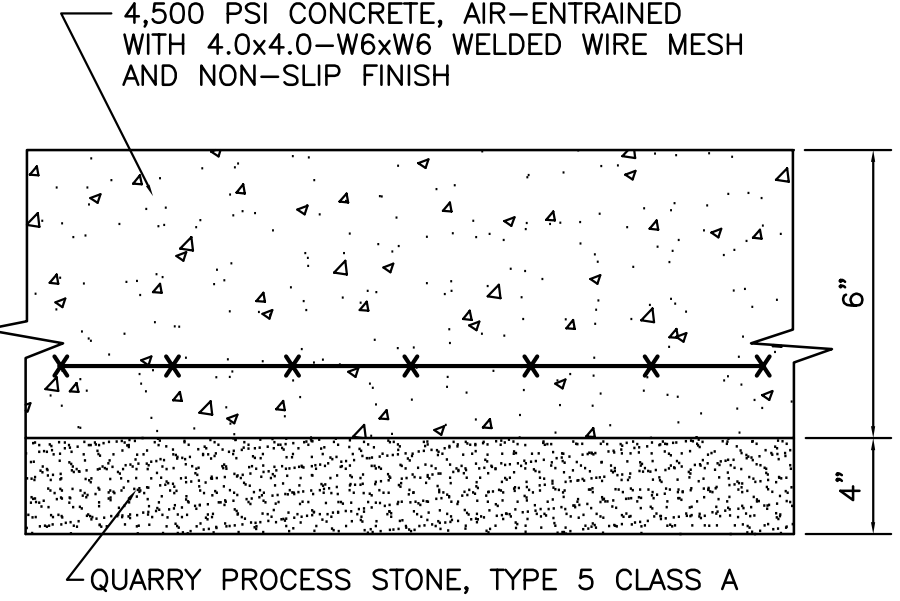
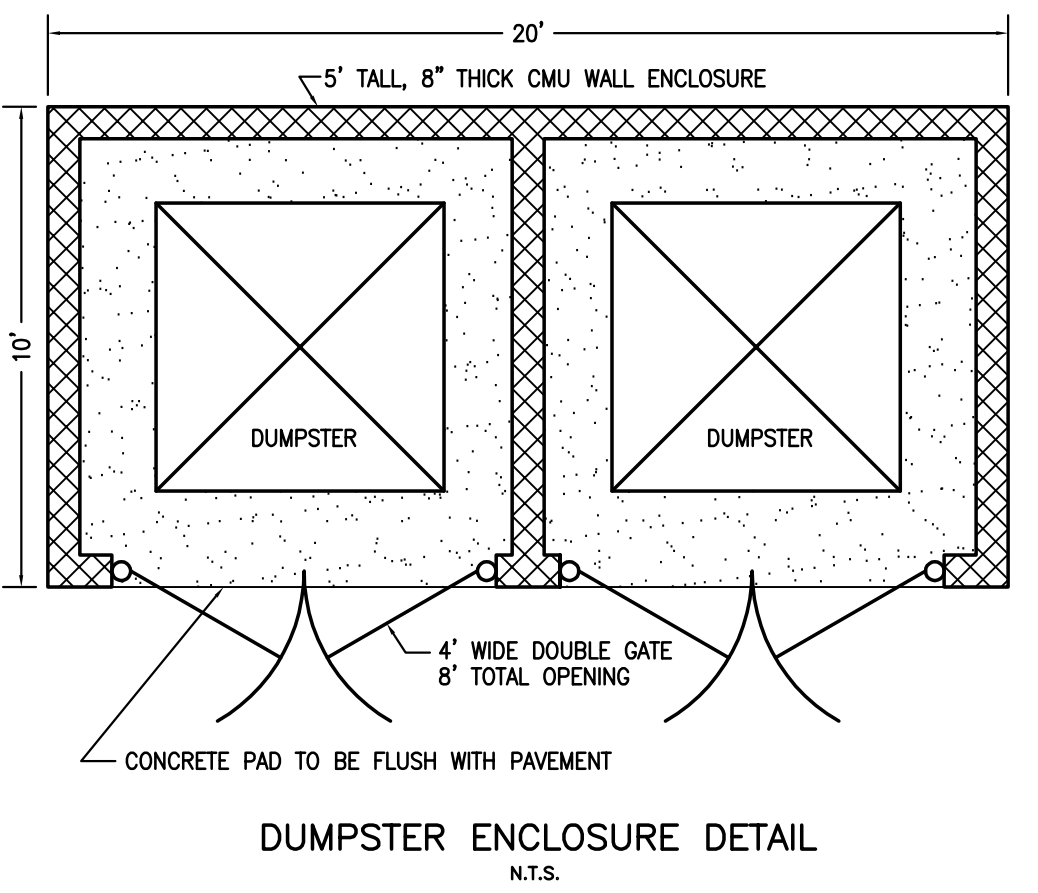
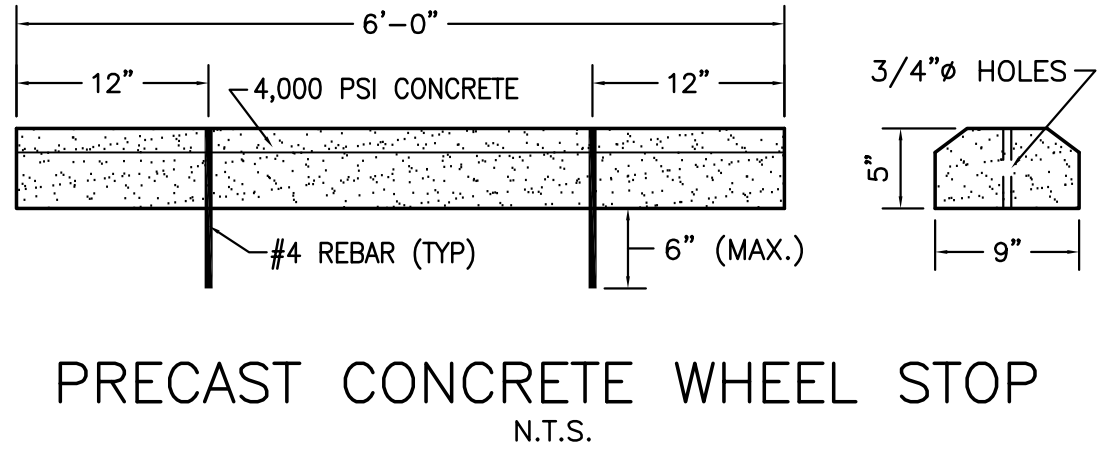
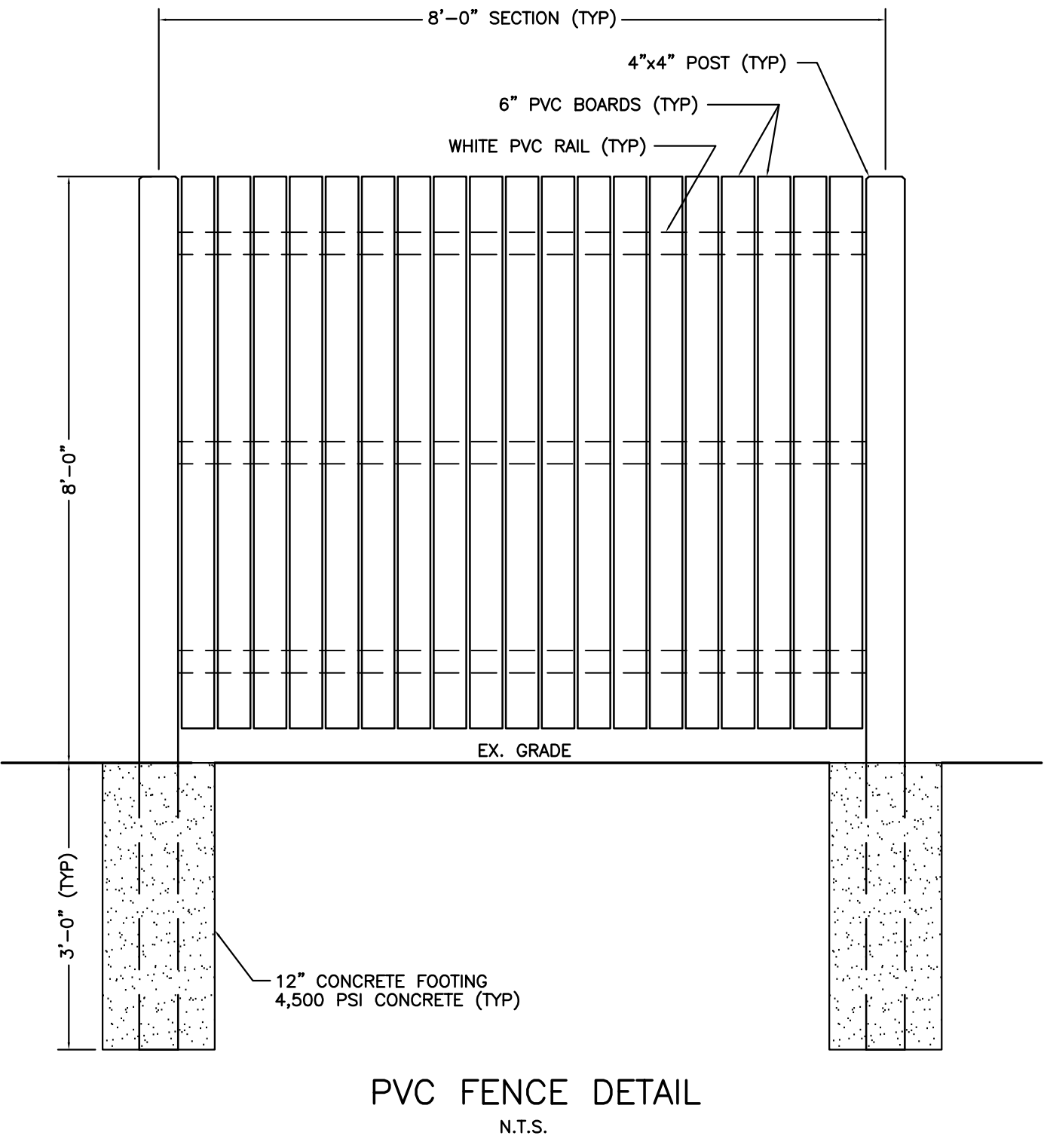
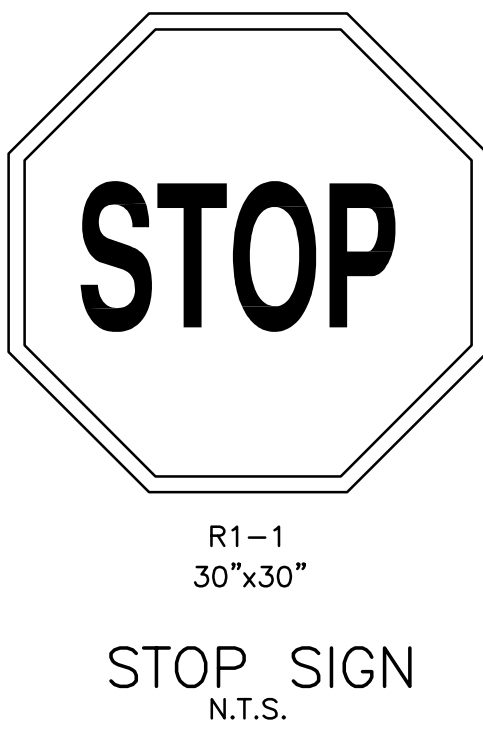
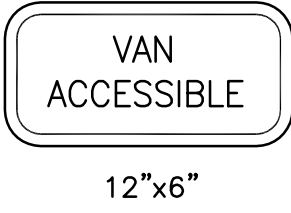
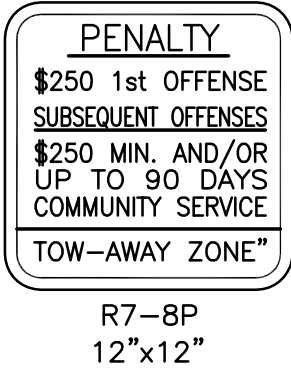
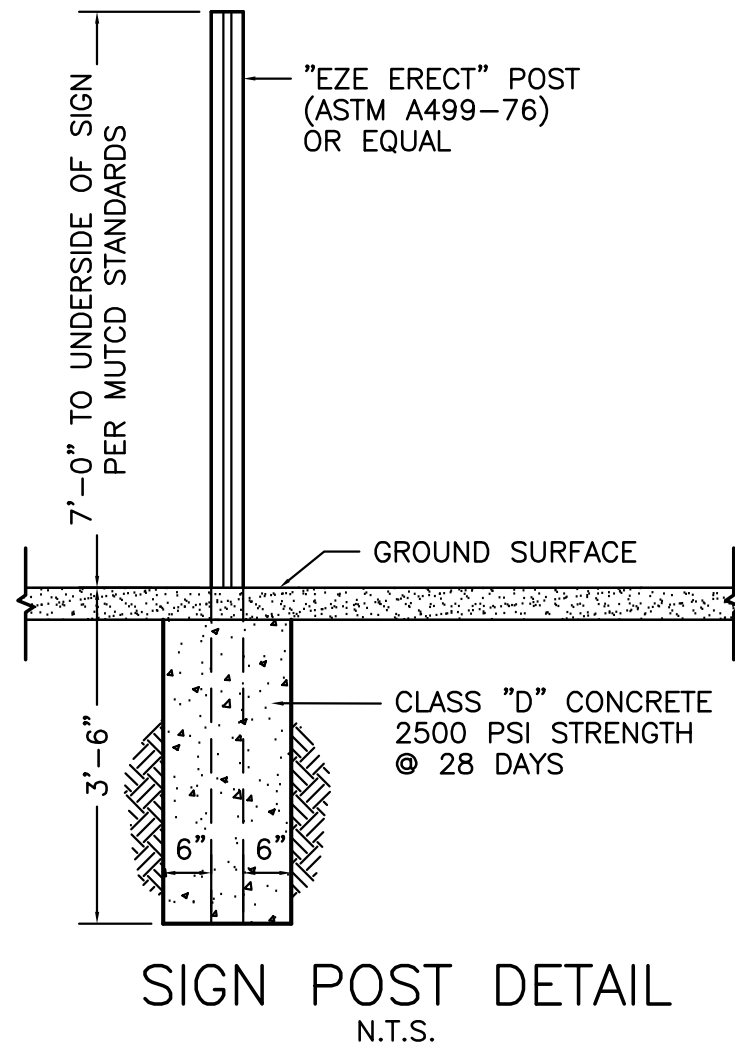
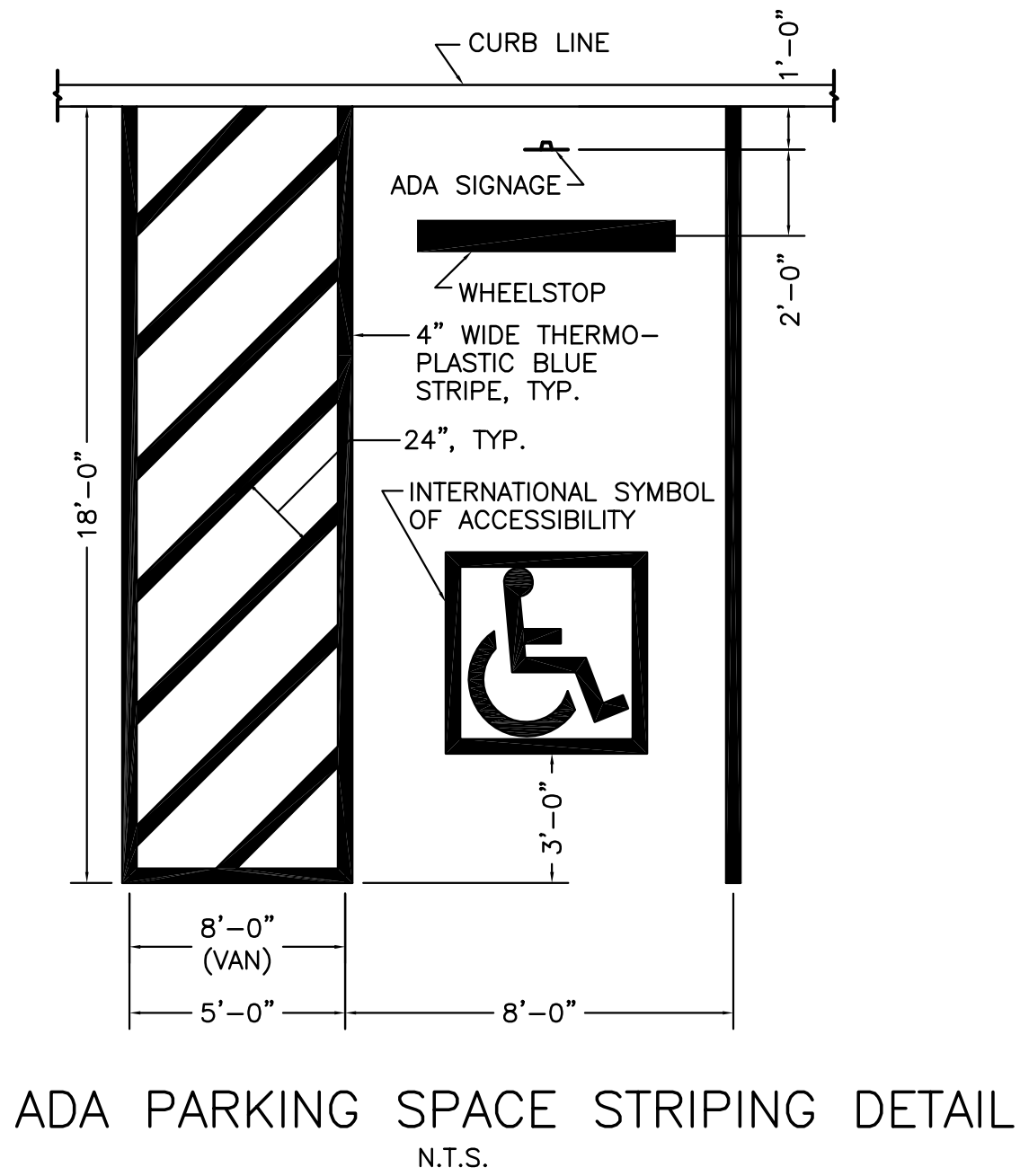
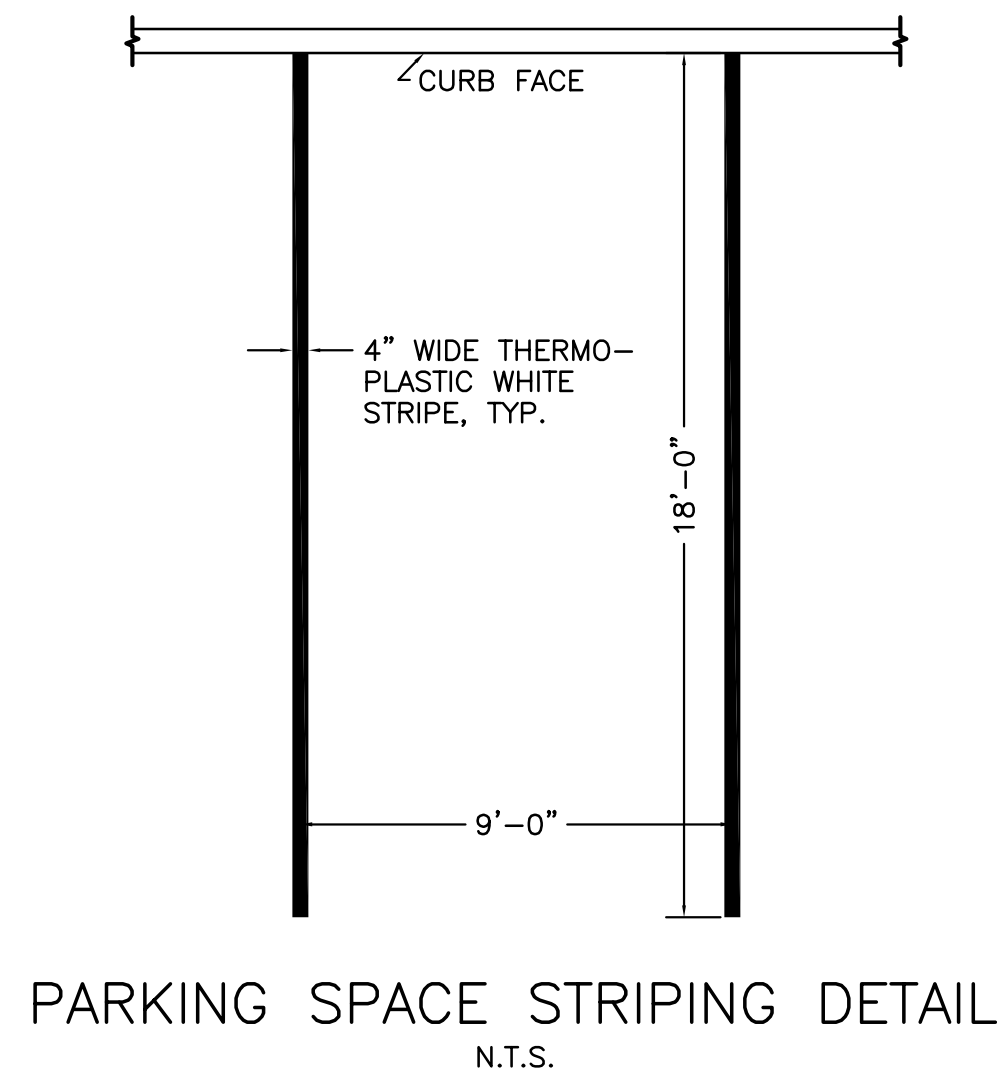


Owner / Project
VARIANCE AND SITE PLAN APPLICATION
643 GEORGES ROAD
BLOCK 204, LOT 9
NORTH BRUNSWICK, NEW JERSEY

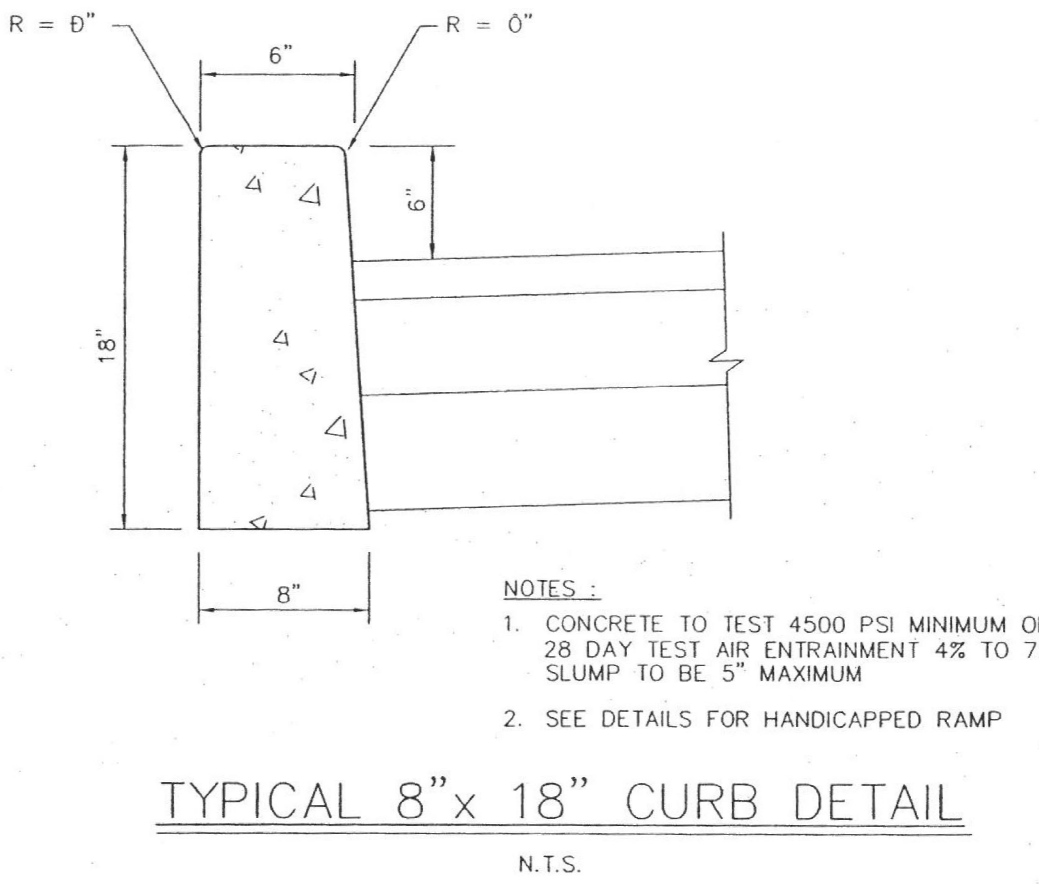
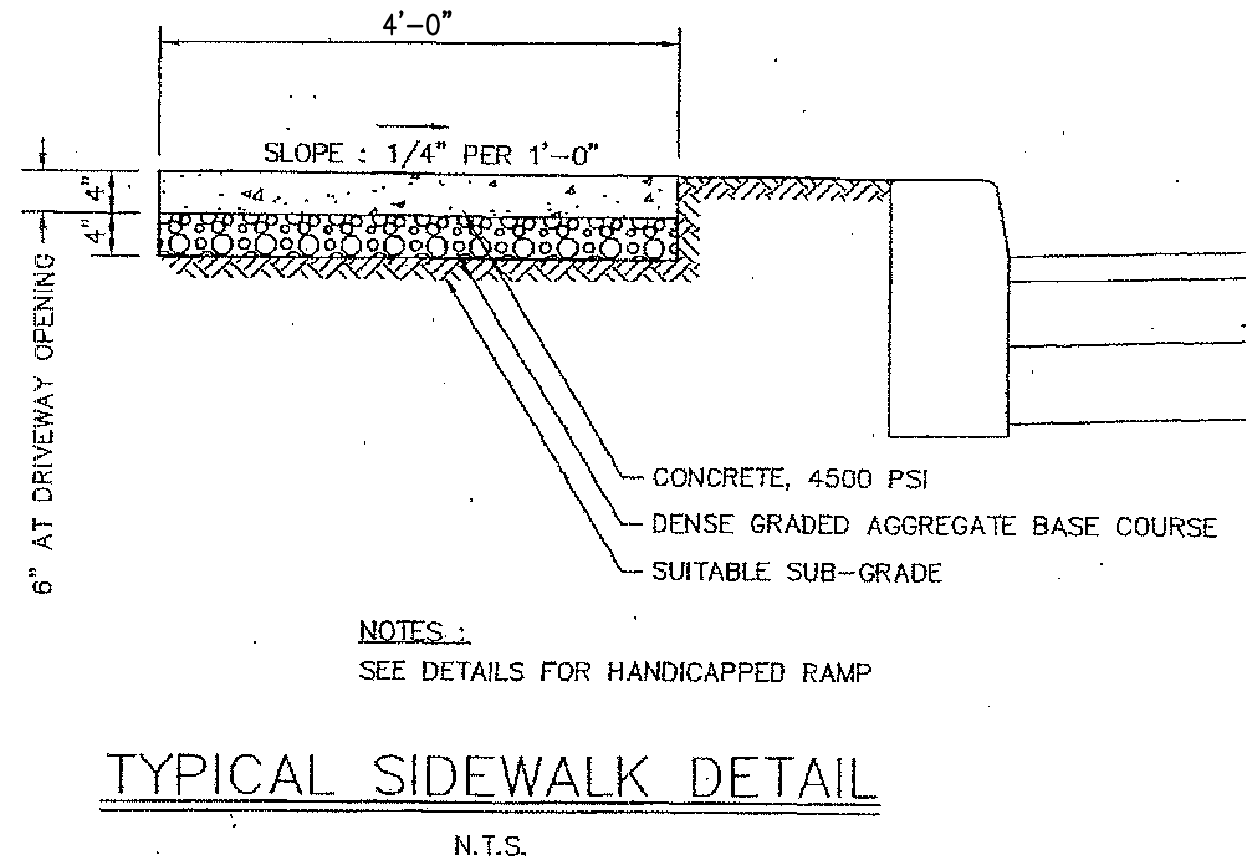
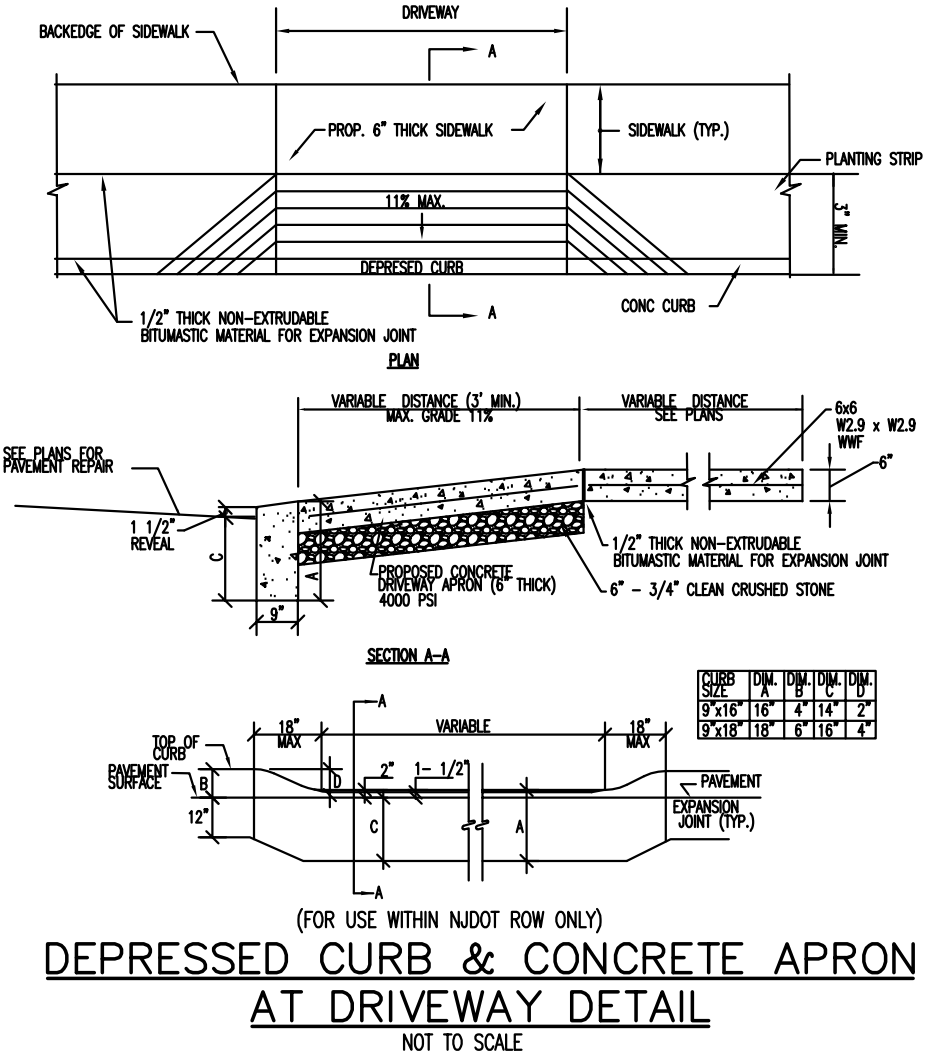
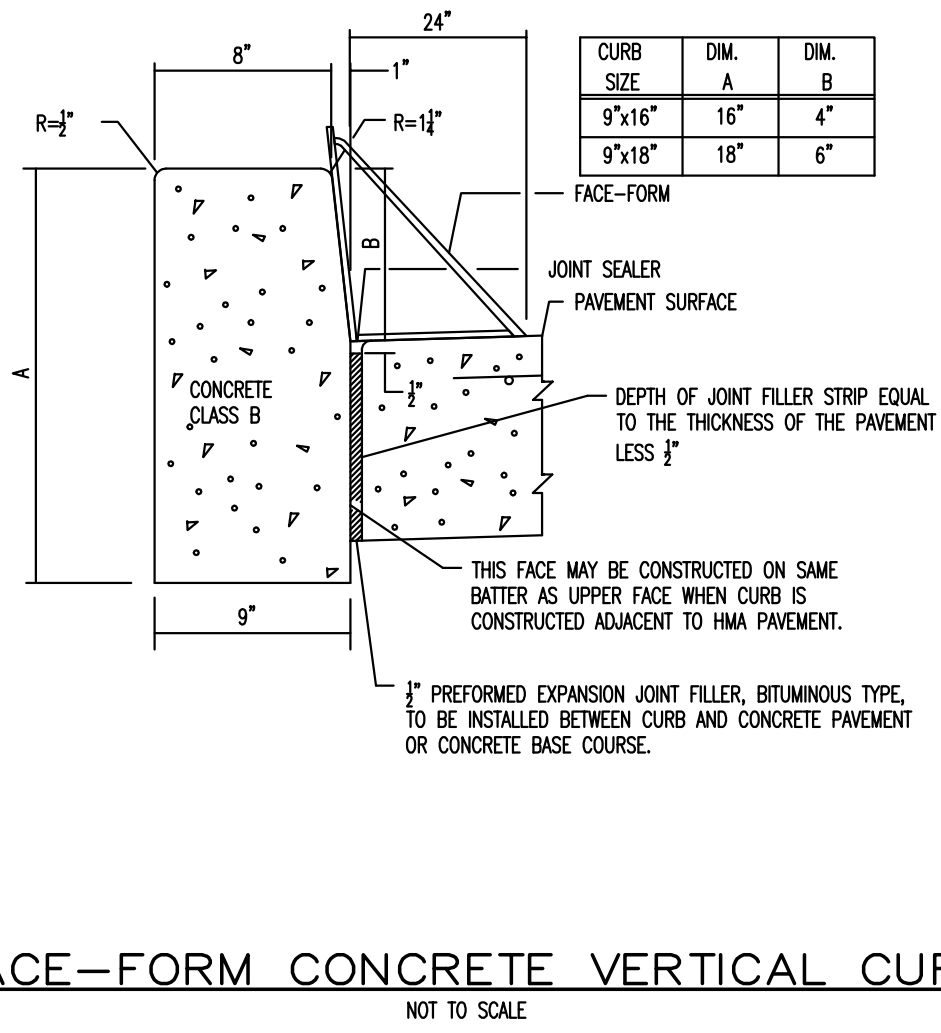
RONALD J. SADOWSKI, P.E.
ENGINEERING & CONSTRUCTION MANAGEMENT
10 EDWARD AVENUE
EDISON, NEW JERSEY 08820
(732) 744-6392
ronsadowski@verizon.net

PROPOSED GRADING, UTILITY,
AND
LIGHTING PLAN

DRAWN CHECKED	RJS RJS	SCALE DATE	AS NOTED 17DEC18
PROJECT NO. S18160		DRAWING NO. 3	



REFERENCES		
BALANCE OF SITE PLAN DRAWINGS.		
REV	REVISION DESCRIPTION	DATE
0	FOR BOARD APPROVAL.	17DEC18
1	REVISE PER RESOLUTION COMPLIANCE.	31MAY19
2	ADD DOT CURB AND APRON DETAILS.	02MAR20



CONCRETE DUMPSTER PAD DETAIL N.T.S.

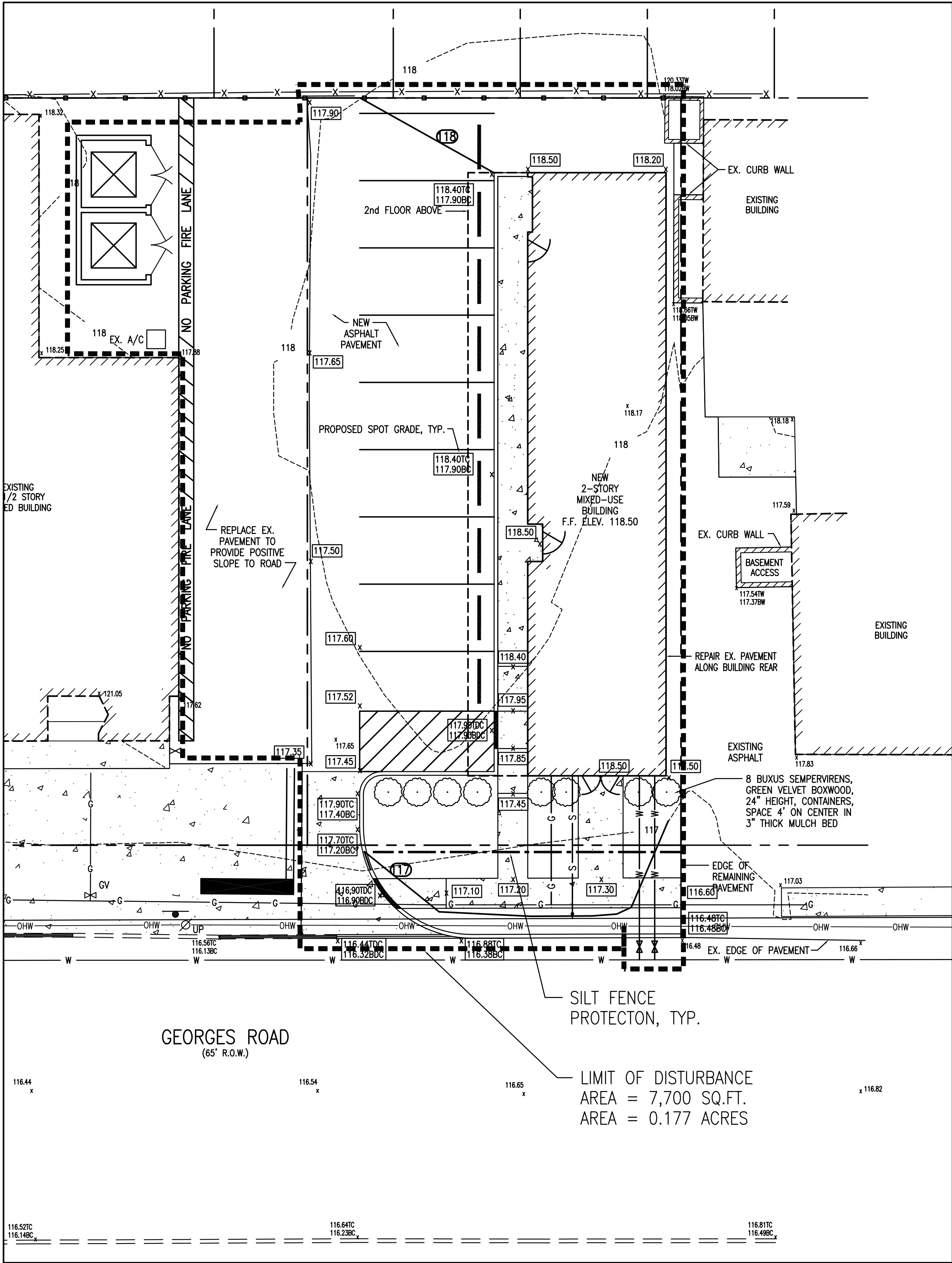
Owner / Project
VARIANCE AND SITE PLAN APPLICATION
643 GEORGES ROAD
BLOCK 204, LOT 9
NORTH BRUNSWICK, NEW JERSEY

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ENGINEERING & CONSTRUCTION MANAGEMENT
10 EDWARD AVENUE
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(732) 744-6392
ronsadowski@verizon.net

SITE PLAN CONSTRUCTION DETAILS

DRAWN	RJS	SCALE	AS NOTED
CHECKED	RJS	DATE	17DEC18
PROJECT NO. S18160		DRAWING NO. 4	

RONALD J. SADOWSKI
PROFESSIONAL ENGINEER
NJPE #38261



SOIL EROSION SITE NOTE:

DUE TO THE MINIMAL EXCAVATION WORK TO TAKE PLACE ON THE SITE FOR THE CONSTRUCTION OF THE ADDITION AND MODIFICATION TO THE EXISTING PARKING LOT, NO STOCKPILING OF TOPSOIL OR EXCAVATED MATERIAL IS PLANNED.

IN ADDITION, THE EXISTING PAVED ACCESS DRIVES WILL BE USED FOR CONSTRUCTION VEHICLE ENTRANCE. NO STONE CONSTRUCTION ENTRANCE IS PROPOSED. ALL CONSTRUCTION VEHICLES SHALL HAVE THEIR WHEELS HOSED DOWN WITH WATER PRIOR TO EXITING THE SITE.

SOIL RESTORATION STANDARD (SRS) NOTE:

PER STANDARD SECTION 19-2, ITEM 9. ALL DISTURBED AREAS ARE TO RECEIVE TEMPORARY VEGETATIVE STABILIZATION IN ACCORDANCE WITH THE STANDARD AND THEREFORE THE SRS REQUIREMENT DOES NOT APPLY TO THIS DEVELOPMENT.

SOIL EROSION AND SEDIMENT CONTROL NOTES

- The Freehold Soil Conservation District shall be notified seventy-two (72) hours in advance of any land disturbing activity.
- All work to be done in accordance with the Standards for Soil Erosion and Sediment Control of New Jersey.
- All Soil Erosion and Sediment Control practices are to be installed prior to any major soil disturbance, or in their proper sequence, and maintained until permanent protection is established.
- Any changes to the Certified Soil Erosion and Sediment Control Plans will require the submission of revised Soil Erosion and Sediment Control Plans to the District for Recertification. The revised plans must meet all current State Soil Erosion and Sediment Control Standards.
- In that N.J.S.A. 4:24-39 et. Seq. requires that no Certificates of Occupancy be issued before the provisions of the Certified Plan for Erosion Control have been complied with for permanent measures. All site work for site plans and all work around individual lots in subdivisions will have to be completed prior to the District issuing a Report of Compliance for the issuance of a Certificate of Occupancy by the Municipality.
- Any disturbed areas that will be left exposed more than thirty (30) days, and not subject to construction traffic, will immediately receive a temporary seeding. If the season prevents the establishment of temporary cover, the disturbed areas will be mulched with straw, or equivalent material, at a rate of 2 to 2 1/2 tons per acre, according to the Standard for Stabilization with Mulch Only.
- Immediately following initial disturbance or rough grading, all critical areas subject to erosion, (i.e. steep slopes and roadway embankments) will receive temporary seeding in combination with straw mulch or a suitable equivalent, at a rate of 1 1/2 to 2 tons per acre, according to State Standards.
- A subbase course will be applied immediately following rough grading and installation of improvements to stabilize streets, roads, driveways and parking areas. In areas where no utilities are present, the subbase shall be installed within 15 days of the preliminary grading.
- Any steep slopes receiving pipeline installation will be backfilled and stabilized daily, as the installation continues (i.e. slopes greater than 3:1).
- The Standard for Stabilized Construction Access requires the installation of a pad of clean crushed stone at points where traffic will be accessing the construction site. After interior roadways are paved, individual lots required a stabilized construction entrance consisting of 1" to 2" stone for a minimum length of 10' equal to the lot entrance width. All other access points shall be blocked off.
- All Soil washed, dropped, spilled or tracked outside the limit of disturbance or onto public rights-of-way will be removed immediately.
- Permanent vegetation is to be seeded or sodded on all exposed areas within 10 days after final grading.
- At the time the site preparation for permanent vegetative stabilization is going to be accomplished, any soil that will not provide a suitable environment to support adequate vegetative ground cover shall be removed or treated in such a way that will permanently adjust the soil conditions and render it suitable for vegetative ground cover. If the removal or treatment of the soil will not provide suitable conditions, non-vegetative means of permanent ground stabilization will have to be employed.
- In accordance with the Standard for Management of High Acid Producing Soils, any soil having a pH of 4 or less or containing iron sulfides shall be covered with a minimum of twelve (12) inches of soil having a pH of 5 or more prior to seedbed preparation. Areas where trees or shrubs are to be planted shall be covered with a minimum of twenty-four (24) inches of soil having a pH of 5 or more.
- Conduit Outlet Protection must be installed at all required outfalls prior to the drainage system becoming operational.
- Unfiltered dewatering is not permitted. Necessary precautions must be taken during all dewatering operations to minimize sediment transfer. Any dewatering methods must be in accordance with Standards for Dewatering.
- Should the control of dust at the site be necessary, the site will be sprinkled until the surface is wet, temporary vegetative cover shall be established, or mulch shall be applied in accordance with the Standard for Dust Control.
- Stockpile and staging locations determined in the field shall be placed within the limit of disturbance according to the certified plan. Staging areas and stockpiles not located within the limit of disturbance will require certification of a new Soil Erosion and Sediment Control Plan. Certification of a new Soil Erosion and Sediment Control Plan may be required for these activities if an area greater than 5,000 square feet is disturbed.
- All soil stockpiles are to be temporarily stabilized in accordance with Soil Erosion and Sediment Control note number 6.
- The property owner shall be responsible for any erosion or sedimentation that may occur below stormwater outfalls or offsite as a result of construction of the project.

MULCHING & TACKING SPECIFICATIONS

- Grading shall be done as per standards to land grading in the "Standards for Soil Erosion and Sediment Control in New Jersey," section 19.1.
- Permanent seed shall be applied as per standard on this sheet.
- Mulching (hay, straw or soft hay) shall be applied to all disturbed areas immediately after construction at a rate 2.0 to 2.5 tons/acre or 90 to 115 pounds/1000 sf and anchored with tackifier in accordance with the "Standards for Soil Erosion and Sediment Control in New Jersey".

VEGETATIVE COVER MAINTENANCE NOTES

- Maintenance should occur on a regular basis, consistent with favorable plant growth, soil and climatic conditions. This involves regular seasonal work for mowing, fertilizing, liming, water, pruning, fire control, weed and pest control, reseeding and timely repairs.
- Mowing on improved areas, such as lawns, certain recreation fields and picnic areas shall be frequent. On semi-improved areas, mowing will be infrequent. Unimproved areas may be left unmowed to permit natural succession.
- Fertilizer should be applied as needed to maintain a dense stand of desirable species. Frequently mowed areas and those on sandy soils will require more fertilization.
- Lime requirement should be determined by soil testing to be done every 2 or 3 years. Fertilization will increase the need for liming.
- Weed invasion may result from abusive mowing and inadequate fertilization and liming. Brush invasion is a common consequence of lack of mowing. Control of weeds or brush shall be accomplished by using herbicides or mechanical methods.
- The Property Owner (or tenant by contract) shall be responsible for maintenance during and after construction.

SEEDING SCHEDULE

- Temporary seeding shall consist of Spring Oats applied at a rate of 2.0 lbs per 1,000sf or Perennial Ryegrass at a rate of 1.0 lbs per 1,000 sf temporary seeding to be maintained until disturbed areas are permanently stabilized with permanent seeding. If any serious erosion problem occurs, the eroded areas shall be repaired and stabilized with a mulch as indicated in note 6.
- Permanent Seeding shall consist of the following mixture or approved equal - Optimum Seeding Dates are between April 15 and November 1.

WELL TO MODERATELY WELL DRAINED LOTS (MIXTURE #17):

Hard Fescue	3.2 lbs / 1000 sf
Creeping Fescue	1.0 lbs / 1000 sf
Perennial Ryegrass	0.5 lbs / 1000 sf
TOTAL MIX = 4.7 lbs / 1000 sf	

INFILTRATION BASIN (MIXTURE #9):

Strong Creeping Red Fescue	2.4 lbs / 1000 sf
Kentucky Bluegrass	1.6 lbs / 1000 sf
Perennial Ryegrass	0.4 lbs / 1000 sf
Redtop	0.15 lbs / 1000 sf
White Clover	0.15 lbs / 1000 sf
TOTAL MIX = 4.7 lbs / 1000 sf	

- Permanent seeding to be applied by conventional seeding at a rate of 1500 lbs/acre. Sloped area to be covered with mulch as indicated in note 4.
- Fertilizer for the establishment of temporary and permanent vegetative cover shall be 10-20-20 applied at a rate of 14 lbs/1000 sf or as determined by soil tests. Limestone for temporary seeding shall be applied at a rate of 90 lbs/1000 sf. Limestone for permanent seeding shall be applied at a rate of 135 lbs/1000 sf.
- If season prevents the establishment of temporary or permanent seeding, exposed area to be stabilized with mulch as indicated in note 6.
- Mulch to consist of small grain straw or salt hay anchored with a wood and fibre mulch binder or an approved equal. Mulch will spread at rates of 70 to 90 lbs/1000 sf and anchored with a mulch anchoring tool or liquid mulch binder.
- Work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, springtooth harrow or other suitable equipment. The final harrowing or disking operation should be on the General contour. Continue tillage until a reasonably uniform, fine seedbed is prepared. All but clay or silty soils and coarse sands should be rolled to firm the seedbed wherever feasible.
- Remove from the surface all stones two inches or larger in any dimension. Remove all other debris, such as wire, cable, tree roots, pieces of concrete, clods, lumps, or other unsuitable materials.
- Inspect seedbed just before seeding. If traffic has left the soil compacted, the area must be retitled and firmed as above.

SEDIMENT BASIN CLEANING & MAINTENANCE

- SEDIMENT BASINS SHOULD BE CHECKED AFTER EACH STORM TO INSURE THE INTEGRITY OF THE OUTLET STRUCTURE, DIVERSION SWALES, AND TO CHECK THE LEVEL OF SEDIMENT IN EACH BASIN. SEDIMENT IN THE BASINS MUST BE REMOVED AT LEAST ONCE A YEAR. HOWEVER, IT IS RECOMMENDED THAT THEY BE CLEANED MORE OFTEN, TWICE A YEAR DURING CONSTRUCTION.
- THE MATERIAL IN THE SEDIMENT BASINS CAN BE EXCAVATED USING TYPICAL CONSTRUCTION EQUIPMENT. CARE SHOULD BE TAKEN TO INSURE THAT THE BASIN SEDIMENT IS DRY PRIOR TO ANY VEHICLE ENTERING THE BASIN, THE WATER SHALL BE PUMPED FROM THE BASIN THROUGH A FILTER. AFTER THE SEDIMENT IS REMOVED, THE BASIN SHALL BE STABILIZED, REGRADED TO ITS ORIGINAL SHAPE AND ELEVATIONS.
- SEDIMENT SHALL BE PLACED IN SUCH A MANNER THAT IT WILL NOT ERODE FROM THE SITE, AND IT SHALL NOT BE ALLOWED TO FLUSH INTO DRAINAGE WAY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE SEDIMENT BASIN DURING ITS LIFETIME.
- ALL STORMWATER DETENTION BASINS SHALL BE UTILIZED FOR SEDIMENT CONTAINMENT PURPOSES FOR THE DURATION OF ACTIVITIES IN THEIR RESPECTIVE DRAINAGE AREAS. THESE SHALL BE MAINTAINED IN ACCORDANCE WITH S.C.S. STANDARDS UNTIL SUCH TIME AS THEY ARE PERMANENTLY STABILIZED AND CONVERTED TO STORMWATER DETENTION BASINS.
- SEDIMENT SHALL NOT BE DISPOSED OF DOWNSTREAM OF ANY EXISTING BASINS. IF NECESSARY, DETAINED WATER SHALL FIRST BE PUMPED OUT PRIOR TO THE REMOVAL OF MATERIALS. SEDIMENT SHALL EITHER BE MIXED WITH ONSITE MATERIAL USED FOR GRADING OR, IF UNSUITABLE, SHALL BE HAULED OFFSITE AND DISPOSED OF IN A MANNER CONSISTENT WITH LOCAL ORDINANCES. UNLESS CIRCUMSTANCES DEMAND IT, REMOVAL OF SEDIMENTS SHALL NOT BE MORE FREQUENT THAN ONCE A YEAR.

SLOPE STABILIZATION STANDARDS

- Grade slopes as per plan.
- Apply Limestone at a rate of approximately 2 tons/acre and fertilizer at approximately 500 pounds/acre (10-20-10 or equal).
- Work lime and fertilizer into soil to a depth of 4 inches.
- Apply seed 40 pound/acre by hand, cyclone seeder or hydro seeder.
- Roll seed bed to a uniform compaction.
- Mulch and stabilize as per mulching and tacking specifications on this sheet.
- Steep slopes to be stabilized w/ jute matting (3:1 or steeper).
- Basins steep slopes to be stabilized w/jute matting and the above water tolerant seeding mix.

SEQUENCE OF CONSTRUCTION

- Silt fence and tree protection to be installed immediately before clearing. Install stabilized construction entrance(s) as noted. ONE DAY
- Clear and establish rough grades. All exposed surfaces will be stabilized as defined in Soil Erosion and Sediment Control notes 1 and 2. ONE WEEK
- Clear and grade building area and construct building. All disturbed areas will receive appropriate temporary and permanent stabilization as defined in soil erosion and sediment control notes 1 and 2. VARIABLE
- Establish finished grades, install utilities and establish permanent vegetative cover. ONE WEEK
- Remove silt fence, tree protection, and inlet barricades after all disturbed areas have been stabilized. ONE DAY

NOTE :
THIS PLAN TO BE USED FOR SOIL EROSION & SEDIMENT CONTROL PURPOSES ONLY.
FOR ALL OTHER SITE SPECIFIC INFORMATION SEE THE ENGINEERING & IMPROVEMENT PLAN.

LIMIT OF DISTURBANCE = 7,700 SQ.FT. = 0.177 ACRES.

REFERENCES

PROPOSED SITE PLAN DRAWINGS
DATED SEPTEMBER 9, 2018,
PREPARED BY KURT LUDWIG, AIA, INC. 77 NORTH MAIN
STREET, MILLTOWN, NJ 08850.

REV	REVISION DESCRIPTION	DATE
0	FOR FSCD REVIEW AND APPROVAL.	01MAY19

Owner / Project
VARIANCE AND SITE PLAN APPLICATION
643 GEORGES ROAD
BLOCK 204, LOT 9
NORTH BRUNSWICK, NEW JERSEY

RONALD J. SADOWSKI, P.E.
ENGINEERING & CONSTRUCTION MANAGEMENT
10 EDWARD AVENUE
EDISON, NEW JERSEY 08820
(732) 744-6392
ronsadowski@verizon.net

SOIL EROSION & SEDIMENT CONTROL PLAN AND DETAILS

DRAWN CHECKED	RJS RJS	SCALE DATE	AS NOTED 01MAY19
PROJECT NO. S18160		DRAWING NO. 5	

SOIL EROSION AND SEDIMENT CONTROL NOTES

1. The Freehold Soil Conservation District shall be notified forty-eight (48) hours in advance of any land disturbing activity.
2. All Soil Erosion and Sediment Control practices are to be installed prior to soil disturbance, or in their proper sequence, and maintained until permanent protection is established.
3. Any changes to the Certified Soil Erosion and Sediment Control Plans will require the submission of revised Soil Erosion and Sediment Control Plans to the District for re-certification. The revised plans must meet all current State Soil Erosion and Sediment Control Standards.
4. N.J.S.A. 4:24-39 et Seq. requires that no Certificate of Occupancy be issued before the District determines that a project or portion thereof is in full compliance with the Certified Plan and Standards for Soil Erosion and Sediment Control in New Jersey and a Report of Compliance has been issued. Upon written request from the applicant, the District may issue a Report of Compliance with conditions on a lot-by-lot or section-by-section basis, provided that the project or portion thereof is in satisfactory compliance with the sequence of development and temporary measures for soil erosion and sediment control have been implemented, including provisions for stabilization and site work.
5. Any disturbed areas that will be left exposed more than sixty (60) days, and not subject to construction traffic, will immediately receive a temporary seeding. If the season prevents the establishment of temporary cover, the disturbed areas will be mulched with straw, or equivalent material, at a rate of 2 to 2 1/2 tons per acre, according to the Standard for Stabilization with Mulch Only.
6. Immediately following initial disturbance or rough grading, all critical areas subject to erosion, (i.e. steep slopes and roadway embankments) will receive temporary seeding in combination with straw mulch or a suitable equivalent, and a mulch anchor, in accordance with State Standards.
7. A sub-base course will be applied immediately following rough grading and installation of improvements. To stabilize streets, roads, driveways and parking areas, in areas where no utilities are present, the subbase shall be installed within 15 days of the preliminary grading.
8. The Standard for Stabilized Construction Access requires the installation of a pad of clean crushed stone at points where traffic will be accessing the construction site. After interior roadways are paved, individual lots require a stabilized construction entrance consisting of one inch to two inch (1" - 2") stone for a minimum length of ten (10') equal to the lot entrance width. All other access points shall be blocked off.
9. All Soil washed, dropped, spilled or tracked outside the limit of disturbance or onto public rights-of-way will be removed immediately.
10. Permanent vegetation is to be seeded or sodded on all exposed areas within ten (10) days after final grading.
11. At the time the site preparation for permanent vegetative stabilization is going to be accomplished, any soil that will not provide a suitable environment to support adequate vegetative ground cover shall be removed or treated in such a way that will permanently adjust the soil conditions and render it suitable for vegetative ground cover. If the removal or treatment of the soil will not provide suitable conditions, non-vegetative means of permanent ground stabilization will have to be employed.
12. In accordance with the Standard for Management of High Acid Producing Soils, any soil having a pH of 4 or less or containing iron sulfides shall be ultimately placed or buried with limestone applied at the rate of 10 tons/acre, (or 450 lbs/1,000 sq.ft. of surface area) and covered with a minimum of 12" of settled soil with a pH of 5 or more, or 24" where shrubs or trees are to be planted.
13. Conduit Outlet Protection must be installed at all required outfalls prior to the drainage system becoming operational.
14. Unfiltered dewatering is not permitted. Necessary precautions must be taken during all dewatering operations to minimize sediment transfer. Any dewatering methods must be in accordance with Standards for Dewatering.
15. Should the control of dust at the site be necessary, the site will be sprinkled until the surface is wet, temporary vegetative cover shall be established, or mulch shall be applied in accordance with the Standard for Dust Control.
16. Stockpile and staging locations established in the field shall be placed within the limit of disturbance according to the certified plan. Staging areas and stockpiles not located within the limit of disturbance will require certification of a revised Soil Erosion and Sediment Control Plan. Certification of a new Soil Erosion and Sediment Control Plan may be required for these activities if an area greater than 5,000 square feet is disturbed.
17. All soil stockpiles are to be temporarily stabilized in accordance with Soil Erosion and Sediment Control note number 6.
18. The property owner shall be responsible for any erosion or sedimentation that may occur below stormwater outfalls or offsite as a result of construction of the project.

TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION

Temporary vegetative cover on soils exposed for periods of two to six months which are not being graded, for active construction or not scheduled for permanent seeding within 60 days.

Purpose

Temporarily stabilize the soil and reduce damage from wind and water erosion until permanent stabilization is achieved.

Water Quality Enhancement

Temporary protection against the impacts of wind and rain, slows the over land movement of stormwater runoff, as infiltration and retains soil and nutrients on site, protecting streams or other stormwater conveyances.

Where Applicable

Exposed soils that have the potential for causing off-site environmental damage.

Methods and Materials

Site Preparation

- A. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in accordance with Standards for Land Grading, pg. 19-1.
- B. Install needed erosion control practices or facilities such as diversions, grade stabilization structures, channel stabilization measures, sediment basins, and waterways. See Standards 1 through 42.
- C. Immediately prior to seeding, the surface should be scarified 6" to 12" where there has been soil compaction. This practice is permissible only where there is no danger to underground utilities (cables, irrigation systems, etc.).
- D. Work line and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, springtooth harrow, or other suitable equipment. The final harrowing or disking operation should be in accordance with the above.
- E. Inspect seedbed just before seeding. If traffic has left the soil compacted, the area must be retilled in accordance with the above.
- F. Soils high in sulfides or having a pH of 4 or less refer to Standard for Management of High Acid Producing Soils, pg. 1-1.

Seeding

- A. Select seed from recommendations in Table 7-2.

TABLE 7-2

TEMPORARY VEGETATIVE STABILIZATION GRASSES, SEEDING RATES, DATES AND DEPTH

SEED SELECTIONS	SEEDING RATE 1 (pounds)		OPTIMUM SEEDING DATE Based on Plant Hardiness Zone *			OPTIMUM SEED DEPTH * (inches)
	Per Acre	Per 1000 Sq. Ft.	ZONE 5b, 6a	ZONE 6b	ZONE 7a, b	
	COOL SEASON GRASSES					
annual ryegrass	100	1.0	3/15- 6/1 8/1- 9/15	3/1- 5/15 8/15- 10/1	2/15- 5/1 8/15- 10/15	0.5
ing oats	86	2.0	3/15- 6/1 8/1- 9/15	3/1- 5/15 8/15- 10/1	2/15- 5/1 8/15- 10/15	1.0
ter Barley	96	2.2	8/1- 9/15	8/15- 10/1	8/15- 10/15	1.0
unf ryegrass	100	1.0	3/15- 6/1 8/1- 9/15	3/15- 6/1 8/1- 9/15	2/15- 5/1 8/15- 10/15	0.5
ter Cereal Rye	112	2.8	8/1- 11/1	8/1- 11/15	8/1- 12/15	1.0

Use for Soil Erosion and Sediment Control in New Jersey

January 2014

lot (German or Hungarian)	30	0.7	6/1-8/1	5/15-8/15	5/1-9/1	1.0
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1. Seeding rate for warm season grasses, selections 1-7 shall be adjusted to reflect the amount of Pure Live Seed (PLS) as determined by a germination test result. No adjustment is required for cool season grasses.
2. May be planted throughout summer if soil moisture is adequate or seeded areas can be irrigated.
3. Plant Hardiness Zone (see figure 7-1, pg. 7-4).
4. Twice the depth for sandy soils.

Conventional Seeding. Apply seed uniformly by hand, cyclone (centrifugal) seeder, drop seeder, drill or catpaw seeder. Except for drilled, hydroseeded or catpaw seeded seedings, seed shall be incorporated into the soil, to a depth of 1/4 to 1/2 inch, by raking or dragging. Depth of seed placement may be 1/4 inch deeper on coarse textured soil.

Hydroseeding is a broadcast seeding method usually involving a truck or trailer mounted tank, with an agitation system and hydraulic pump for mixing seed, water and fertilizer and spraying the mix onto the prepared seedbed. Mulch shall not be included in the tank with seed. Short fibered mulch may be applied with a hydroseeder following seeding. (also see Section IV Mulching) Hydroseeding is not a preferred seeding method because seed and fertilizer are applied to the surface and not incorporated into the soil. Poor seed to soil contact occurs reducing seed germination and growth. Hydroseeding may be used for areas too steep for conventional equipment to traverse or too obstructed with rocks, stumps, etc.

After seeding, firming the soil with a corrugated roller will assure good seed-to-soil contact, restore capillary, and improve seedling emergence. This is the preferred method. When performed on the contour, sheet erosion will be minimized and water conservation on site will be maximized.

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Mulching is required on all seeding. Mulch will ensure against erosion before grass is established and will promote faster and earlier establishment. The existence of vegetation sufficient to control soil erosion shall be deemed compliance with this mulching requirement.

Straw or Hay. Unrooted small grain straw, hay free of seeds, applied at the rate of 1-1/2 to 2 tons per acre (70 to 90 pounds per 1,000 square feet), except that where a crimper is used instead of a liquid mulch binder (tackifying or adhesive agent), the rate of application is 1 ton per acre. Mulch choppers-blowers must not grind the mulch. Hay mulch is not recommended for establishing fine turf or lawns due to the presence of weed seed.

Application. Spread mulch uniformly by hand or mechanically so that approximately 95% of the soil surface will be covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000 square feet sections and distribute 70 to 90 pounds within each section.

Anchoring shall be accomplished immediately after placement to minimize loss by wind or water. This may be

Liquid Mulch-Binders. - May be used to anchor hay or straw mulch.

- a. Applications should be heavier at edges where wind may catch the mulch, in valleys, cross of banks. The remainder of the area should be uniform in appearance.
- b. Use one of the following:

(1) Organic and Vegetable Based Binders - Naturally occurring, powder-based hydrophilic materials when mixed with water formulates a gel and when applied to a under satisfactory curing conditions will form meshed networks of insoluble poly. The vegetable gel shall be physiologically harmless and not result in a phytotoxic effect on the growth of turfgrass. Use at rates and weather conditions as recommended by the manufacturer to anchor mulch materials. Many new products are available, some of which may need further evaluation for use in this state.

(2) Synthetic Binders - High polymer synthetic emulsion, miscible with water diluted and following application to mulch, drying and curing, shall no longer be soluble or dispersible in water. It shall be applied at rates recommended by the manufacturer as necessary until germination of grass.

Note: All names given above are registered trade names. This does not constitute a recommendation of these products to the exclusion of other products.

B. Wood-fiber or paper-fiber mulch - shall be made from wood, plant fibers or paper containing no growth or germination inhibiting materials, used at the rate of 1,500 pounds per acre (or as recommended by the manufacturer) and may be applied by a hydroseeder. This mulch shall not be mixed in the tank with seed. Use is limited to flatter slopes and during optimum seeding periods in spring and fall.

C. Pelletized mulch - compressed and extruded paper and/or wood fiber product, which may contain co-polymers, fertilizers and coloring agents. The dry pellets, when applied to a seeded area and watered, mulch mat. Pelletized mulch shall be applied in accordance with the manufacturer's recommendations. It may be applied by hand or mechanical spreader at the rate of 60-75 lbs./1,000 square feet and activated to 0.4 inches of water. This material has been found to be beneficial for use on small lawns or renovation seeded areas where weed seed from mulch is desired or on sites where straw mulch and tackifier agent are not practical or desirable.

Applying the full 0.2 to 0.4 inches of water after spreading pelletized mulch on the seed bed is extremely important for sufficient activation and expansion of the mulch to provide soil coverage.

USDA Plant Hardiness Zones

Average Annual Minimum Temperature

New Jersey

Hardiness Zones

Range of average annual minimum temperatures for each zone (degrees Fahrenheit)

Zone 5b (-10 to -15)

Includes portions of Sussex and Warren counties

Zone 6a (-5 to -10)

Includes portions of Sussex, Warren, Passaic, Morris, Somerset and Hamilton counties

Zone 6b (0 to -5)

Includes portions of Bergen, Passaic, Morris, Essex, Hudson, Union, Somerset, Middlesex, Mercer, Hunterdon, Monmouth, Ocean, Burlington, Camden, Gloucester, Atlantic, Cumberland and Cape May counties

Zone 7a (5 to 10)

Includes portions of Camden, Gloucester, Salem, Cumberland, Cape May, Atlantic, Burlington, Ocean and Monmouth counties

Zone 7b (10 to 5)

Includes portions of Cape May, Atlantic, Ocean and Monmouth counties

After US NRS 1975
USDA State Soil Conservation Service

Scale: 1 inch = 50 miles

PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION

Standards for Soil Erosion and Sediment Control in New Jersey

January 2014

STANDARD FOR

PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION

Purpose

Establishment of permanent vegetative cover on exposed soils where perennial vegetation is needed for long-term protection.

Purpose

To permanently stabilize the soil, ensuring conservation of soil and water, and to enhance the environment.

Water Quality Enhancement

Slows the over-land movement of stormwater runoff, increases infiltration and retains soil and nutrients on site, protecting streams or other stormwater conveyances.

Where Applicable

On exposed soils that have a potential for causing off-site environmental damage.

Methods and Materials

1. Site Preparation

A. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in accordance with Standards for Land Grading.

B. Immediately prior to seeding and topsoil application, the subsoil shall be evaluated for compaction in accordance with the Standard for Land Grading.

C. Topsoil should be handled only when it is dry enough to work without damaging the soil structure. A uniform application to a depth of 3 inches (unmatted) is required on all sites. Topsoil shall be amended with organic matter, as needed, in accordance with the Standard for Topsoiling.

D. Install needed erosion control practices or facilities such as diversions, grade-stabilization structures, channel stabilization measures, sediment basins, and waterways.

2. Seedbed Preparation

A. Uniformly apply ground limestone and fertilizer to topsoil which has been spread and firmed, according to soil test recommendations such as offered by Rutgers Cooperative Extension. Soil sample materials are available from the local Rutgers Cooperative Extension offices (<http://njcaes.rutgers.edu/county/>). Fertilizer shall be applied at the rate of 500 pounds per acre or 11 pounds per 1,000 square feet of 10-10-10 or equivalent water insoluble nitrogen unless a soil test indicates otherwise and incorporated into the surface 4 inches. If fertilizer is not incorporated, apply one-half the rate described above during seedbed preparation and repeat another one-half rate application of the same fertilizer within 3 to 5 weeks after seeding.

PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION (CONTINUED)

- B. Work line and fertilizer into the topsoil as nearly as practical to a depth of 4 inches with a disc, spring-tooth harrow, or other suitable equipment. The final harrowing or disking operation should be on the general contour. Continue tillage until a reasonable uniform seedbed is prepared.
- C. High acid producing soil. Soils having a pH of 4 or less or containing iron sulfide shall be covered with a minimum of 12 inches of soil having a pH of 5 or more before initiating seedbed preparation. See Standard for Management of High Acid-Producing Soils for specific requirements.

3. Seeding

A. Select a mixture from Table 4.3 or use a mixture recommended by Rutgers Cooperative Extension or Natural Resources Conservation Service which is approved by the Soil Conservation District. Seed germination shall have been tested within 12 months of the planting date. No seed shall be accepted with a germination test date more than 12 months old unless retested.

1. Seeding rates specified are required when a report of compliance is requested prior to actual establishment of permanent vegetation. Up to 50% reduction in rates may be used when permanent vegetation is established prior to a report of compliance inspection. These rates apply to all methods of seeding. Establishing permanent vegetation means 80% vegetative coverage with the specified seed mixture for the seeded area and mowed once.

2. Warm-season mixtures are grasses and legumes which maximize growth at high temperatures, generally 85° F and above. See TABLE 4.3 mixtures 1 to 7. Planting rates for warm-season grasses shall be the amount of Pure Live Seed (PLS) as determined by germination testing results.

3. Cool-season mixtures are grasses and legumes which maximize growth at temperatures below 85° F. Many grasses become active at 65° F. See Table 4.3 mixtures 8-10. Adjustment of planting rates to compensate for the amount of PLS is not required for cool season grasses.

B. Conventional Seeding is performed by applying seed uniformly by hand, cyclone (centrifugal) seeder, drop seeder, drill or catpaw seeder. Except for drilled, hydroseeded or catpaw seeded seedings, seed shall be incorporated into the soil within 24 hours of seedbed preparation to a depth of 1/4 to 1/2 inch, by raking or dragging. Depth of seed placement may be 1/4 inch deeper on coarse-textured soil.

C. After seeding, firming the soil with a corrugated roller will assure good seed-to-soil contact, restore capillary, and improve seedling emergence. This is the preferred method. When performed on the contour, sheet erosion will be minimized and water conservation on site will be maximized.

D. Hydroseeding is a broadcast seeding method usually involving a truck, or trailer-mounted tank, with an agitation system and hydraulic pump for mixing seed, water and fertilizer and spraying the mix onto the prepared seedbed. Mulch shall not be included in the tank with seed. Short-fibered mulch may be applied with a hydroseeder following seeding. (also see Section 4-Mulching below) Hydroseeding is not a preferred seeding method because seed and fertilizer are applied to the surface and not incorporated into the soil. When poor seed to soil contact occurs, there is a reduced seed germination and growth.

4. Mulching
Mulching is required on all seeding. Mulch will protect against erosion before grass is established and will promote faster and earlier establishment. The existence of vegetation sufficient to control soil erosion shall be deemed compliance with this mulching requirement.

A. Straw or Hay. Unrooted small grain straw, hay free of seeds, to be applied at the rate of 1-1/2 to 2 tons per acre (70 to 90 pounds per 1,000 square feet), except that where a crimper is used instead of a liquid mulch-binder (tackifying or adhesive agent), the rate of application is 1 ton per acre. Mulch choppers-blowers must not grind the mulch. Hay mulch is not recommended for establishing fine turf or lawns due to the presence of weed seed.

Application - Spread mulch uniformly by hand or mechanically so that at least 95% of the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000 square feet sections and distribute 70 to 90 pounds within each section.

Anchoring shall be accomplished immediately after placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of the area, steepness of slopes, and costs.

1. Peg and Twine. Drive 6 to 10 inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a cross-cross and a square pattern. Secure twine around each peg with two or more round turns.

2. Mulch Netting - Staple paper, jute, cotton, or plastic nettings to the soil surface. Use a dragable netting in areas to be mowed.

3. Crimper (mulch anchoring roller tool) - A tractor-drawn implement, somewhat like a disc harrow, especially designed to push or cut some of the broadest long turf mulch 3 to 4 inches into the soil so as to anchor it and leave part standing upright. This technique is limited to areas traversable by a tractor, which must operate on the contour of slopes. Saw mulch rate must be 1 ton per acre. No tackifying or adhesive agent is required.

4. Liquid Mulch-Binders - May be used to anchor salt hay, hay or straw mulch.

- a. Applications should be heavier at edges where wind may catch the mulch, in valleys, and at crests of banks. The remainder of the area should be uniform in appearance.
- b. Use one of the following:

(1) Organic and Vegetable Based Binders - Naturally occurring, powder-based, hydrophilic materials when mixed with water formulates a gel and when applied to mulch under satisfactory curing conditions will form meshed networks of insoluble polymers. The vegetable gel shall be physiologically harmless and not result in a phytotoxic effect or impede growth of turf grass. Use at rates and weather conditions as recommended by the manufacturer to anchor mulch materials. Many new products are available, some of which may need further evaluation for use in this state.

(2) Synthetic Binders - High polymer synthetic emulsion, miscible with water when diluted and, following application of mulch, drying and curing, shall no longer be soluble or dispersible in water. Binder shall be applied at rates recommended by the manufacturer and remain tacky until germination of grass.

Note: All names given above are registered trade names. This does not constitute a recommendation of these products to the exclusion of other products.

B. Wood-fiber or paper-fiber mulch - shall be made from wood, plant fibers or paper containing no growth or germination inhibiting materials, used at the rate of 1,500 pounds per acre (or as recommended by the product manufacturer) and may be applied by a hydroseeder. Mulch shall not be mixed in the tank with seed. Use is limited to flatter slopes and during optimum seeding periods in spring and fall.

C. Pelletized mulch - compressed and extruded paper and/or wood fiber product, which may contain co-polymers, tackifiers, fertilizers, and coloring agents. The dry pellets, when applied to a seeded area and watered, form a mulch mat. Pelletized mulch shall be applied in accordance with the manufacturer's recommendations. Mulch may be applied by hand or mechanical spreader at the rate of 60-75 lbs./1,000 square feet and activated with 0.2 to 0.4 inches of water. This material has been found to be beneficial for use on small lawns or renovation seeded areas where weed seed free mulch is desired, or on sites where straw mulch and tackifier agent are not practical or desirable. Applying the full 0.2 to 0.4 inches of water after spreading pelletized mulch on the seed bed is extremely important for sufficient activation and expansion of the mulch to provide soil coverage.

5. Irrigation (where feasible)

If soil moisture is deficient supply new seeding with adequate water (a minimum of 1/4 inch applied up to twice a day until vegetation is well established). This is especially true when seedlings are made in abnormally dry or hot weather or on droughty sites.

6. Topdressing

Since soil or organic matter content and slow release nitrogen fertilizer (water insoluble) are prescribed in Section 2A - Seedbed Preparation in this Standard, no follow-up topdressing is mandatory. An exception may be made where gross nitrogen deficiency exists in the soil to the extent that turf failure may develop. In that instance, topdress with 10-10-10 or equivalent at 300 pounds per acre or 7 pounds per 1,000 square feet every 3 to 5 weeks until the gross nitrogen deficiency is the turf is ameliorated.

7. Establishing Permanent Vegetative Stabilization

The quality of permanent vegetation rests with the contractor. The timing of seeding, preparing the seedbed, applying nutrients, mulch and other management. The seed application rates in TABLE 4.3 are required when a Report of Compliance is requested prior to actual establishment of permanent vegetation. Up to 50% reduction in application rates may be used when permanent vegetation is established prior to requesting a Report of Compliance from the district. These rates apply to all methods of seeding. Establishing permanent vegetation means 80% vegetative cover (of the seeded species) and mowed once. Note this designation of mowed once does not guarantee the permanency of the turf should other maintenance factors be neglected or otherwise mismanaged.

REFERENCES

BALANCE OF SITE PLAN DRAWINGS.

REV	REVISION DESCRIPTION	DATE
0	FOR FSCD REVIEW AND APPROVAL.	01MAY19

Table 4-2
Permanent Stabilization Mixtures for Various Uses

Application	PLANTING MIXTURES BY SOIL DRAINAGE CLASS ¹ (see Table 4-3)		
	Excessively Drained	Well to Moderately Well Drained	Somewhat Poorly to Poorly Drained
Residential/commercial lots	10, 12, 15	6, 10, 12, 13, 14, 15	16
Pond and channel banks, dikes, berms, and dams	2, 5, 6, 10	5, 6, 7, 8, 9, 15	2, 8, 16, 17
Drainage ditches, swales, detention basins	2, 9, 11	2, 7, 9, 11, 12, 17	2, 9, 16, 17
Filter Strips	17	11, 12	11, 12
Grass waterway, spillways	2, 3, 9, 10, 12	6, 7, 9, 10, 11, 12	2, 9, 11, 12
Recreation areas, athletic fields	5, 12, 15, 18	12, 13, 14, 15, 18	16
Special Problem Sites			
Steep slopes and banks, roadsides, borrow areas	2, 3, 4, 6	2, 3, 5, 7, 8, 9, 10, 15, 18	2, 9, 10, 11, 12
Seed and gravel pits, Saturated landslides	1, 2, 3, 4, 6, 20	1, 2, 3, 4, 5, 6, 8, 15, 20	2, 8
Degraded material, Spoilbanks, Borrow areas	2, 3, 6, 20	2, 3, 6, 11,	2, 8
Spillways & shorelines	2, 8, 20, 21a	2, 8, 19b, 20, 21a, 21b	2, 8, 19a, 21a,b,c,d
Utility rights-of-way	3, 7, 18	3, 7	8, 9, 17

1. Refer to Soil Surveys for drainage class descriptions.
2. Refer to Soil Bioremediation Standard for additional seed mixtures.
3. Spillways only
4. See Appendix E for description of turf grasses and cultivars

Owner / Project

VARIANCE AND SITE PLAN APPLICATION
643 GEORGES ROAD
BLOCK 204, LOT 9
NORTH BRUNSWICK, NEW JERSEY

RONALD J. SADOWSKI, P.E.

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SOIL EROSION & SEDIMENT CONTROL NOTES AND DETAILS

DRAWN CHECKED	RJS RJS	SCALE DATE	AS NOTED 01MAY19
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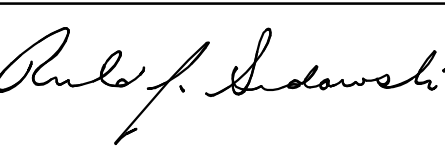
 RONALD J. SADOWSKI PROFESSIONAL ENGINEER NJPE #38261	PROJECT NO. S18160
	DRAWING NO. 6

TABLE 4-3

PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION
(CONTINUED)

Standards for Soil Erosion and Sediment Control in New Jersey

January 2014

PERMANENT VEGETATIVE MIXTURES, PLANTING RATES AND PLANTING DATES ¹														
SEED MIXTURE ²	PLANTING RATE ³	PLANTING DATES										MAINTENANCE LEVEL ⁴	REMARKS	
		O = Optimal Planting period A = Acceptable Planting period												
		PLANT HARDINESS ZONES (see Figure 4-1)												
		Zone 5b, 6a			Zone 6b			Zone 7a, 7b						
		Initial	3/15-5/31	6/1-7/31	8/1-10/1	11/1-1/31	2/1-4/30	5/1-8/14	8/15-10/15	10/1-11/31	12/1-2/28			
WARM SEASON SEED MIXTURES														
1A. For Pinelands National Reserve Seed mixtures see Table 4-1 page 4-17														
1. Switchgrass and/or Coastal panicgrass plus or Flatop	15 15 35 28	.35 .35 .45 .45	O				O				O		C-D	
2. Doctongue or Switchgrass Redtop	15 20 1 40	.35 .45 .1 .25	O				O				O		C-D	Use Doctongue if pH < 4.0. Switchgrass is superior wildlife plant. Use for waterways. Redtop provides quick cover.
3. Switchgrass Doctongue Little Bluestem Sheep fescue plus Partridge pea	15 10 20 20 10	.35 .25 .45 .45 .25	O				O				O		C-D	Pinelands mixture.
4. Switchgrass Big Bluestem Little Bluestem Sand lovegrass Coastal panicgrass	10 5 5 4 10	.25 .10 .10 .10 .25	O				O				O		C-D	Native warm-season mixture.
5. Bermudagrass Zoysiagrass (seed) Zoysiagrass (sprigs)	15 30	0.35 0.70	O				O				O		A-D	Bermudagrass has superior salt tolerance. Zoysia has greater wear tolerance.
COOL SEASON SEED MIXTURES														
6. Fine Fescue (blend) Hard Fescue Chewings fescue Strong Creeping Red Fescue Kentucky bluegrass Perennial ryegrass plus White clover (see note at right)	100 45 20 5	3 .1 .5 .10	A	A ⁵	O	A	A ⁵	O	A	A ⁵	O		B-D	General low-maintenance mixture. White clover can be removed when used to establish lawns.
7. Strong Creeping red fescue Kentucky bluegrass Perennial ryegrass or Redtop plus White clover	130 50 20 10 5	3 1 5 25 10	A	A ⁵	O	A	A ⁵	O	A	A ⁵	O		B-D	Suitable waterway mix. Canada bluegrass more drought tolerant. Use Redtop for increased drought-tolerance.
8. Tall fescue (turf-type) or Strong Creeping red fescue or Perennial ryegrass Flatop	30 30 30 25	.7 .7 .7 .60	O	A ⁶		O	A ⁶		O	A ⁶			B-D	Tall fescue best selected for droughty conditions. Use Creeping red fescue in heavy shade. Use Flatop to suppress woody vegetation.
9. Doctongue Redtop Wild rye (Elymus) Switchgrass	20 2 15 25	.45 .65 .35 .60	O			O					O		C-D	Native wet mix.
10. Tall fescue (turf-type) Perennial ryegrass or White clover (see note at right)	265 20 40 5	6 5 45 10	O	A ⁵	A ⁵	O	A ⁵	A ⁵	O	A ⁵	A ⁵		C-D	White clover can be excluded on lawn sites.
11. Kentucky bluegrass Turf-type Tall fescue	45 45 22	0.25 1 5	A	A ⁵	O	A	A ⁵	O	A	A ⁵	O		C-D	Filter strip use for nutrient uptake.
12. Turf-type Tall fescue (blend of 3 cultivars)	350	8	A	A ⁵	O	A	A ⁵	O	A	A ⁵	O		C-D	Use in a managed filter strip for nutrient uptake.
13. Hard Fescue and/or Chewings fescue and/or Strong creeping red fescue Perennial ryegrass Ky. bluegrass (blend)	175 45 45	4 1 1	A	A ⁵	O	A	A ⁵	O	A	A ⁵	O		A-C	General lawns/recreation.
14. Tall fescue Ky. bluegrass (blend) Perennial ryegrass (blend)	265 20 20	6 0.50 0.50	A	A ⁵	O	A	A ⁵	O	A	A ⁵	O		A-B	Athletic field/ 3 cultivar mix of Kentucky bluegrass.
15. Hard fescue Chewings fescue Strong Creeping red fescue Perennial ryegrass	130 45 45 10	3 1 1 .25	A	A ⁵	O	A	A ⁵	O	A	A ⁵	O		C-D	Low-maintenance fine fescue lawn mix.
16. Rough bluegrass Strong Creeping red fescue	90 150	2.0 3	A	A ⁵	O	A	A ⁵	O	A	A ⁵	O		C-D	Moist shade.

TALL FESCUE
(TURF-TYPE)
TO BE USED
FOR THIS PROJECT

Standards for Soil Erosion and Sediment Control in New Jersey

January 2014

17. Creeping bentgrass Creeping red fescue Alois salgrass	45 45 45	1 1 1	A	A ⁵	O	A	A ⁵	O	A	A ⁵	O		B-D	Use bentgrass under wetter conditions. Salgrass will only persist under saline conditions.
18. Hard or Sheep fescue N. E. wildflower mixture	25 12	0.60 0.35	O	A	O	O	A	O	O	A	O		C-D	Regional Wildflower mix. Hydroseeding not recommended.
19. a. Smooth cordgrass b. Saltmarsh cordgrass	veg veg						O	Before July 1			O	Before July 1	D	Planted in the intertidal zone. Planted above mean high tide.
20. American Beachgrass Coastal Panicgrass	veg 20	.45						Before April 1			O		D	Coastal Panic grass may be interseeded between rows of beachgrass.
21. a. Purpletop willow b. Dwarf willow c. Redstart dogwood d. Silky dogwood	veg veg veg veg		Before May 10					Before May 10			Before May 1		D	Also refer to Chapters 16 and 18 of USDA NRCS Engineering Field Handbook.

Table 4-3 Footnotes:

- See Appendix B for descriptions of turf grass mixtures and cultivars. The actual amount of warm-season grass mixture used in Table 3 (seed mix 1-7) shall be adjusted to reflect the amount of PLS as determined by germination testing results. No adjustment is required for cool-season grasses (seed mixtures 8-20).
 - Seeding mixtures and/or rates not listed above may be used if recommended by the local Soil Conservation District, Natural Resources Conservation Service, recommendations of Rutgers Cooperative Extension may be used if approved by the Soil Conservation District. Legumes (white clover, flat-top, lespedeza) should be mixed with proper inoculant prior to planting.
 - Seeding rates specified are required when a report of compliance is requested prior to actual establishment of permanent vegetation. Up to 50% reduction in rates may be used when permanent vegetation is established prior to a report of compliance inspection. These rates apply to all methods of seeding. Establishing permanent vegetation means 80% vegetative coverage of the seeded area and mowed once. Grass seed mixture checked by the State Seed Analyst, New Jersey Department of Agriculture, Trenton, New Jersey, will assure the purchaser that the mixture obtained is the mixture ordered, pursuant to the N.J. State Seed Law, N.J.S.A. 4:8-17.13 et. seq.
- O = optimal planting period A = acceptable planting period
- Maintenance Level:
 - A: Intensive mowing, (2-4 days), fertilization, lime, pest control and irrigation (Examples - high-maintenance lawns, commercial and recreation areas, public facilities).
 - B: Frequent mowing, (4-7 days), occasional fertilization, lime and weed control (Examples - home lawns, commercial sites, school sites).
 - C: Periodic mowing (7-14 days), occasional fertilization and lime (Examples - home lawns, parks).
 - D: Infrequent or no mowing, fertilization and lime the first year of establishment (Examples - roadsides, recreation areas, public open spaces).
 - Summer seedings should only be conducted when the site is irrigated. Mixes including white clover require that at least six weeks of growing season remain after seeding to ensure establishment before freezing conditions.

STANDARD FOR DUST CONTROL

STANDARD
FOR
DUST CONTROL

Definition

The control of dust on construction sites and roads.

Purpose

To prevent blowing and movement of dust from exposed soil surfaces, reduced on-site and off-site damage and health hazards and improve traffic safety.

Condition Where Practice Applies

This practice is applicable to areas subject to dust blowing and movement where on-site and off-site damage is likely without treatment. Consult with local municipal ordinances on any restrictions.

Water Quality Enhancement

Sediments deposited as "dust" are often fine colloidal material which is extremely difficult to remove from water once it becomes suspended. Use of this standard will help to control the generation of dust from construction sites and subsequent blowing and deposition into local surface water resources.

Planning Criteria

The following methods should be considered for controlling dust:

Mulches - See Standard of Stabilization with Mulches Only, pg. 5-1

Vegetative Cover - See Standard for Temporary Vegetative Cover, pg. 7-1, Permanent Vegetative Cover for Soil Stabilization pg. 4-1 and Permanent Stabilization with Soil, pg. 6-1

Spray-On Adhesives - On mineral soils (not effective on mud soils). Keep traffic off these areas.

Table 16-1 Dust Control Materials

MATERIAL	WATER DILUTION	TYPE OF NOZZLE	APPLY GALLONS/ACR. 5'
Anionic asphalt emulsion	7:1	Coarse Spray	1200
Latex emulsion	12.5:1	Fine Spray	235
Resin in water	4:1	Fine Spray	300
Polyurethane (PAM) - spray on Polyurethane (PAM) - dry spread	Apply according to manufacturer's instructions. May also be used as additive to soil sealant to form a barrier and precipitate suspended solids. See Sediment Basin standard, p. 26-1		
Acidulated Soy Bean Soap Stick	None	Coarse Spray	1200

Tillage - To roughen surface and bring clods to the surface. This is a temporary emergency measure which should be used before soil blowing starts. Begin plowing or windrow side of site. Chisel-type plows spaced about 12 inches apart and spring-toothed harrows are examples of equipment which may produce the desired effect.

Sprinkling - Site is sprinkled until the surface is wet.

Barriers - Solid board fences, snow fences, burlap fences, crate walls, bales of hay and similar material can be used to control air currents and soil blowing.

Calcium Chloride - Shall be in the form of loose, dry granules or flakes fine enough to feed through commonly used spreaders at a rate that will keep surface moist but not cause pollution or plant damage. If used on steeper slopes, then use other practices to prevent washing into streams or accumulation around plants.

Stone - Cover surface with crushed stone or coarse gravel.

REFERENCES

BALANCE OF SITE PLAN DRAWINGS.

REV	REVISION DESCRIPTION	DATE
0	FOR FSCD REVIEW AND APPROVAL.	01MAY19

Owner / Project


VARIANCE AND SITE PLAN
APPLICATION
643 GEORGES ROAD
BLOCK 204, LOT 9
NORTH BRUNSWICK, NEW JERSEY

RONALD J. SADOWSKI, P.E.

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SOIL EROSION & SEDIMENT
CONTROL NOTES AND
DETAILS

DRAWN CHECKED	RJS RJS	SCALE DATE	AS NOTED 01MAY19
 RONALD J. SADOWSKI PROFESSIONAL ENGINEER NJPE #38261		PROJECT NO. S18160	
		DRAWING NO. 7	

STANDARD
FOR
STABILIZATION WITH MULCH ONLY

Definition

Stabilizing exposed soils with non-vegetative materials exposed for periods longer than 14 days

Purpose

To protect exposed soil surfaces from erosion damage and to reduce offsite environmental damage.

Water Quality Enhancement

Provides temporary mechanical protection against wind or rainfall induced soil erosion until permanent vegetative cover may be established.

Where Applicable

This practice is applicable to areas subject to erosion, where the season and other conditions may not be suitable for growing an erosion-resistant cover or where stabilization is needed for a short period until more suitable protection can be applied.

Methods and Materials

1. Site Preparation
 - A. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. All grading should be done in accordance with Standards for Land Grading.
 - B. Install needed erosion control practices or facilities such as diversions, grade stabilization structures, channel stabilization measures, sediment basins, and waterways. See Standards 11 through 42.

2. Protective Materials

- A. Unseeded small-grain straw, at 2.0 to 2.5 tons per acre, is spread uniformly at 90 to 115 pounds per 1,000 square feet and anchored with a mulch anchoring tool, liquid mulch binders, or netting tie-down. Other suitable materials may be used if approved by the Soil Conservation District. The approved rates above have been set when the mulch covers the ground completely upon visual inspection, i.e. the soil cannot be seen below the mulch.
 - C. Synthetic or organic soil stabilizers may be used under suitable conditions and in quantities as recommended by the manufacturer.
 - D. Wood-fiber or paper-fiber mulch at the rate of 1,500 pounds per acre (or according to the manufacturer's requirements) may be applied by a hydroseeder.
 - E. Mulch netting, such as paper jute, coirnet, cotton, or plastic, may be used.
 - F. Woodchips applied uniformly to a minimum depth of 2 inches may be used. Woodchips will not be used on areas where flowing water could wash them into an inlet and plug it.
 - G. Gravel, crushed stone, or slag at the rate of 9 cubic yards per 1,000 sq. ft. applied uniformly to a minimum depth of 3 inches may be used. Size 2 or 3 (ASTM C-33) is recommended.
3. Mulch Anchoring - should be accomplished immediately after placement of hay or straw mulch to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of the area and steepness of slopes.

- A. Peg and Twine - Drive 8 to 10 inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by anchoring twice between pegs in a cross-hatch and a square pattern. Secure twine around each peg with two or more round turns.

- B. Mulch Netting - Staple paper, cotton, or plastic nettings over mulch. Use degradable netting in areas to be mowed. Netting is usually available in rolls 4 feet wide and up to 100 feet long.

- C. Crimper Mulch Anchoring Coupler Tool - A tractor-drawn implement especially designed to punch and anchor mulch into the soil surface. This practice affords maximum erosion control, but its use is limited to those slopes upon which the tractor can operate safely. Soil penetration should be about 3 to 4 inches. On sloping land, the operation should be on the contour.

D. Liquid Mulch-Binders

1. Applications should be heavier at edges where wind catches the mulch, in valleys, and at crests of banks. Remainder of area should be uniform in appearance.
2. Use one of the following:

- a. Organic and Vegetable Based Binders - Naturally occurring, powder based, hydrophilic materials that mixed with water formulates a gel and when applied to mulch under satisfactory curing conditions will form membrane networks of insoluble polymers. The vegetable gel shall be physiologically harmless and not result in a phytotoxic effect or impede growth of turfgrasses. Vegetable based gels shall be applied as rates and weather conditions recommended by the manufacturer.

- b. Synthetic Binders - High polymer synthetic emulsion, miscible with water when diluted and following application to mulch, drying and curing shall no longer be soluble or dispersible in water. It shall be applied at rates and weather conditions recommended by the manufacturer and remain tacky until germination of grass.

STANDARD
FOR
STABILIZED CONSTRUCTION ACCESS

Definition

A stabilized pad of clean crushed stone located at points where traffic will be accessing a construction site.

Purpose

The purpose of a stabilized construction access is to reduce the tracking or flowing of sediment onto paved roadways (or other impervious surfaces).

Conditions Where Practice Applies

A stabilized construction exit applies to points of construction ingress and egress where sediment may be tracked, or flow off, the construction site.

Water Quality Enhancement

In addition to minimizing sediments which can be tracked directly onto pavement during construction, silt, grasses and dried faeces which become mixed with sediment during construction may also migrate into the offsite drainage system where they may enter directly into a waterway. By preventing or minimizing the tracking of sediments onto paved areas, a significant reduction in construction related hydrocarbon pollution will also be controlled.

Design Criteria

Stone Size - Use ASTM C-33, size No. 2 (2 1/4 to 1 1/4 in.) or 3 (2 to 1 in.). Use clean crushed angular stone. Crushed concrete of similar size may be substituted but will require more frequent upgrading and maintenance.

Thickness - not less than six (6) inches.

Width - not less than full width of points of ingress or egress.

Length - 50 feet minimum where the soils are coarse grained (sands or gravels) or 100 feet minimum where soils are fine grained (clays or silts), except where the traveled length is less than 50 or 100 feet respectively. These lengths may be increased where field conditions dictate. Stormwater from up-slope areas shall be diverted away from the stabilized pad (see Standard for Diversions, pg. 15-1). Where diversion is not possible, the length of the stabilized pad shall be as shown in Table 27-1. Where the slope of the access road exceeds 5%, a stabilized base of Hot Mix Asphalt Base Course, Max. 1-1/2 shall be installed. The type and thickness of the base course and use of a dense graded aggregate sub-base shall be as prescribed by local municipal ordinance or other governing authority.

At poorly drained locations, subsurface drainage gravel filter or geotextile shall be installed before installing the stabilized construction entrance.

Table 27-1: Lengths of Construction Exits on Sloping Roadways

Percent Slope of Roadway	Length of Stone Required	
	Coarse Grained Soils	Fine Grained Soils
0 to 2%	50 ft	100 ft
2 to 5%	100 ft	200 ft
>5%	Entire surface stabilized with Hot Mix Asphalt Base Course, Mix 1-2 ¹	

1. As prescribed by local ordinance or other governing authority.

Where a stabilized construction exit traverses between two buildings, it shall be stoned the entire length of the right-of-way. Mountable stone bents placed across the width of the exit may also be required at the station point from the stabilized pad (see Standard for Diversions, pg. 15-1). Where diversion is not possible, the length of the stabilized pad shall be as shown in Table 27-1. Where the slope of the access road exceeds 5%, a stabilized base of Hot Mix Asphalt Base Course, Max. 1-1/2 shall be installed. The type and thickness of the base course and use of a dense graded aggregate sub-base shall be as prescribed by local municipal ordinance or other governing authority.

Individual lot entrance and egress - After interior roadways are paved, individual lot ingress/egress points may require a stabilized construction entrance consisting of no. 3 stone (1" to 2") to prevent or minimize tracking of sediments. Width of the stone ingress/egress shall be equal to lot entrance width and shall be a minimum of ten feet in length.

Tire washing - If space is limited, vehicle tires may be washed with clean water before entering a paved area. A wash station must be located such that wash water will not flow onto paved roadways or into unprotected storm drainage systems.

When the construction access exits onto a major roadway, a paved transition area may be installed between the major roadway and the stoned entrance to prevent loose stones from being transported out onto the roadway by heavy equipment entering or leaving the site.

Maintenance

The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto roadways. This may require periodic top dressing with additional stone or additional length as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed, or tracked onto roadways (public or private) or other impervious surfaces must be removed immediately.

Where accumulation of dirt/sediment is inadequately cleared or removed by conventional methods, a power broom or street sweeper will be required to clean paved or impervious surfaces. All other access points which are not stabilized shall be blocked off.

STANDARD
FOR
TREE PROTECTION DURING CONSTRUCTION

Definition

The protection of trees from environmental and mechanical injury during construction activities.

Purpose

To protect trees for erosion and sediment control, shade, aesthetics, wildlife, dust control, noise abatement, and oxygen production.

Water Quality Enhancement

Limiting areas of site disturbance and re-vegetating with permanent cover, minimizes off site and negative downstream water quality impacts caused by stormwater runoff. Mature trees provide structural stability for soils, promote proper water movement through the soil profile and moderate changes in temperature along streams and other water bodies.

Where Applicable

On new development sites with existing trees.

Methods and Materials

1. Reconnaissance should be performed before land clearing begins to identify dead and weak trees to be removed and healthy trees to remain, to create aesthetically pleasing development site with vegetation rather than the presence of dead or dying trees. Inventory the site and clearly mark the trees and stands of trees to be saved. Consider relocating streets, houses, or other structures if necessary and feasible. Once clearing begins and damage to the trees occurs, valuable specimens may be lost.

- A. Characteristics of trees to be protected and saved. The following lists characteristics that should be evaluated before deciding to remove or protect a tree.

1. Tree Vigor

Tree health is the overall condition of the tree. A tree of low vigor is more susceptible to damage by environmental changes than healthy trees and is more susceptible to insect and disease attacks. Indicators of poor vigor include the dying of the tips of branches and entire limbs, small annual twig growth, muted leaf size, sparse foliage, and poor foliage color. Avoid saving hollow or rotten trees, trees cracked, split, leaning or crooked, cozing sap, or with broken tops. Use woodchips generated from removal of trees of poor health and spread them around the root roots to help protect the trees that remain.

2. Tree Age

Large, picturesque trees may be more aesthetically valuable than smaller, young trees, but also require more extensive protection measures. If leaving an older tree, be sure it is sound and healthy.

3. Species (the right trees for the right location)

Many species of trees found in New Jersey woodlands are not suitable for shade tree use around buildings. Avoid protecting trees that are short-lived, brittle, have soft wood, messy leaves, fruit, or are frequently attacked by insects and disease. Tree root systems which do not adapt well to cuts and fills may not be a suitable alternative. The following are severely affected by compacted construction fills: Aspen, Beech, Paper birch, Eastern red cedar, Black cherry, Dogwood, Kamoa tree, Linden, Paperbark maple, Sugar maple, Black oak, Pin oak, Red oak, White oak, Fir, Spruce, and Tulip. See Table 9-1 for a more complete list of construction impacts to individual tree species.

4. Resistant to Insects and Diseases

Avoid leaving trees in highly visible areas or specimens that are frequent targets of insects and diseases. American Elm, for example, could be lost due to Dutch Elm Disease. Wild Cherry, another example, is a favorite host of the tree caterpillar, which causes defoliation of the trees in early summer. The following are susceptible to insects (I) and diseases (D): White Ash(D), Birch (I), Butternut (D), Crabapple (D), some Elms (D), Hawthorn (D), Hemlock (I), Linden (I), Sugar Maple (D), Mountain Ash (D), Sassafras (I), Scholastic (D), Redbud (D).

5. Tree Aesthetics

Choose trees that are aesthetically pleasing, exhibiting good shape and form. Avoid leaning, crooked, and misshapen trees. Occasionally, an odd-shaped tree or one of unusual form may add interest to the landscape if strategically located. Be sure the tree is structurally sound and vigorous.

6. Spring and Autumn Coloration

Species differ in fall color. Some are bright red, others orange and yellow. Other species exhibit no autumn color, such as walnut, locust, and sycamore.

7. Wildlife Benefits

Favor trees that are preferred by wildlife for food, cover, and nesting. A mixture of evergreens and hardwoods is beneficial. Evergreen trees are important for cover during the winter months. The hardwoods are more valuable for food.

8. Air Pollution Susceptibility

Tree species vary greatly in susceptibility to air pollution. Symptoms vary from browning on the edges of the leaves and needles, to stunting of growth, to death of the tree. The following show tolerance to urban stress and are less likely to present problems with side-value: Baldcypress, Corktree, Amur maple, Kentucky coffee tree, Crabapple, Dawn redwood, Ginkgo (male), Ginkgo biloba, Hackberry, Hawthorn, Honeylocust, European hornbeam, Horsechestnut, Lindens, Oaks (excluding pin), Pear, Scholastic, Sourgum (lupine), Sweetgum, Yew, Zelkova.

9. Species Longevity

Favor trees whose life span is long, such as oak, beech, and tulip poplar. Short-lived trees (Black locust, Gray birch, Aspen) should be avoided for use as shade, lawn or specimen trees. Although some short-lived trees have an attractive form or pleasing coloration in the spring or fall, such trees may not live for a long time and thus may not be worth preserving.

B. Criteria for protecting remaining trees:

1. General mechanical damage - see Figure 9.1 for correct root zone calculation and placement of tree protection.
2. Box trees within 25 feet of a building site to prevent mechanical injury. Fencing or other barrier should be installed beyond the Critical Root Radius. See Figure 9.3. Tree root systems commonly extend well beyond the drip line.
3. Boards will not be nailed to trees during building operations.
4. Fencer roots should not be cut in an area inside the Protected Root Zone (PRZ).
5. Damaged trunks or exposed roots should have damaged bark removed immediately and no paint shall be applied. Exposed roots should be covered with shroud immediately when excavation is complete. Roots shall be pruned to give a clean, sharp surface amenable to healing. Roots exposed during hot weather should be irrigated to prevent permanent tree injury. Care for serious injury should be prescribed by a professional forester or licensed tree expert.
6. Tree limb removal, where necessary, will be done as natural target pruning to remove the desired branches as close as possible to the branch collar. There should be NO flush cuts. Flush cuts destroy a major defense system of the tree. See Figure 9-1. No top paint shall be applied. All cuts shall be made at the outside edge of the branch collar (Fig. 9-1 and 9-2). Cuts made too far beyond the branch collar may lead to excess sprouting, cracks and rot. Removal of a "V" crotch should be considered for free standing specimen trees (see Figure 9-2) to avoid future splitting damage.

Note: For more specific data on certain tree characteristics by species, see Table 9.1, Tree Characteristics or consult with a Licensed Professional Tree Expert, Soil Conservation District or Rutgers Cooperative Extension.

Figure 9-1 - Removal of Tree Limb

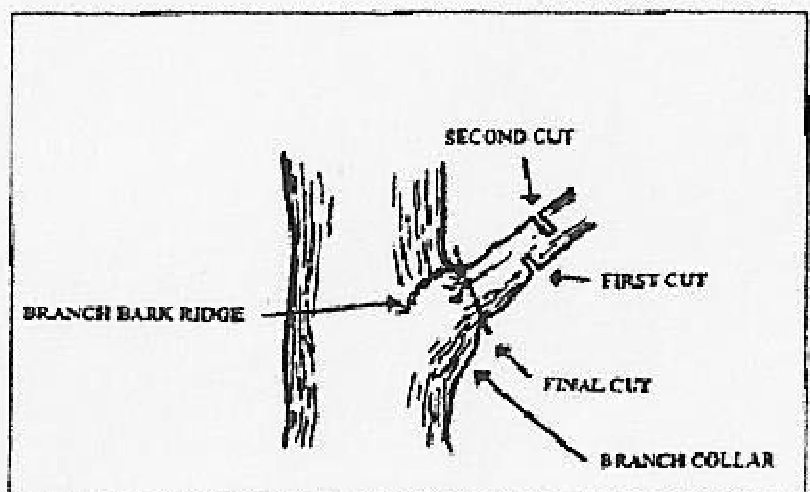


Figure 9-2 - Removal of "V" Crotch Limb

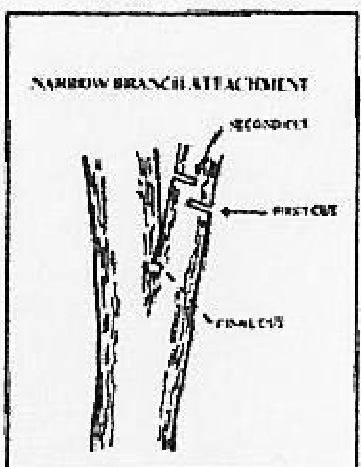


Figure 9-4: Tree Protection in Fill Areas

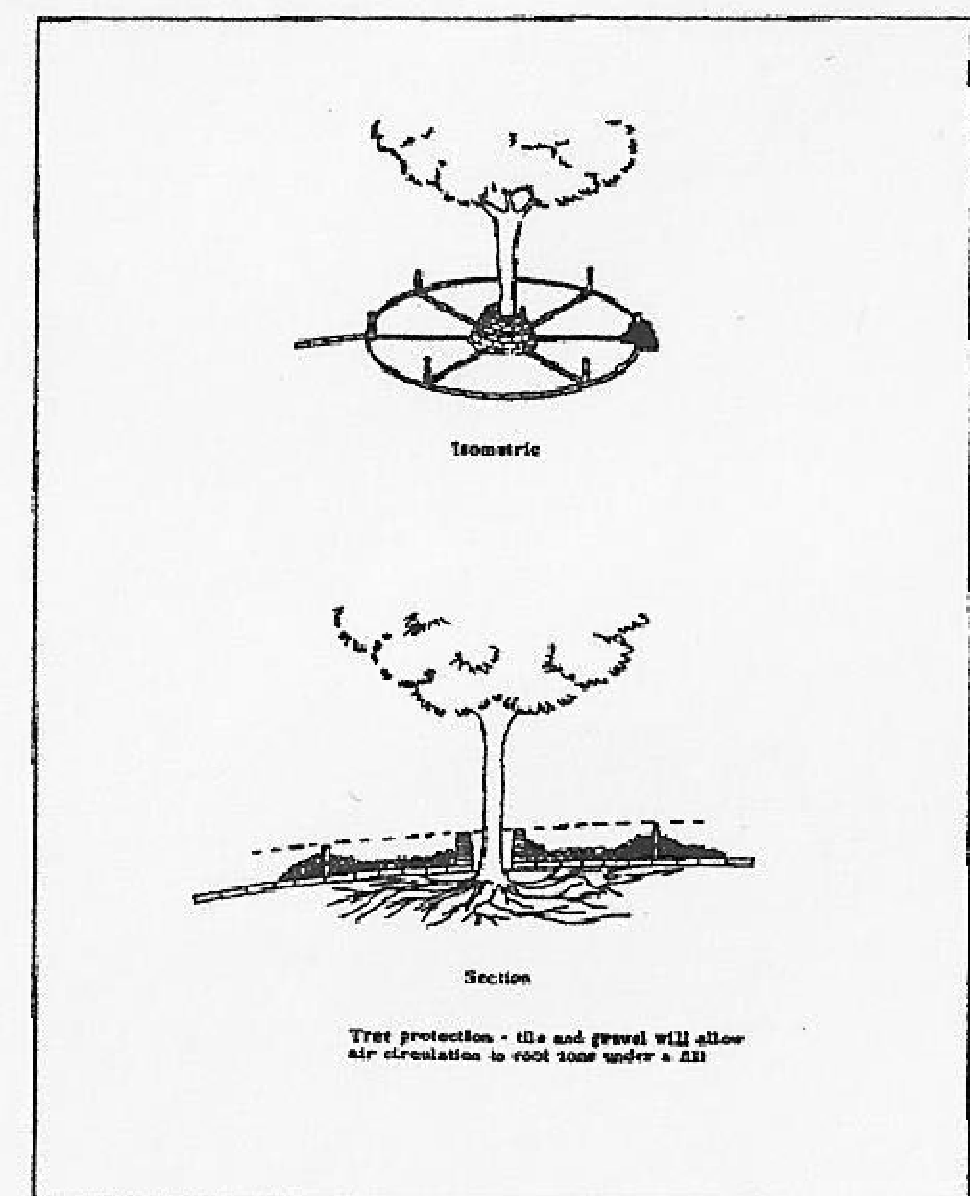
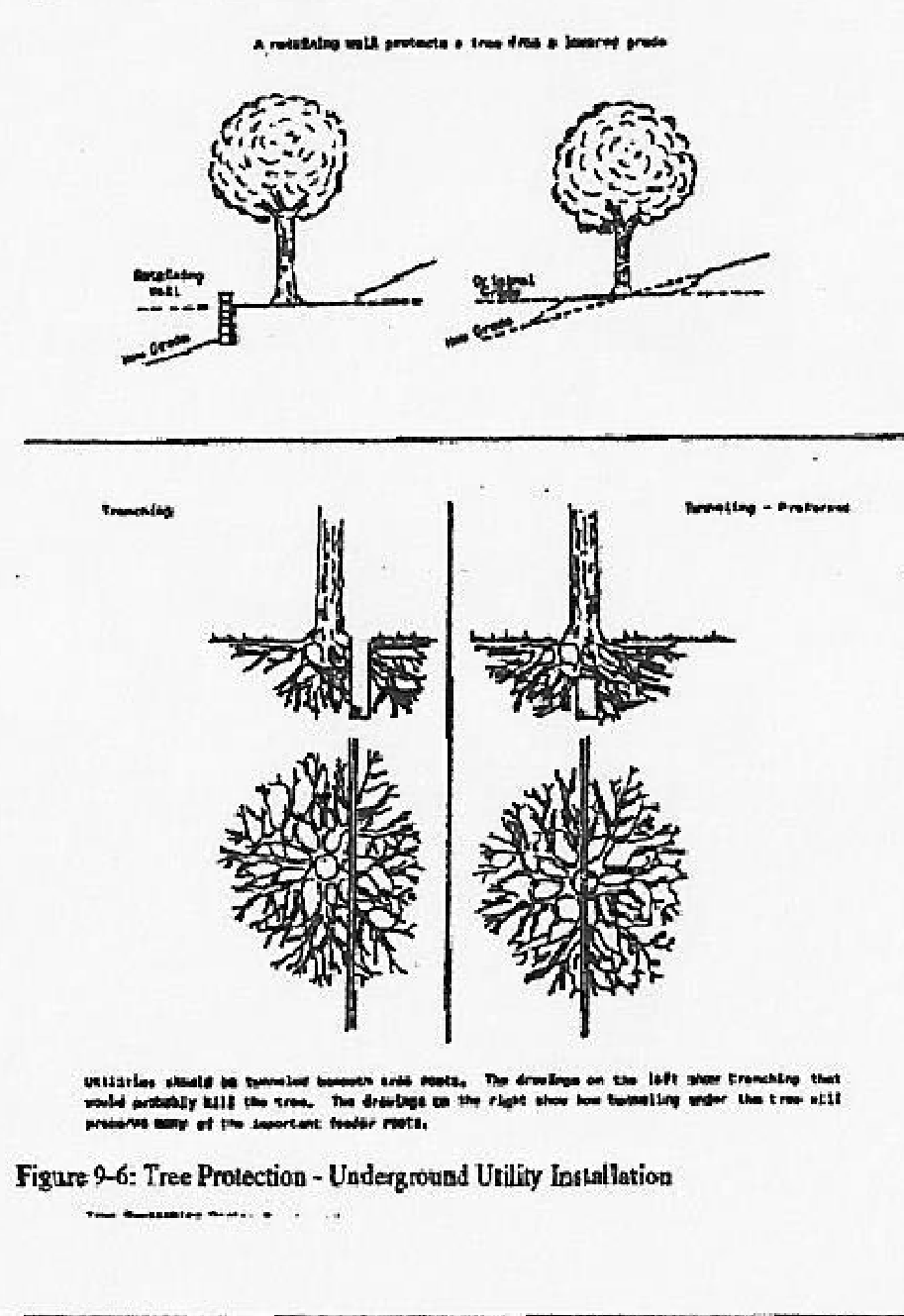


Figure 9-5: Tree Protection in Cut Areas

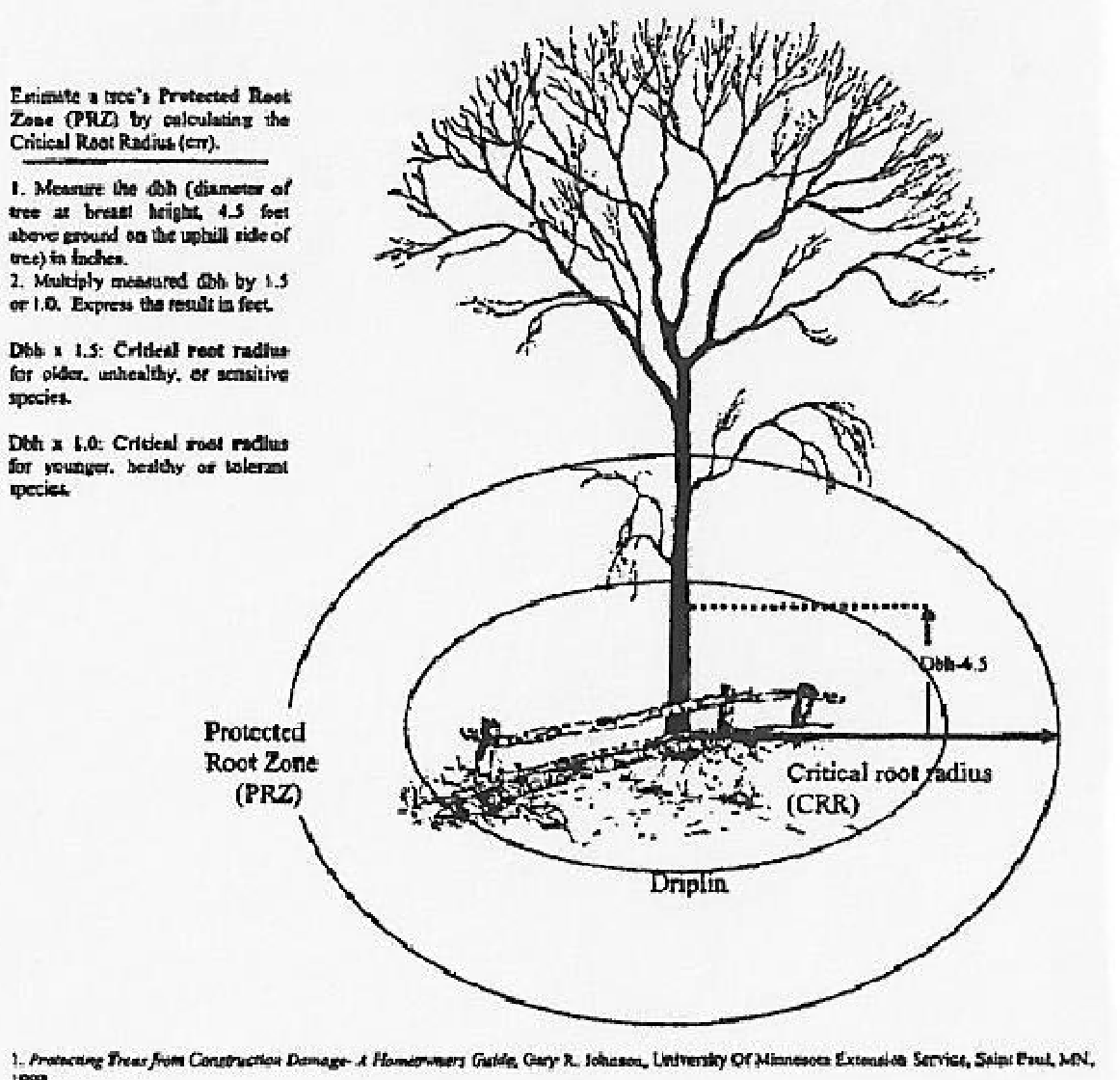


REFERENCES

BALANCE OF SITE PLAN DRAWINGS.

REV	REVISION DESCRIPTION	DATE
0	FOR FSCD REVIEW AND APPROVAL.	01MAY19

Figure 9-3: Root Protection During Construction Guide



1. Protecting Trees from Construction Damage - A Homeowner's Guide, Gary R. Johnson, University of Minnesota Extension Service, St. Paul, MN, 1999.

Owner / Project
VARIANCE AND SITE PLAN
APPLICATION
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SOIL EROSION & SEDIMENT
CONTROL NOTES AND
DETAILS

DRAWN CHECKED	RJS RJS	SCALE DATE	AS NOTED 01MAY19
PROJECT NO. S18160		DRAWING NO. 8	