GENOVA BURNS
ATTORNEYS-AT-LAW

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July 8, 2019

VIA CERTIFIED MAIL

Lauren Frazee, Secretary
Environmental Commission
Manchester Township
1 Colonial Drive
Manchester, NJ 08759

Re: **Application for CAFRA Individual Permit**
Application for Transition Area Waiver
Proposed Retail Development
Township of Toms River: Block 505, Lots 14 and 15
Township of Manchester: Block 44, Lots 2, 3, 5 and 9;
Block 75.01, Lot 3
Ocean County

Dear Ms. Frazee:

This letter is to provide you with legal notification that an individual CAFRA permit application and a transition area waiver application will be submitted to the New Jersey Department of Environmental Protection, Division of Land Use Regulation for the development shown on the enclosed plan. A brief description of the proposed development follows:

> The proposed development includes one (1) 81,275-SF retail building, one (1) 4,800-SF restaurant and one (1) 9,322-SF retail building. Also included is the associated parking, circulation, utilities, stormwater management, landscaping and lighting associated with these uses. Five hundred and sixty-eight (568) parking spaces are proposed for the entire development. A stormwater management system that utilizes two above-ground basins has been designed to accommodate the development.

The complete permit application packages can be reviewed at either the municipal clerk's office or by appointment at the Department's Trenton Office. The Department of Environmental Protection welcomes comments and any information that you may provide concerning the proposed development and site. Please submit your written comments within 15 calendar days of receiving this letter to:

New Jersey Department of Environmental Protection
Division of Land Use Regulation
P.O. Box 420, Code 501-02A
Trenton, New Jersey 08625
Attn: Toms River Township Supervisor or
Manchester Township Supervisor

If you have any questions regarding this notice, please feel free to contact me.

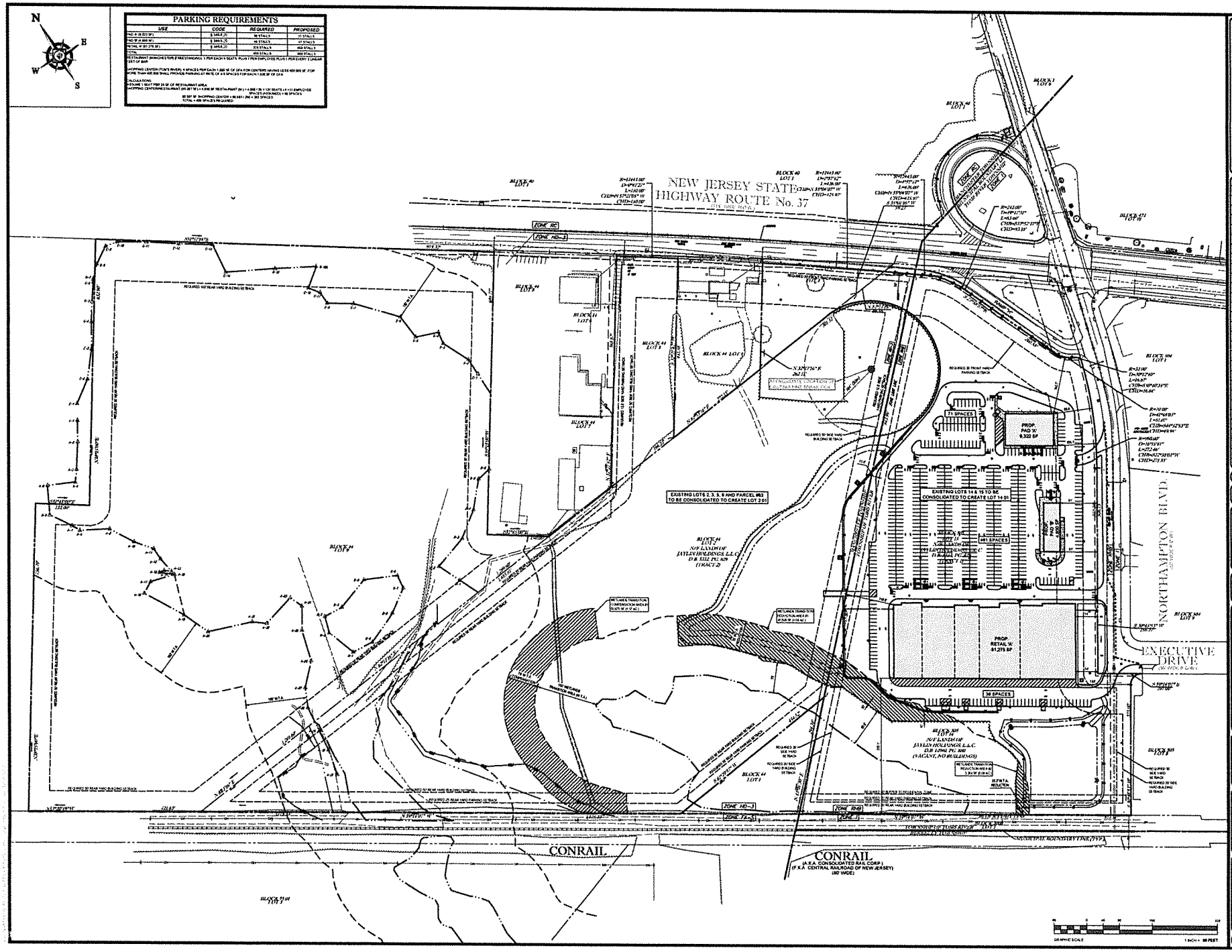
Very truly yours,

GENOVA BURNS LLC

William F. Harrison

WILLIAM F. HARRISON

WFH:dv
Enclosures



PARKING REQUIREMENTS			
USE	CODE	REQUIRED	PROPOSED
NO. 9 (9,323 SF)	5.5/1,000 SF	51 STALLS	71 STALLS
NO. 10 (4,000 SF)	5.5/1,000 SF	22 STALLS	47 STALLS
RETAIL 'A' (61,275 SF)	5.5/1,000 SF	337 STALLS	481 STALLS
TOTAL		410 STALLS	599 STALLS

RESTAURANT (BANQUET/FOR FREESTANDING): 1 PER EACH 3 SEATS PLUS 1 PER EMPLOYEE PLUS 1 PER EVERY 3 LINEAR FEET OF BAR

SHOPPING CENTER (TOAS RHB): 4 SPACES PER EACH 1,000 SF OF GFA FOR CENTERS HAVING LESS 400,000 SF. FOR MORE THAN 400,000 SHALL PROVIDE PARKING AT 3.75 SF OF 4.5 SPACES FOR EACH 1,000 SF OF GFA

CALCULATIONS:
1) SQUARE 1 SEAT PER 35 SF OF RESTAURANT AREA
SHOPPING CENTER AND RESTAURANT (65,287 SF) + 1 = 2,000 SF RESTAURANT (2K) + 1 = 130 SEATS / 4 = 33 EMPLOYEES
SPACES (STANDARD) = 66 SPACES
65,287 SF SHOPPING CENTER / 400,000 / 250 = 383 SPACES
TOTAL = 499 SPACES REQUIRED

BOHLER ENGINEERING

CIVIL ENGINEERS • LAND SURVEYORS • LANDSCAPE ARCHITECTS • TRAFFIC ENGINEERS • TRANSPORTATION PLANNERS

LIVINGSTON, NEW JERSEY • MOUNT LAUREL, NEW JERSEY • MONTVALE, NEW JERSEY • MIDDLETOWN, NEW JERSEY • PHILADELPHIA, PA • BALTIMORE, MD • WASHINGTON, DC • RICHMOND, VA • RALEIGH, NC • CHARLOTTE, NC • COLUMBIA, SC • ATLANTA, GA • TALLAHASSEE, FL • ORLANDO, FL • TAMPA, FL • MIAMI, FL • NEW ORLEANS, LA • HOUSTON, TX • DALLAS, TX • AUSTIN, TX • DENVER, CO • PHOENIX, AZ • LAS VEGAS, NV • SACRAMENTO, CA • SAN FRANCISCO, CA • LOS ANGELES, CA • SAN DIEGO, CA • SEATTLE, WA • PORTLAND, OR • HONOLULU, HI • ANCHORAGE, AK • TOKYO, JAPAN • SHANGHAI, CHINA • HONG KONG, CHINA • SINGAPORE • SEOUL, SOUTH KOREA • MANILA, PHILIPPINES • DUBAI, UAE • ABU DHABI, UAE • DOHA, QATAR • MUMBAI, INDIA • NEW DELHI, INDIA • BANGALORE, INDIA • HYDERABAD, INDIA • PUNE, INDIA • KOLKATA, INDIA • CHENNAI, INDIA • DOHA, QATAR • MUMBAI, INDIA • NEW DELHI, INDIA • BANGALORE, INDIA • HYDERABAD, INDIA • PUNE, INDIA • KOLKATA, INDIA • CHENNAI, INDIA

REVISIONS

REV.	DATE	COMMENT	DRAWN BY
1	08/12/2019	PER TOWNSHIP COMMENTS	JLT

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROTECT YOURSELF
AT LEAST TWO WORKING DAYS BEFORE YOU DIG, CALL 1-800-272-1000 (NEW JERSEY ONE CALL)
THIS PLAN IS BASED UPON INFORMATION PROVIDED BY OTHERS AND BOHLER ENGINEERING ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF SUCH INFORMATION.

PROJECT No.	JNT17-008
DRAWN BY	JLT
CHECKED BY	SLM
DATE	11/30/2017
SCALE	AS SHOWN
FILE NO.	JNT17-008.DWG

PROJECT

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT

RUSH RT. 37 & NORTHAMPTON BLVD
BLOCK 44, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 4, & 9, ZONE HD-3)
BLOCK 905, LOT 8 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RHB)
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
BOHLER ENGINEERING NJ, LLC
10000 MIDLANTIC DRIVE, SUITE 410W
MOUNT LAUREL, NJ 08054
Phone (856) 830-4000
Fax: (856) 830-4001
www.BohlerEngineering.com

D.F. WISOTSKY

PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 43951
CONNECTICUT LICENSE No. 12498
NEW YORK LICENSE No. 077145

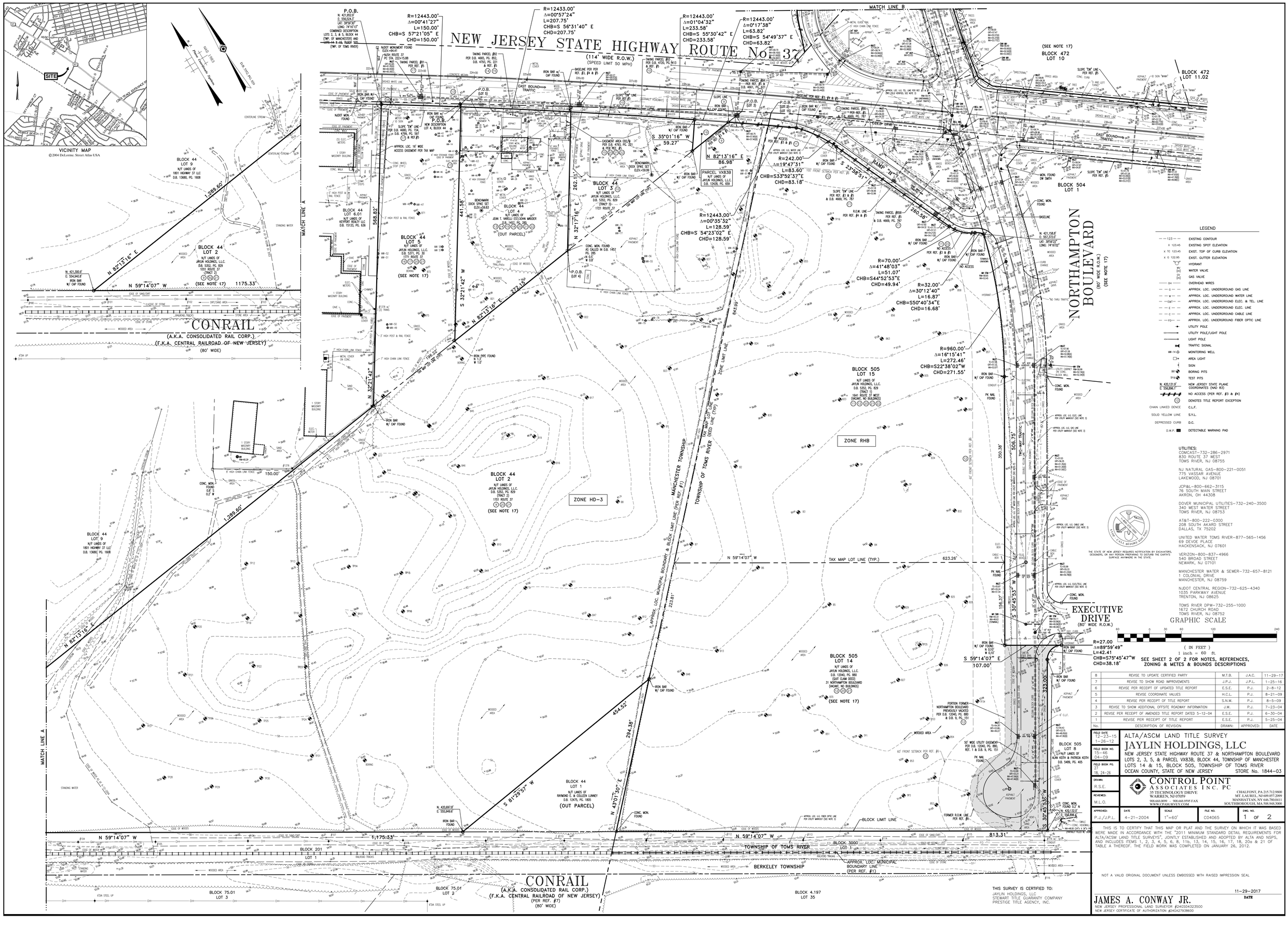
SHEET TITLE

OVERALL PLAN

SHEET NUMBER

C-03
OF 23

REVISION 1 - 08/12/2019



LEGEND

— 123 —	EXISTING CONTOUR
X 123.45	EXISTING SPOT ELEVATION
X TC 123.45	EXIST. TOP OF CURB ELEVATION
X G 122.95	EXIST. GUTTER ELEVATION
	HYDRANT
	WATER VALVE
	GAS VALVE
— OH —	OVERHEAD WIRES
— G —	APPROX. LOC. UNDERGROUND GAS LINE
— W —	APPROX. LOC. UNDERGROUND WATER LINE
— E&T —	APPROX. LOC. UNDERGROUND ELEC. & TEL. LINE
— E —	APPROX. LOC. UNDERGROUND ELEC. LINE
— C —	APPROX. LOC. UNDERGROUND CABLE LINE
— FO —	APPROX. LOC. UNDERGROUND FIBER OPTIC LINE
	UTILITY POLE
	UTILITY POLE/LIGHT POLE
	LIGHT POLE
	TRAFFIC SIGNAL
WM-14	MONITORING WELL
	AREA LIGHT
	SIGN
B13	BORING PITS
TP18	TEST PITS
N: 420,133.9' E: 556,996.1'	NEW JERSEY STATE PLANE COORDINATES (NAD 83)
	NO ACCESS (PER REF. #3 & #4)
	DENOTES TITLE REPORT EXCEPTION
CHAIN LINKED DENCE	C.L.F.
SOLID YELLOW LINE	S.Y.L.
DEPRESSED CURB	D.C.
D.W.P.	DETECTABLE WARNING PAD

UTILITIES:

COMCAST–732–286–2971
830 ROUTE 37 WEST
TOMS RIVER, NJ 08755

NJ NATURAL GAS–800–221–0051
775 VASSAR AVENUE
LAKEWOOD, NJ 08701

JCP&L–800–662–3115
76 SOUTH MAIN STREET
AKRON, OH 44308

DOVER MUNICIPAL UTILITIES–732–240–3500
340 WEST WATER STREET
TOMS RIVER, NJ 08753

AT&T–800–222–0300
208 SOUTH AKARD STREET
DALLAS, TX 75202

UNITED WATER TOMS RIVER–877–565–1456
69 DEVOE PLACE
HACKENSACK, NJ 07601

VERIZON–800–837–4966
540 BROAD STREET
NEWARK, NJ 07101

MANCHESTER WATER & SEWER–732–657–8121
1 COLONIAL DRIVE
MANCHESTER, NJ 08759

NJDOT CENTRAL REGION–732–625–4340
1035 PARKWAY AVENUE
TRENTON, NJ 08625

TOMS RIVER DPW–732–255–1000
1672 CHURCH ROAD
TOMS RIVER, NJ 08752

THE STATE OF NEW JERSEY REQUIRES NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE.

No.	DESCRIPTION OF REVISION	DRAWN:	APPROVED:	DATE
8	REVISE TO UPDATE CERTIFIED PARTY	M.T.B.	J.A.C.	11–29–17
7	REVISE TO SHOW ROAD IMPROVEMENTS	J.P.J.	J.P.L.	1–25–16
6	REVISE PER RECEIPT OF UPDATED TITLE REPORT	E.S.E.	P.J.	2–8–12
5	REVISE COORDINATE VALUES	H.C.L.	P.J.	8–21–09
4	REVISE PER RECEIPT OF TITLE REPORT	S.N.W.	P.J.	8–5–09
3	REVISE TO SHOW ADDITIONAL OFFSITE ROADWAY INFORMATION	J.W.	P.J.	7–23–04
2	REVISE PER RECEIPT OF AMENDED TITLE REPORT DATED 5–12–04	E.S.E.	P.J.	6–30–04
1	REVISE PER RECEIPT OF TITLE REPORT	E.S.E.	P.J.	5–25–04

FIELD DATE: 12–23–15, 1–26–12
FIELD BOOK NO.: 15–46, 04–09
FIELD BOOK PG.: 27, 18, 24–26
DRAWN: R.S.E.
REVIEWED: M.L.O.
APPROVED: P.J./J.P.L.

ALTA/ASCM LAND TITLE SURVEY

JAYLIN HOLDINGS, LLC

NEW JERSEY STATE HIGHWAY ROUTE 37 & NORTHAMPTON BOULEVARD
LOTS 2, 3, 5, & PARCEL VX838, BLOCK 44, TOWNSHIP OF MANCHESTER
LOTS 14 & 15, BLOCK 505, TOWNSHIP OF TOMS RIVER
OCEAN COUNTY, STATE OF NEW JERSEY — STORE No. 1844–03

CONTROL POINT ASSOCIATES INC. PC
35 TECHNOLOGY DRIVE
WARREN, NJ 07059
908.668.0099 – 908.668.9898 FAX
WWW.CPASURVEY.COM
CHALFONT, PA 215.712.9800
MT. LAUREL, NJ 609.857.2099
MANHATTAN, NY 646.780.0411
SOUTHBOROUGH, MA 508.948.3000

DATE	SCALE	FILE NO.	DWG. NO.
4–21–2004	1"=60'	C04065	1 OF 2

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT WAS BASED WERE MADE IN ACCORDANCE WITH THE "2011 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS", JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 5, 6, 8, 11b, 13, 14, 15, 16, 17, 18, 20a & 21 OF TABLE A THEREOF. THE FIELD WORK WAS CONPLETED ON JANUARY 26, 2012.

NOT A VALID ORIGINAL DOCUMENT UNLESS EMBOSSED WITH RAISED IMPRESSION SEAL

THIS SURVEY IS CERTIFIED TO:
JAYLIN HOLDINGS, LLC
STEWART TITLE GUARANTY COMPANY
PRESTIGE TITLE AGENCY, INC.

JAMES A. CONWAY JR.
NEW JERSEY PROFESSIONAL LAND SURVEYOR #24GS04323500
NEW JERSEY CERTIFICATE OF AUTHORIZATION #24GA27936600

11–29–2017
DATE

NOTES:

1. PROPERTY KNOWN AS LOTS 2, 3, & 5, BLOCK 44 AS IDENTIFIED ON THE TAX MAP OF MANCHESTER TOWNSHIP, SHEET 8 & LOTS 14 & 15, BLOCK 505 AS IDENTIFIED ON THE TAX MAP OF THE TOWNSHIP OF TOMS RIVER, SHEET 54, OCEAN COUNTY NEW JERSEY.

2. AREA OF LOT 2, BLOCK 44 (TWP. OF MANCHESTER) = 988,824 S.F. OR 22.700 AC.
AREA OF LOT 3, BLOCK 44 (TWP. OF MANCHESTER) = 37,225 S.F. OR 0.855 AC.
AREA OF LOT 5, BLOCK 44 (TWP. OF MANCHESTER) = 75,802 S.F. OR 1.740 AC.
AREA OF LOT 14, BLOCK 505 (TWP. OF TOMS RIVER) = 371,620 S.F. OR 8.531 AC.
AREA OF LOT 15, BLOCK 505 (TWP. OF TOMS RIVER) = 389,600 S.F. OR 8.944 AC.
TOTAL AREA COMBINED LOTS 2, 3 & 5, BLOCK 44 (TWP. OF MANCHESTER) AND LOTS 14 & 15, BLOCK 505 (TWP. OF TOMS RIVER) = 1,863,071 S.F. OR 42.770 AC.
AREA OF LOT 4, BLOCK 44 (TWP. OF MANCHESTER) = 73, 215 S.F. OR 1.681 AC.

3. LOCATION OF ALL UNDERGROUND UTILITIES ARE APPROXIMATE. ALL LOCATIONS AND SIZES ARE BASED ON UTILITY MARK-OUTS, ABOVE GROUND STRUCTURES THAT WERE VISIBLE & ACCESSIBLE IN THE FIELD, AND THE MAPS AS LISTED IN THE REFERENCES AVAILABLE AT THE TIME OF THE SURVEY. AVAILABLE ASBUILT PLANS AND UTILITY MARKOUT DOES NOT ENSURE MAPPING OF ALL UNDERGROUND UTILITIES AND STRUCTURES. BEFORE ANY EXCAVATION IS TO BEGIN, ALL UNDERGROUND UTILITIES SHOULD BE VERIFIED AS TO THEIR LOCATION, SIZE AND TYPE BY THE PROPER UTILITY COMPANIES.

4. THIS PLAN IS BASED ON INFORMATION PROVIDED BY A SURVEY PREPARED IN THE FIELD BY CONTROL POINT ASSOCIATES, INC. AND OTHER REFERENCE MATERIAL AS LISTED HEREON.

5. THIS SURVEY IS PREPARED WITH REFERENCE TO A TITLE REPORT FOR LOTS 2, 3, 4 & 5, BLOCK 44 AND LOTS 14 & 15, BLOCK 505, PREPARED BY PRESTIGE TITLE AGENCY, INC. AGENT FOR STEWART TITLE GUARANTY COMPANY, FILE NO. 09PTST-42280, WITH AN EFFECTIVE DATE OF DECEMBER 1, 2011 WHERE THE FOLLOWING SURVEY RELATED EXCEPTIONS APPEAR IN SCHEDULE B, SECTION II.

   (8) EASEMENT(S) AS CONTAINED IN D.B. 3629, PG. 615; D.B. 3639, PG. 352 (AS TO LOTS 2 & 3, BLOCK 44 AND LOT 15, BLOCK 505) – DOES NOT APPEAR TO AFFECT SUBJECT PREMISES – 350' WIDE JCP&L EASEMENT LOCATED SOUTHERLY OF CONRAIL LINE ON LOTS 1, 2 & 3, BLOCK 75.01 MANCHESTER TOWNSHIP.

   (9) SLOPE RIGHTS AND RESTRICTIONS AS TO ACCESS TO AND FROM STATE HIGHWAY 37 AS SET FORTH IN D.B. 4661, PG. 621 (AS TO LOT 2, BLOCK 44) – AFFECTS SUBJECT PREMISES – NO ACCESS LIMITS & SLOPE LINE SHOWN.

   (10) SLOPE RIGHTS AND RESTRICTIONS AS TO ACCESS TO AND FROM STATE HIGHWAY 37 AS SET FORTH IN D.B. 4720, PG. 413 (AS TO LOT 3, BLOCK 44) – AFFECTS SUBJECT PREMISES – SLOPE LINES SHOWN.

   (11) SLOPE RIGHTS AND RESTRICTIONS AS TO ACCESS TO AND FROM STATE HIGHWAY 37 AS SET FORTH IN D.B. 4669, PG. 787 (AS TO LOT 15, BLOCK 505) – AFFECTS SUBJECT PREMISES – NO ACCESS LIMITS & SLOPE LINES SHOWN.

   (12) SUBJECT TO 100'/60' FRONT; 50' REAR; 45' SIDE SETBACK LINES, EASEMENTS AND CONDITIONS AS SHOWN ON FILED MAP ENTITLED "MAP OF TOMS RIVER INDUSTRIAL PARK", FILED 8-25-76, IN THE OFFICE OF THE CLERK OF OCEAN COUNTY AS MAP NO. J-70 (AS TO LOTS 14 & 15, BLOCK 505) – AFFECTS SUBJECT PREMISES – SETBACK LINES – SHOWN.

   (13) EASEMENTS AS CONTAINED IN D.B. 1251, PG. 145; 1817, PG. 279 (AS TO LOT 4, BLOCK 44) – RIGHT OF WAY EASEMENTS TO JCP&L TO ERECT AND MAINTAIN UTILITY POLES OVERHEAD AND GUY WIRES FOR THE DISTRIBUTION OF ELECTRICITY – D.B. 1251, PG. 145 AFFECTS THE NORTHEASTERLY SIDE OF ROUTE 37 AND DOES NOT APPEAR TO AFFECT SUBJECT PARCEL; D.B. 1817, PG. 279 AFFECTS LOT 4, BLOCK 44 FROM UTILITY POLE #631 TO A DISTANCE OF ABOUT 280 FEET IN A WESTERLY DIRECTION, POLE #631 – SHOWN

   (14) DECLARATION OF TAKING IN D.B. 4665, PG. 852 (AS TO LOT 4, BLOCK 44) – AFFECTS SUBJECT PREMISES – SHOWN.

   (15) DECLARATION OF TAKING IN D.B. 4793, PG. 221 (AS TO LOT 4, BLOCK 44) – AFFECTS SUBJECT PREMISES – TAKING PARCEL #82 AND E82/B AFFECTS LOT 4, BLOCK 44 – SHOWN.

   (16) EASEMENTS AS CONTAINED IN D.B. 1517, PG. 76; 1817, PG. 277 (AS TO LOT 5, BLOCK 44) – AFFECTS SUBJECT PREMISES – RIGHT OF WAY EASEMENTS TO JCP&L TO ERECT AND MAINTAIN UTILITY POLES OVERHEAD AND GUY WIRES FOR THE DISTRIBUTION OF ELECTRICITY – AFFECTS LOT 5, BLOCK 44 UTILITY POLES – SHOWN.

   (17) SLOPE RIGHTS OF THE STATE OF NEW JERSEY IN D.B. 4680, PG. 154; D.B. 4799, PG. 597 (AS TO LOT 5, BLOCK 44) – AFFECTS SUBJECT PREMISES – SHOWN.

   (18) EASEMENTS AS CONTAINED IN D.B. 1487, PG. 285 – AFFECTS SUBJECT PREMISES AS TO LOT 4, BLOCK 44 – DEED IS A PRIOR DEED FOR LOT 4, BLOCK 44 – EASEMENTS NOT INDICATED IN DEED.

   (19) EASEMENTS, SLOPE AND DRAINAGE RIGHTS TO THE STATE OF NEW JERSEY AS CONTAINED IN D.B. 12428, PG. 659 – DOCUMENT ALSO CONVEYS PARCEL VX83B TO JAYLIN HOLDINGS, L.L.C. – SHOWN.

   (20) SUBJECT TO THE TERMS AND CONDITIONS AS CONTAINED IN THE STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION PERMIT CONTAINED IN D.B. 12532, PG. 450 – AFFECTS SUBJECT PREMISES AS TO LOTS 2, 3, 4 & 5, BLOCK 44, AND LOTS 14 & 15, BLOCK 505 – BUT IS BLANKET IN NATURE OR IS NOT PLOTTABLE.

   (21) RIGHTS OR EASEMENTS OF OTHERS TO DRAIN THROUGH, OR OTHERWISE USE ANY WATERCOURSES RUNNING ALONG OR THROUGH THE PREMISES DESCRIBED HEREIN – AFFECTS SUBJECT PREMISES – BUT IS BLANKET IN NATURE OR IS NOT PLOTTABLE.

   (22) RIGHTS OF THE STATE OF NEW JERSEY TO REGULATE ACCESS TO AND FROM STATE HIGHWAY 37 – AFFECTS SUBJECT PREMISES AS TO LOTS 2, 3, 4 & 5, BLOCK 44 AND LOT 15, BLOCK 505 – HIGHWAY RIGHT-OF-WAY LINE & ACCESS LIMITS – SHOWN.

   NOTE: CONTROL POINT ASSOCIATES, INC. DID NOT REVIEW TITLE FOR PARCEL VX83B.

6. THE EXISTENCE AND EXTENT OF BASEMENT AREAS WERE UNKNOWN AT THE TIME OF THE FIELD SURVEY.

7. ELEVATIONS ARE BASED UPON NJDOT DATUM PER REF. NO. 5.

8. BY GRAPHIC PLOTTING ONLY, PROPERTY IS LOCATED PREDOMINATELY IN FLOOD HAZARD ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) & PARTIALLY IN FLOOD HAZARD ZONE A (NO BASE FLOOD ELEVATIONS DETERMINED) PER REF. #2.

9. COORDINATES SHOWN ARE BASED UPON NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD 1983.

10. THE PARCELS AS SHOWN ON THIS MAP ARE CONTIGUOUS WITH NO GAPS OR OVERLAPS.

11. THIS SURVEY HAS LINEAR CLOSURE PRECISION OF 1:454,021.

12. PER CONTRACTUAL AGREEMENT WITH THE CLIENT, WETLAND AREAS, IF ANY, HAVE NOT BEEN SHOWN.

13. THERE IS NO OBSERVED EVIDENCE OF CURRENT EARTH MOVING WORK, BUILDING CONSTRUCTION AND BUILDING ADDITION AT THE TIME OF FIELD SURVEY.

14. THERE IS NO OBSERVED EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS.

15. THERE IS NO OBSERVED EVIDENCE OF SITE USE AS SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.

16. CHANGES IN STREET RIGHT OF WAY LINES EITHER COMPLETED OR PROPOSED REVEALED IN THE TITLE REPORT AND REFERENCED MAPS HAVE BEEN SHOWN.

17. 2016 REVISIONS INCLUDE OBTAINING TOPOGRAPHY AND VISIBLE UTILITIES (SEE NOTE 3) ALONG NORTHAMPTON BOULEVARD FROM THE SOUTHEAST CORNER OF LOT 14, BLOCK 505, TO THE NORTHERLY END OF LOT 6, BLOCK 1. TOPOGRAPHY AND VISIBLE UTILITIES WERE ALSO OBTAINED FOR ROUTE 37 FROM THE INTERSECTION OF ROUTE 37 WITH NORTHAMPTON BOULEVARD EXTENDING EAST TO THE END OF LOT 10, BLOCK 472. CONDITIONS ON THE REMAINDER OF THE MAP ARE AS OF JANUARY 2012.

REFERENCES:

1. THE OFFICIAL TAX MAPS OF THE TOWNSHIPS OF MANCHESTER, OCEAN COUNTY, NEW JERSEY, SHEET #8, TOWNSHIP OF TOMS RIVER, OCEAN COUNTY NEW JERSEY, SHEET #54.

2. MAP ENTITLED "NATIONAL FLOOD INSURANCE PROGRAM, FIRM, FLOOD INSURANCE RATE MAP, OCEAN COUNTY, NEW JERSEY (ALL JURISDICTIONS), PANEL 282 OF 611, COMMUNITY-PANEL NUMBER: 345193 0282 F, EFFECTIVE DATE: SEPTEMBER 29, 2006".

3. MAP ENTITLED "NEW JERSEY DEPARTMENT OF TRANSPORTATION, CONSTRUCTION PLAN, ROUTE 37 (1953), SECTION 8G, FROM ROUTE 70 TO GARDEN STATE PARKWAY, DUALIZATION, BOROUGH OF LAKEHURST, TOWNSHIP OF MANCHESTER, TOWNSHIP OF DOVER, COUNTY OF OCEAN", PREPARED BY THE RBA GROUP, DATED 8-24-88, SHEETS 81 TO 84 OF 762.

4. MAP ENTITLED "NEW JERSEY STATE HIGHWAY DEPARTMENT, GENERAL PROPERTY KEY MAP, ROUTE 37, SECTION 3, LAKEHURST TO TOMS RIVER, SHOWING EXISTING RIGHT OF WAY AND PARCELS TO BE ACQUIRED IN THE TOWNSHIPS OF MANCHESTER & DOVER, OCEAN COUNTY", DATED DEC., 1928, FILED IN THE OCEAN COUNTY CLERK'S OFFICE ON DEC. 4, 1930 AS MAP D-334.

5. MAP ENTITLED "NEW JERSEY DEPARTMENT OF TRANSPORTATION, GENERAL PROPERTY PARCEL MAP, ROUTE 37 (1953), SECTION 8, FROM ROUTE 70 TO GARDEN STATE PARKWAY, SHOWING EXISTING RIGHT OF WAY AND PARCELS TO BE ACQUIRED IN THE BOROUGH OF LAKEHURST AND TOWNSHIPS OF MANCHESTER & DOVER, COUNTY OF OCEAN", PREPARED BY THE RBA GROUP, DATED JUNE, 1986, SHEETS 16C TO 19C.

6. MAP ENTITLED "MAP OF TOMS RIVER INDUSTRIAL PARK, SITUATE DOVER TOWNSHIP, OCEAN COUNTY, NEW JERSEY", PREPARED BY T&M ASSOCIATES, INC., DATED JUNE 11, 1975, FILED IN THE OCEAN COUNTY CLERK'S OFFICE ON AUGUST 25, 1976 AS MAP J-70.

7. MAP ENTITLED "RIGHT-OF-WAY AND TRACK MAP, BARNEGAT BRANCH OF THE CENTRAL RAILROAD CO. OF NEW JERSEY, NEW JERSEY SOUTHERN DIVISION. STATION 80+95 TO STATION 130+60", PREPARED BY CARL TOMBO, DATED JUNE 30, 1918, REVISED JUNE 30, 1938.

8. MAP ENTITLED "PROPOSED WAL-MART 195SC (STORE #1844-03), PRELIMINARY, MAJOR SUBDIVISION & FINAL SITE PLAN APPLICATION, N.J.S.H. ROUTE #37 & NORTHAMPTON BOULEVARD, BLOCK 44, LOTS 2, 3, 4 & 5, MANCHESTER TOWNSHIP, BLOCK 505, LOT 14, 15, DOVER TWP., OCEAN COUNTY, NJ" PREPARED BY BOHLER ENGINEERING, P.C. DATED REVISION #3 6/3/2010, SHEET 5 OF 29, PROJ. #J030354.

CONTROL POINT ASSOCIATES, INC.™ ALL RIGHTS RESERVED
THE DRAWING, DESIGN, INFORMATION AND DATA SHOWN HEREON IS THE EXCLUSIVE PROPERTY OF CONTROL POINT ASSOCIATES, INC. (" CPA") AND SHALL NOT BE REPRODUCED, USED OR DISTRIBUTED WITHOUT THE WRITTEN PERMISSION OF CONTROL POINT ASSOCIATES, INC. (" CPA") PROVIDED THAT THIS DRAWING IS USED FOR THE PROFESSIONAL PROJECT OF CPA.

SURVEYOR'S METES AND BOUNDS DESCRIPTION
COMBINED LOTS 2, 3 & LOT 5, BLOCK 44
TOWNSHIP OF MANCHESTER
AND
LOTS 14 & 15, BLOCK 505
TOWNSHIP OF TOMS RIVER
OCEAN COUNTY, STATE OF NEW JERSEY

BEGINNING AT AN IRON BAR FOUND LOCATED AT THE INTERSECTION FORMED BY THE SOUTHWESTERLY LINE OF NEW JERSEY STATE HIGHWAY ROUTE 37 (114 FOOT WIDE RIGHT-OF-WAY), WITH THE DIVIDING LINE BETWEEN LOTS 5 & 6.01, BLOCK 44, TOWNSHIP OF MANCHESTER AND FROM SAID BEGINNING POINT RUNNING, THENCE;

1. ALONG THE AFOREMENTIONED SOUTHWESTERLY LINE OF NEW JERSEY STATE HIGHWAY ROUTE 37, ON A CURVE TO THE RIGHT, HAVING A RADIUS OF 12,443.00 FEET, TURNING A CENTRAL ANGLE OF 00 DEGREES -41 MINUTES -27 SECONDS, AN ARC LENGTH OF 150.00 FEET, THE CHORD OF WHICH BEARS, SOUTH 57 DEGREES -21 MINUTES -05 SECONDS EAST, A CHORD DISTANCE OF 150.00 FEET TO A POINT IN LINE OF THE SAME, THENCE;
2. ALONG THE DIVIDING LINE BETWEEN LOTS 5 & 4, BLOCK 44, SOUTH 32 DEGREES -21 MINUTES -42 SECONDS WEST, A DISTANCE OF 441.58 FEET TO A POINT, THENCE;
3. ALONG THE DIVIDING LINE BETWEEN LOT 2 AND LOT 4, BLOCK 44, NORTH 82 DEGREES -13 MINUTES -16 SECONDS EAST, A DISTANCE OF 272.15 FEET TO A POINT, THENCE;
4. ALONG THE DIVIDING LINE BETWEEN LOTS 3 & 4, BLOCK 44, NORTH 32 DEGREES -17 MINUTES -16 SECONDS EAST, A DISTANCE OF 262.11 FEET TO A POINT LOCATED AT THE INTERSECTION OF THE SAME WITH THE AFOREMENTIONED SOUTHWESTERLY LINE OF NEW JERSEY STATE HIGHWAY ROUTE 37, THENCE;
5. ALONG SAID SOUTHWESTERLY LINE, ON A CURVE TO THE RIGHT, HAVING A RADIUS OF 12,443.00 FEET, TURNING A CENTRAL ANGLE OF 01 DEGREE -04 MINUTES -32 SECONDS, AN ARC LENGTH OF 233.58 FEET, THE CHORD OF WHICH BEARS, SOUTH 55 DEGREES -30 MINUTES -42 SECONDS EAST, A CHORD DISTANCE OF 233.58 FEET TO AN IRON BAR WITH CAP FOUND AT A POINT OF NON-TANGENCY IN LINE OF THE SAME, THENCE;
6. ALONG THE DIVIDING LINE BETWEEN LOT 3, BLOCK 44 AND N.J.D.O.T. TAKING PARCEL # 83, SOUTH 35 DEGREES -01 MINUTE -16 SECONDS WEST, A DISTANCE OF 59.27 FEET TO AN IRON BAR WITH CAP FOUND, THENCE;
7. ALONG THE DIVIDING LINE BETWEEN LOT 2, BLOCK 44 AND N.J.D.O.T. TAKING PARCEL # 83, NORTH 82 DEGREES -13 MINUTES -16 SECONDS EAST, A DISTANCE OF 86.98 FEET TO AN IRON BAR WITH CAP FOUND AT A POINT OF NON-TANGENT CURVATURE IN THE AFOREMENTIONED SOUTHWESTERLY LINE OF NEW JERSEY STATE HIGHWAY ROUTE 37, THENCE;
8. ALONG THE AFOREMENTIONED SOUTHWESTERLY LINE OF NEW JERSEY STATE HIGHWAY ROUTE 37, ON A CURVE TO THE RIGHT, HAVING A RADIUS OF 12,433.00, TURNING A CENTRAL ANGLE OF 00 DEGREES -- 35 MINUTES -- 32 SECONDS, AN ARC LENGTH OF 128.59 FEET, THE CHORD OF WHICH BEARS, SOUTH 54 DEGREES -23 MINUTES -02 SECONDS EAST, A CHORD DISTANCE OF 128.59 FEET TO AN IRON BAR WITH CAP FOUND AT A POINT OF COMPOUND CURVATURE IN THE SAME, THENCE;
9. ALONG A CURVE TO THE RIGHT, CONNECTING THE AFOREMENTIONED SOUTHWESTERLY LINE OF NEW JERSEY STATE HIGHWAY ROUTE 37 AND RAMP "H", HAVING A RADIUS OF 242.00 FEET, TURNING A CENTRAL ANGLE OF 19 DEGREES -47 MINUTES -31 SECONDS, AN ARC LENGTH OF 83.60 FEET, THE CHORD OF WHICH BEARS, SOUTH 33 DEGREES -52 MINUTES -37 SECONDS EAST, A CHORD DISTANCE OF 83.18 FEET TO AN IRON BAR WITH CAP FOUND AT A POINT OF TANGENCY, THENCE;
10. CONTINUING ALONG THE WESTERLY LINE OF RAMP "H", SOUTH 23 DEGREES -58 MINUTES -51 SECONDS EAST, A DISTANCE OF 260.58 FEET TO AN IRON BAR WITH CAP FOUND AT A POINT OF CURVATURE IN THE SAME, THENCE;
11. CONTINUING ALONG SAME, ON A CURVE TO THE LEFT, HAVING A RADIUS OF 70.00 FEET, TURNING A CENTRAL ANGLE OF 41 DEGREES -48 MINUTES -03 SECONDS, AN ARC LENGTH OF 51.07 FEET, THE CHORD OF WHICH BEARS, SOUTH 44 DEGREES -52 MINUTES -53 SECONDS EAST, A CHORD DISTANCE OF 49.94 FEET TO AN IRON BAR WITH CAP FOUND AT A POINT OF REVERSE CURVATURE IN THE SAME, THENCE;
12. ALONG THE SAME, ON A CURVE TO THE RIGHT CONNECTING THE WESTERLY LINE OF RAMP "H" WITH THE WESTERLY LINE OF NORTHAMPTON BOULEVARD (80 FOOT WIDE RIGHT-OF-WAY), HAVING A RADIUS OF 32.00 FEET, TURNING A CENTRAL ANGLE OF 30 DEGREES -12 MINUTES -40 SECONDS, AN ARC LENGTH OF 16.87 FEET, THE CHORD OF WHICH BEARS, SOUTH 50 DEGREES -40 MINUTES -34 SECONDS EAST, A CHORD DISTANCE OF 16.68 FEET TO AN IRON BAR WITH CAP FOUND AT A POINT OF NON-TANGENT CURVATURE IN THE SAME, THENCE;
13. ALONG THE AFOREMENTIONED WESTERLY LINE OF NORTHAMPTON BOULEVARD, ON A CURVE TO THE RIGHT, HAVING A RADIUS OF 960.00 FEET, TURNING A CENTRAL ANGLE OF 16 DEGREES -15 MINUTES -41 SECONDS, AN ARC LENGTH OF 272.46 FEET, THE CHORD OF WHICH BEARS, SOUTH 22 DEGREES -38 MINUTES -02 SECONDS WEST, A CHORD DISTANCE OF 271.55 FEET TO AN IRON BAR WITH CAP FOUND AT A POINT OF TANGENCY IN THE SAME, THENCE;
14. CONTINUING ALONG SAME, SOUTH 30 DEGREES -45 MINUTES -53 SECONDS WEST, A DISTANCE OF 506.75 FEET TO A POINT AT THE INTERSECTION OF THE SAME WITH THE SOUTHERLY LINE OF EXECUTIVE DRIVE (80 FOOT WIDE RIGHT-OF-WAY), THENCE;
15. ALONG THE AFOREMENTIONED SOUTHERLY LINE OF EXECUTIVE DRIVE, SOUTH 59 DEGREES -14 MINUTES -07 SECONDS EAST, A DISTANCE OF 107.00 FEET TO AN IRON BAR WITH CAP FOUND AT A POINT OF NON-TANGENT CURVATURE, THENCE; THE FOLLOWING TWO (2) COURSES ALONG THE DIVIDING LINE BETWEEN LOTS 14 & 8, BLOCK 505 (TOWNSHIP OF TOMS RIVER):
16. ALONG A CURVE TO THE LEFT, HAVING A RADIUS OF 27.00 FEET, TURNING A CENTRAL ANGLE OF 89 DEGREES -59 MINUTES -49 SECONDS, AN ARC LENGTH OF 42.41 FEET, THE CHORD OF WHICH BEARS, SOUTH 75 DEGREES -45 MINUTES -47 SECONDS WEST, A CHORD DISTANCE OF 38.18 FEET TO AN IRON BAR WITH CAP FOUND AT A POINT OF TANGENCY, THENCE;
17. CONTINUING ALONG SAME, SOUTH 30 DEGREES -45 MINUTES -53 SECONDS WEST, A DISTANCE OF 323.00 FEET TO A POINT NEAR A CONCRETE MONUMENT FOUND ALONG THE NORTHEASTERLY LINE OF LOT 1, BLOCK 3000 (TOWNSHIP OF TOMS RIVER), LANDS N/F CONRAIL (A.K.A. CONSOLIDATED RAIL CORP., F.K.A. CENTRAL RAILROAD OF NEW JERSEY, 80 FOOT WIDE RIGHT-OF-WAY), THENCE;
18. ALONG THE DIVIDING LINE BETWEEN LOT 14, BLOCK 505 AND LOT 1, BLOCK 3000 (TOWNSHIP OF TOMS RIVER), LANDS N/F OF CONRAIL, NORTH 59 DEGREES -14 MINUTES -07 SECONDS WEST, A DISTANCE OF 813.31 FEET TO A CONCRETE MONUMENT FOUND IN LINE OF THE SAME, THENCE;
19. FOLLOWING ALONG OR NEAR THE MUNICIPAL BOUNDARY LINE BETWEEN THE TOWNSHIP OF TOMS RIVER AND THE TOWNSHIP OF MANCHESTER, BEING ALSO THE DIVIDING LINE BETWEEN LOT 14, BLOCK 505 (TOWNSHIP OF TOMS RIVER) AND LOT 1, BLOCK 44 (TOWNSHIP OF MANCHESTER), NORTH 43 DEGREES -01 MINUTE -30 SECONDS EAST, A DISTANCE OF 294.38 FEET TO AN IRON BAR WITH CAP FOUND, THENCE;
20. ALONG THE DIVIDING LINE BETWEEN LOTS 2 & 1, BLOCK 44 (TOWNSHIP OF MANCHESTER), SOUTH 81 DEGREES -29 MINUTES -57 SECONDS WEST, A DISTANCE OF 454.52 FEET TO AN IRON BAR FOUND ALONG THE AFOREMENTIONED NORTHEASTERLY LINE OF LOT 1, BLOCK 201, LANDS N/F CONRAIL (80 FOOT WIDE RIGHT-OF-WAY), THENCE;
21. CONTINUING ALONG THE NORTHEASTERLY LINE OF LOT 1, BLOCK 201, LANDS N/F CONRAIL, NORTH 59 DEGREES -14 MINUTES -07 SECONDS WEST, A DISTANCE OF 1,175.33 FEET TO AN IRON BAR WITH CAP FOUND IN LINE OF THE SAME, THENCE;
22. ALONG THE DIVIDING LINE BETWEEN LOTS 2, 9 & 7, BLOCK 44, NORTH 82 DEGREES -13 MINUTES -16 SECONDS EAST, A DISTANCE OF 1,289.60 FEET TO AN IRON BAR WITH CAP FOUND, THENCE;
23. ALONG THE DIVIDING LINE BETWEEN LOTS 5, 7 & 6, BLOCK 44, NORTH 32 DEGREES -21 MINUTES -42 SECONDS EAST, A DISTANCE OF 568.82 FEET TO THE POINT AND PLACE OF BEGINNING.

CONTAINING 1,863,072 SQUARE FEET OR 42.770 ACRES

THIS DESCRIPTION IS WRITTEN WITH REFERENCE TO A TITLE REPORT PREPARED BY PRESTIGE TITLE AGENCY, INC., AGENT FOR STEWART TITLE GUARANTY COMPANY, FILE NO. 09PTST-42280, WITH AN EFFECTIVE DATE OF DECEMBER 1, 2011.

SCHEDULE "A" DESCRIPTION
LOT 2, BLOCK 44
TOWNSHIP OF MANCHESTER
OCEAN COUNTY, STATE OF NEW JERSEY
(TRACT TWO OF D.B. 5352, PG. 829)

BEGINNING AT A CONCRETE MONUMENT MARKING THE POINT OF INTERSECTION OF THE SOUTHWESTERLY SIDELINE OF NEW JERSEY STATE HIGHWAY ROUTE 37 (80 FEET WIDE) AND THE TOWNSHIP LINE BETWEEN THE TOWNSHIPS OF MANCHESTER AND DOVER, SAID POINT BEING DISTANT THE FOLLOWING TWO (2) COURSES FROM THE INTERSECTION OF THE AFOREMENTIONED ROUTE 37 SIDELINE, IF EXTENDED, AND THE WESTERLY SIDELINE OF NORTHAMPTON BOULEVARD (80 FEET WIDE), IF EXTENDED, AS SHOWN ON A MAP ENTITLED "MAP OF TOMS RIVER INDUSTRIAL PARK" FILED IN THE OCEAN COUNTY CLERK'S OFFICE ON AUGUST 25,1976 AS MAP FILE NO. J-70:

A) NORTH 47 DEGREES 33 MINUTES 21 SECONDS WEST A DISTANCE OF 86.98 FEET TO A POINT OF CURVATURE, THENCE
B) IN A WESTERLY DIRECTION ALONG A CURVE BEARING TO THE LEFT HAVING A RADIUS OF 5689.60 FEET, AN ARC LENGTH OF 253.35 FEET TO THE AFOREMENTIONED PLACE OF BEGINNING, AND RUNNING; THENCE
1. SOUTH 48 DEGREES 59 MINUTES 14 SECONDS WEST IN AND ALONG SAID TOWNSHIP LINE, A DISTANCE OF 1092.04 FEET TO A POINT; THENCE
2. SOUTH 87 DEGREES 27 MINUTES 41 SECONDS WEST A DISTANCE OF 454.57 FEET, TO A POINT IN THE NORTHEASTERLY RIGHT OF WAY LINE OF CENTRAL RAILROAD OF NEW JERSEY; THENCE
3. NORTH 53 DEGREES 16 MINUTES 23 SECONDS WEST IN AND ALONG SAID RIGHT OF WAY LINE, A DISTANCE OF 1175.43 FEET TO A POINT; THENCE
4. NORTH 88 DEGREES 11 MINUTES 09 SECONDS EAST A DISTANCE OF 2178.77 FEET TO A POINT IN THE AFOREMENTIONED ROUTE 37 SIDELINE; THENCE
5. IN AN EASTERLY DIRECTION IN AND ALONG SAID SIDELINE ALONG A CURVE BEARING TO THE RIGHT HAVING A RADIUS OF 5689.60 FEET AND AN ARC LENGTH OF 55.14 FEET TO THE POINT AND PLACE OF BEGINNING.

EXCEPTING THEREOUT AND THEREFROM SO MUCH OF THE PREMISES IN QUESTION AS IS DESCRIBED IN THE DECLARATION OF TAKING, STATE OF NEW JERSEY ETC VS. HRK ASSOCIATES, A PARTNERSHIP OF NEW JERSEY, ET AL. RECORDED MAY 11, 1988 IN DEED BOOK 4661, PAGE 621, TITLE TO WHICH PROPERTY THEREBY BECAME VESTED IN THE STATE OF NEW JERSEY.

SCHEDULE "A" DESCRIPTION
LOT 14, BLOCK 505
TOWNSHIP OF TOMS RIVER
OCEAN COUNTY, STATE OF NEW JERSEY
(D.B. 12040, PG. 880)

BEGINNING AT A POINT IN THE WESTERLY LINE OF NORTHAMPTON BOULEVARD, (80.00 FEET WIDE) CORNER TO LOT 1, BLOCK 463, SAID POINT BEING THE FOLLOWING THREE (3) COURSES MEASURED FROM THE SOUTHERLY AND OF A CURVE, HAVING A RADIUS OF 33.0 FEET, CONNECTING THE SOUTHERLY LINE OF NEW JERSEY STATE HIGHWAY ROUTE #37, (90.00 FEET WIDE), WITH THE WESTERLY LINE OF NORTHAMPTON BOULEVARD:

A) ALONG SAID NORTHAMPTON BOULEVARD, SOUTH 13 DEGREES 45 MINUTES 33 SECONDS WEST, 175.69 FEET TO A POINT OF CURVATURE IN SAME, THENCE;
B) STILL ALONG SAID NORTHAMPTON BOULEVARD, ON A CURVE TO THE RIGHT, HAVING A RADIUS OF 960.00 FEET, AN ERC DISTANCE OF 284.93 FEET, CHORD BEARING OF SOUTH 22 DEGREES 15 MINUTES 43 SECONDS WEST, A CHORD DISTANCE OF 283.89 FEET TO A POINT OF TANGENCY IN SAME; THENCE
C) STILL ALONG SAID NORTHAMPTON BOULEVARD, SOUTH 30 DEGREES 45 MINUTES 53 SECONDS WEST, 350.38 FEET TO THE POINT OF BEGINNING; AND FROM SAID BEGINNING POINT RUNNING;

1. ALONG THE WESTERLY LINE OF NORTHAMPTON BOULEVARD, SOUTH 30 DEGREES 45 MINUTES 53 SECONDS WEST, 156.37 FEET TO A POINT IN THE EXTENDED SOUTHERLY LINE OF EXECUTIVE DRIVE, (80.00 FEET WIDE), THENCE;
2. ALONG THE EXTENDED SOUTHERLY LINE OF SAID EXECUTIVE DRIVE, SOUTH 59 DEGREES 14 MINUTES 07 SECONDS EAST, 107.00 FEET TO A POINT IN SAME; THENCE
3. IN A GENERALLY SOUTHWESTERLY DIRECTION, ON A CURVE TO THE LEFT, HAVING A RADIUS OF 27.00 FEET, AN ARC DISTANCE OF 42.41 FEET, A CHORD BEARING SOUTH 75 DEGREES 45 MINUTES 53 SECONDS WEST, CHORD DISTANCE OF 38.18 FEET TO A POINT IN THE EASTERLY LINE OF THE VACATED PORTION OF NORTHAMPTON BOULEVARD; THENCE
4. ALONG SAID LINE OF THE VACATED PORTION OF NORTHAMPTON BOULEVARD, SOUTH 30 DEGREES 45 MINUTES 53 SECONDS WEST, 323.00 FEET TO A POINT IN THE LINE OF LANDS NOW OR FORMERLY OF THE CENTRAL RAILROAD OF NEW JERSEY, THENCE;
5. ALONG SAID RAILROAD, NORTH 59 DEGREES 14 MINUTES 07 SECONDS WEST, 813.31 FEET TO A POINT IN SAME AND IN THE LINE BETWEEN THE TOWNSHIPS OF DOVER AND MANCHESTER; THENCE
6. ALONG SAID MANCHESTER TOWNSHIP LINE, NORTH 43 DEGREES 01 MINUTE 30 SECONDS EAST, 518.19 FEET TO A POINT IN SAME AND CORNER TO LOT 1, BLOCK 463; THENCE
7. ALONG SAID LOT 1, SOUTH 59 DEGREES 14 MINUTES 07 SECONDS EAST, 623.28 FEET TO A PLACE OF BEGINNING.

SUBJECT TO A 50 FEET WIDE GENERAL UTILITY EASEMENT RUNNING IN LENGTH FROM THE NORTHERLY LINE OF THE CENTRAL RAILROAD OF NEW JERSEY, IN A NORTHERLY DIRECTION TO THE EXTENDED SOUTHERLY LINE OF EXECUTIVE DRIVE; AND IN WIDTH FROM THE EASTERLY LINE OF NORTHAMPTON BOULEVARD TO A LINE 50 FEET WEST AND PARALLEL TO THE EASTERLY LINE OF SAID NORTHAMPTON BOULEVARD;

ALSO BEING KNOWN AS LOT 2, BLOCK 463 AND THE VACATED PORTION OF NORTHAMPTON BOULEVARD ON PLAN ENTITLED "MAP OF TOMS RIVER INDUSTRIAL PARK", PREPARED BY T & H ASSOCIATED, INC., DATED JUNE 11, 1975 AND FILED IN THE OCEAN COUNTY CLERK'S OFFICE ON AUGUST 25, 1976 AS FILE J-70.

SCHEDULE "A" DESCRIPTION
LOT 15, BLOCK 505
TOWNSHIP OF TOMS RIVER
OCEAN COUNTY, STATE OF NEW JERSEY
(TRACT ONE OF D.B. 5352, PG. 829)

ALL THAT CERTAIN TRACT, PARCEL AND LOT OF LAND LYING AND BEING SITUATE IN THE TOWNSHIP OF DOVER, COUNTY OF OCEAN, STATE OF NEW JERSEY, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEING KNOWN AND DESIGNATED AS LOT 1 IN BLOCK 463 AS SHOWN ON MAP ENTITLED "MAP OF TOMS RIVER INDUSTRIAL PARK, SITUATE IN DOVER TOWNSHIP, OCEAN COUNTY, NEW JERSEY AND FILED IN THE OCEAN COUNTY CLERK'S OFFICE ON AUGUST 25, 1976 AS MAP NO. J-70.

BEGINNING AT A CONCRETE MONUMENT AT THE NORTHWEST CORNER OF LOT 15, BLOCK 505 (TAX MAP DOVER TOWNSHIP) ON THE SOUTH SIDE OF STATE HIGHWAY NO. 37 (80 FEET WIDE, TAX MAP); THENCE

1. ALONG SAID HIGHWAY ON A CURVE TO THE RIGHT, RADIUS 5,689.60 FEET, ARC LENGTH 253.35 FEET TO A POINT OF TANGENCY; THENCE
2. SOUTH 53 DEGREES 31 MINUTES 05 SECOND

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

January 12, 2018

Greg DiBona, L.L.A.
Bohler Engineering
305 Fellowship Road, Suite 210
Mount Laurel, NJ 08054

Re: Barred Owl
Block 505, Lots 14 and 15
Toms River Township
Block 44, Lots 2, 3, 4, 5 and 9
Manchester Township
Ocean County, New Jersey

Dear Mr. DiBona:

EcolSciences has conducted a habitat impact assessment for the State-threatened Barred Owl (*Strix varia*) on the above-referenced site (Figure 1). NJDEP has recently concluded the wetlands of the site provide "suitable breeding, resting, and/or feeding habitat for Barred Owl" based on a June 2016 sighting of this species within 1/4 mile south of the site. As such, a wetlands transition area of150 feet, indicating wetlands of exceptional resource value, will be observed for the entire site. Additionally, NJDEP asserts the forested uplands of the site also have value as Barred Owl habitat.

This letter addresses the potential impact of a mixed use retail development proposed for the site upon Barred Owl habitat. It is also a supplement to the Coastal Area Facilities Review Act (CAFRA) Statement of Compliance prepared for the proposed development, addressing policies regarding endangered or threatened wildlife or plant species habitats pursuant to the Coastal Zone Management Rules at N.J.A.C. 7:7-9.36.

The most recent NJDEP Landscape Project critical wildlife habitat map (Version 3.3, released in May 2017) has not incorporated the June 2016 Barred Owl sighting, as, according to the map, the site is not valued as Barred Owl habitat. Present mapping (Figure 2) indicates Barred Owl habitat occurs just opposite the Conrail Railroad immediately south of the site. The nearby mapped Barred Owl habitat consists of nearly 16 square miles of contiguous forest bound by Conrail to the north, County Route 2 (Manchester Boulevard) to the west, County Route 530 (Pinewald-Keswick Road) to the south, and the Garden State Parkway to the east (Figure 3). The habitat is valued by three Barred Owl records, most recently documented in 2012.

The site, though it has suitable forested land covers valued by Barred Owl according to Landscape Project methodology, had not been mapped as habitat for this species as 1) there had been no nearby records prior to 2016 and 2) the railroad effectively separated the on-site forest from the mapped forest just to the south. Landscape Project applies a buffer, or occurrence area, of one kilometer radius to Barred Owl records, valuing all intersecting contiguous forested habitats. The on-site forest habitats are less than one kilometer from the June 2016 record, and as such, would now be valued as Barred Owl habitat.

Daniel Brill of EcolSciences conducted a field assessment of the approximately 74-acre site and surrounding area in November 2017. Approximately 67 acres (90%) of the site is forested. The proposed development would occur in the eastern portion of the site along State Highway 37 (Block 44, Lots 3, 4, and 5 and a portion of Lot 2) and Northampton Boulevard (Block 505, Lots 14 and 15), an area mostly

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www.EcolSciences.com

occupied by coniferous-dominant forest. Approximately 19 acres of the on-site forest would be cleared to accommodate the proposed development, leaving ±48 acres or over 70% of the on-site forest preserved post-development. In addition to coniferous forest the site also has deciduous and mixed wooded wetlands, pitch pine lowlands, and Atlantic white cedar wetlands.

Although the on-site forested habitats are essentially connected to a vast area valued by Barred Owl, the site is of limited breeding and foraging utility to this species based on its position in the landscape and forest structure. The site occupies an outer corner of potential Barred Owl habitat bound on three sides by roads and existing development, providing no conductivity to additional forested areas. At about 67 acres, the on-site forest would only include a small fraction (under 10%) of the areal requirement for Barred Owl based on the occurrence area applied in Landscape Project. There is heavy off-road vehicle use in the immediate area. Nearby Conrail and powerline rights-of-way provide main conduits, and there are numerous trails in forested areas both on and off-site.

While the on-site forest could hypothetically host a foraging owl, it is of no discernable significance as potential breeding habitat. Barred Owl is a cavity nester. No cavities were identified on-site that could accommodate Barred Owl. Some maples associated with deciduous wooded wetlands along the Sunken Branch tributary in Block 44, Lot 9 were the only identified hardwoods of significant girth on-site. There are no hardwoods of substantial diameter within the on-site uplands, including the coniferous-dominant forest community making up the majority of the area of proposed development.

In conclusion, the proposed development will not negatively affect Barred Owl nor its habitat. The majority of the on-site forest habitat will be preserved and maintain connectivity to the massive area of Landscape Project-mapped Barred Owl habitat south of the site.

Please contact David Moskowitz or myself if you have any questions or need any further information.

Very truly yours,

EcolSciences, Inc.

Daniel Brill

Daniel Brill
Senior Environmental Scientist

enclosures

cc: William F. Harrison, Esq.
David Moskowitz

0 500 1,000 Feet

FIGURE 1: 2015 AERIAL IMAGERY

Block 505, Lots 14 and 15
Toms River Township
Block 44, Lots 2, 3, 4, 5 and 9
Manchester Township
Ocean County, New Jersey

Source: NJOIT, OGIS. 2016. NJ 2015 High Resolution Orthophotography.

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

Date: 12/6/17

Scale 1:6,000

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0 1,000 2,000 Feet

Approximate site boundary

Barred Owl habitat (Landscape Project 3.3)

Approximate June 2016 Barred Owl occurrence area

FIGURE 2: BARRED OWL HABITAT

Block 505, Lots 14 and 15
Toms River Township
Block 44, Lots 2, 3, 4, 5 and 9
Manchester Township
Ocean County, New Jersey

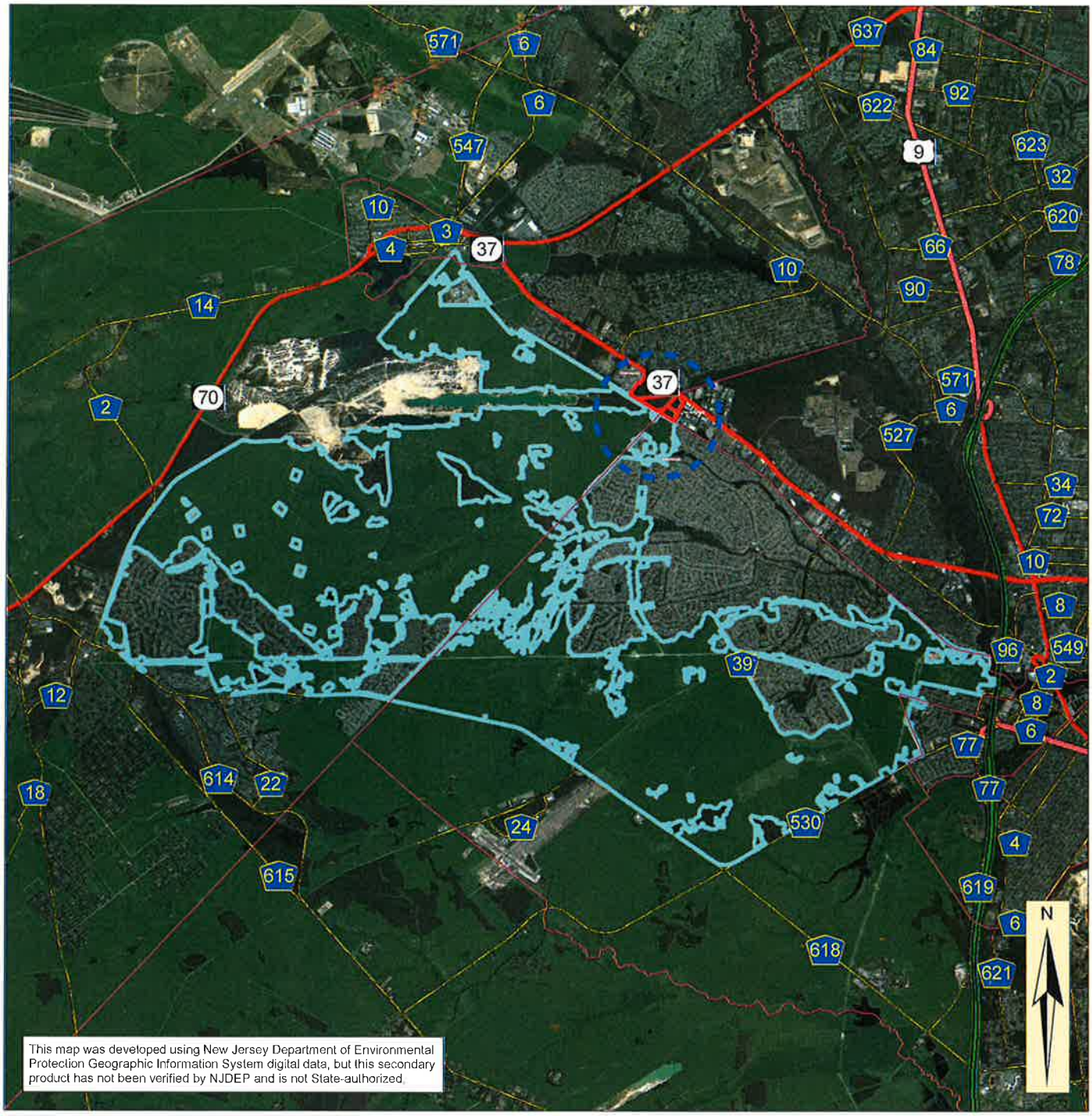
Sources:
NJDEP, DFW, ENSP. 2017. New Jersey's Landscape Project (Version 3.3).
NJOIT, OGIS. 2016. NJ 2015 High Resolution Orthophotography.

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

Date: 12/6/17

Scale 1:12,000

F:\Jobs05\EN05-071\GIS\2017_projects\LP33_BADO.mxd



0 1.5 3 Miles

Approximate site boundary

Approximate June 2016 Barred Owl occurrence area

Local Barred Owl habitat extent (±16 sq. miles)

Barred Owl habitat (Landscape Project 3.3)

FIGURE 3: BARRED OWL HABITAT

Block 505, Lots 14 and 15
Toms River Township
Block 44, Lots 2, 3, 4, 5 and 9
Manchester Township
Ocean County, New Jersey

Sources:
NJDEP, DFW, ENSP. 2017. New Jersey's Landscape Project (Version 3.3).
NJOIT, OGIS. 2016. NJ 2015 High Resolution Orthophotography.

EcolSciences, Inc.
Environmental Management & Regulatory Compliance

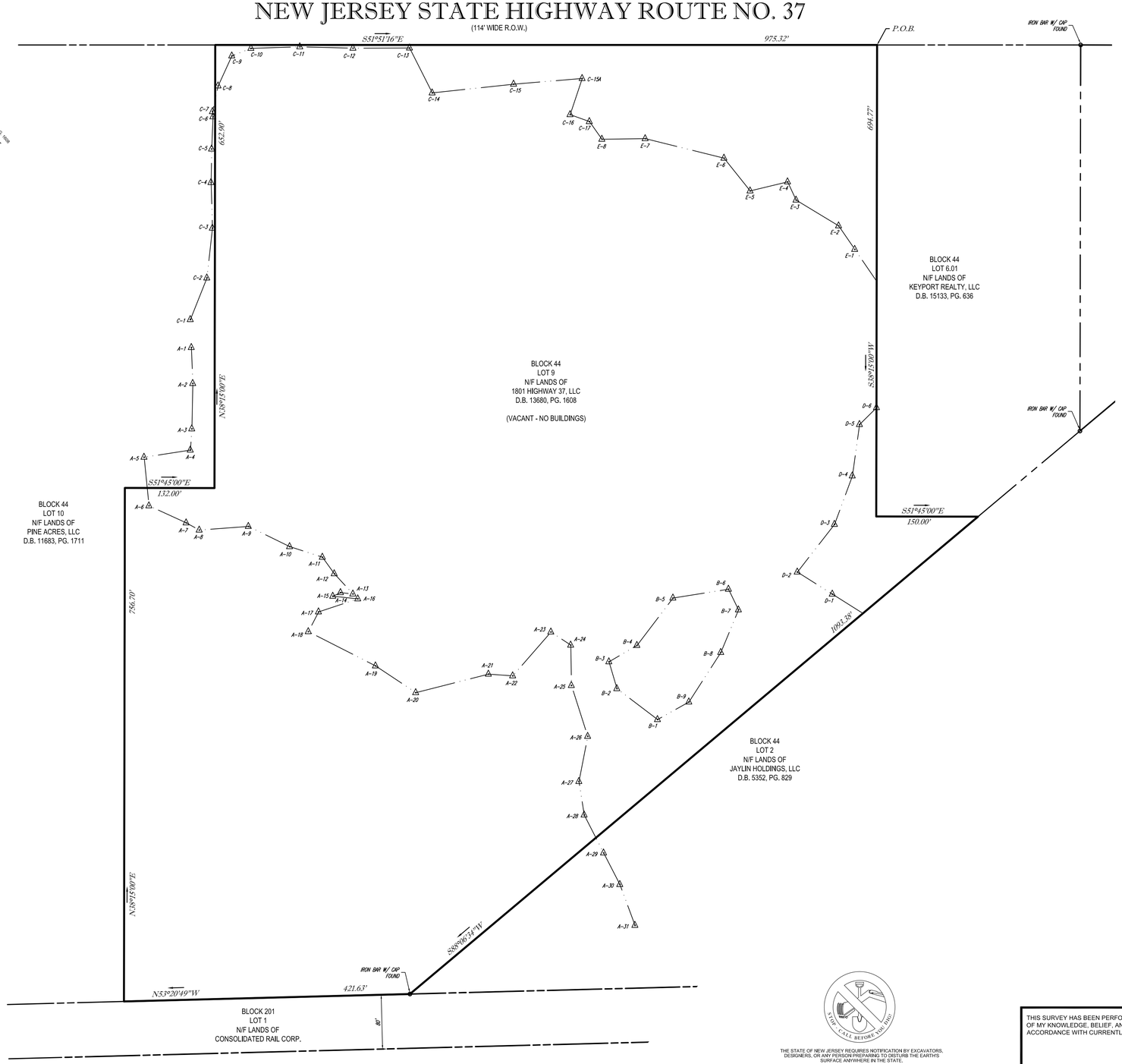
Date: 12/6/17

Scale 1:95,040

F:\Jobs05\EN05-071\GIS\2017_projects\LP33_BADO_region.mxd

NEW JERSEY STATE HIGHWAY ROUTE NO. 37

(114' WIDE R.O.W.)



VICINITY MAP

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NOTES:

1. PROPERTY KNOWN AS LOT 9, BLOCK 44 AS SHOWN ON THE TAX MAP OF THE TOWNSHIP OF MANCHESTER, OCEAN COUNTY, NEW JERSEY.
2. AREA = 1,276,177 S.F. OR 29.297 AC.
3. UNDERGROUND UTILITIES HAVE NOT BEEN SHOWN. BEFORE ANY SITE EVALUATION, PREPARATION OF DESIGN DOCUMENTS OR EXCAVATION IS TO BEGIN, THE LOCATION OF UNDERGROUND UTILITIES SHOULD BE VERIFIED BY THE PROPER UTILITY COMPANIES.
4. THIS PLAN IS BASED ON INFORMATION PROVIDED BY A SURVEY PREPARED IN THE FIELD BY CONTROL POINT ASSOCIATES, INC. AND OTHER REFERENCE MATERIAL AS LISTED HEREON.
5. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND IS SUBJECT TO THE RESTRICTIONS, COVENANTS AND/OR EASEMENTS THAT MAY BE CONTAINED THEREIN.
6. BY GRAPHIC PLOTTING ONLY PROPERTY IS LOCATED IN FLOOD HAZARD ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) PER REF. #2.
7. WETLAND FLAGS WERE PLACE BY BOHLER ENGINEERING AND FIELD LOCATED BY CONTROL POINT ASSOCIATES ON 8-5-2015.
8. WAIVER OF SETTING CORNER MARKERS HAS BEEN OBTAINED FROM THE ULTIMATE USER PURSUANT TO THE BOARD OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS REGULATION, N.J.A.C. 13:40-5.2.

REFERENCES:

1. THE OFFICIAL TAX ASSESSOR'S MAP OF THE TOWNSHIP OF MANCHESTER, OCEAN COUNTY,NEW JERSEY, SHEET #8.
2. MAP ENTITLED "NATIONAL FLOOD INSURANCE PROGRAM, FIRM, FLOOD INSURANCE RATE MAP, OCEAN COUNTY, NEW JERSEY (ALL JURISDICTIONS) PANEL 282 OF 611", COMMUNITY-PANEL NUMBER 340382 0282 F, MAP NYMBER 34029C0282F, EFFECTIVE DATE: SEPTEMBER 29, 2006.
3. MAP ENTITLED "NEW JERSEY DEPARTMENT OF TRANSPORTATION, CONSTRUCTION PLAN, ROUTE 37 (1953), SECTION 8G, FROM ROUTE 70 TO GARDEN STATE PARKWAY, DUALIZATION, BOROUGH OF LAKEHURST, TOWNSHIP OF MANCHESTER, TOWNSHIP OF DOVER, COUNTY OF OCEAN", PREPARED BY THE RBA GROUP, DATED 8-24-88, SHEETS 81 TO 84 OF 762.
4. MAP ENTITLED "NEW JERSEY STATE HIGHWAY DEPARTMENT, GENERAL PROPERTY KEY MAP, ROUTE 37, SECTION 3, LAKEHURST TO TOMS RIVER, SHOWING EXISTING RIGHT OF WAY AND PARCELS TO BE ACQUIRED IN THE TOWNSHIPS OF MANCHESTER & DOVER, OCEAN COUNTY", DATED DEC., 1928, FILED IN THE OCEAN COUNTY CLERK'S OFFICE ON DEC. 4, 1930 AS MAP D-334.
5. MAP ENTITLED "NEW JERSEY DEPARTMENT OF TRANSPORTATION, GENERAL PROPERTY PARCEL MAP, ROUTE 37 (1953), SECTION 8, FROM ROUTE 70 TO GARDEN STATE PARKWAY, SHOWING EXISTING RIGHT OF WAY AND PARCELS TO BE ACQUIRED IN THE BOROUGH OF LAKEHURST AND TOWNSHIPS OF MANCHESTER & DOVER, COUNTY OF OCEAN", PREPARED BY THE RBA GROUP, DATED JUNE, 1986, SHEETS 16C TO 19C.
6. MAP ENTITLED "MAP OF TOMS RIVER INDUSTRIAL PARK, SITUATE DOVER TOWNSHIP, OCEAN COUNTY, NEW JERSEY", PREPARED BY T&M ASSOCIATES, INC., DATED JUNE 11, 1975, FILED IN THE OCEAN COUNTY CLERK'S OFFICE ON AUGUST 25, 1976 AS MAP J-70.
7. MAP ENTITLED "RIGHT-OF-WAY AND TRACK MAP, BARNEGAT BRANCH OF THE CENTRAL RAILROAD CO. OF NEW JERSEY, NEW JERSEY SOUTHERN DIVISION, STATION 80+95 TO STATION 130+60", PREPARED BY CARL TOMBO, DATED JUNE 30, 1918, REVISED JUNE 30, 1938.
8. MAP ENTITLED "ALTA/ACSM LAND TITLE SURVEY, JAYLIN HOLDINGS, LLC, NEW JERSEY STATE HIGHWAY ROUTE 37 & NORTHAMPTON BOULEVARD, LOTS 2, 3, 5 & PARCEL VX83B, BLOCK 44, TOWNSHIP OF MANCHESTER, LOTS 14 & 15, BLOCK 505, TOWNSHIP OF TOMS RIVER, OCEAN COUNTY, STATE OF NEW JERSEY" PREPARED BY CONTROL POINT ASSOCIATES, INC., LAST REVISED NOV. 29, 2017.

LEGEND

A-1 △ DELINEATION FLAG

CONTROL POINT ASSOCIATES, INC. ALL RIGHTS RESERVED.
THE CONTROL POINT ASSOCIATES, INC. DOCUMENT, WHETHER PHYSICAL OR ELECTRONIC, IS THE ORIGINAL PROJECT OR THE PURPOSE ORIGINALLY INTENDED, WITHOUT THE WRITTEN PERMISSION OF CONTROL POINT ASSOCIATES, INC. IS PROHIBITED.

No.	DESCRIPTION OF REVISION	FIELD CREW	DRAWN	APPROVED:	DATE
2	REVISED PER UPDATED REFERENCE NO. 8	N/A	M.T.B.	J.A.C.	11-29-2017
1	REVISED WETLAND FLAGS BASED ON FIELD UPDATE	K.R.	W.P.B.	P.J.	03-17-2016

THE STATE OF NEW JERSEY REQUIRES NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE.

GRAPHIC SCALE

80 0 40 80 160 320

(IN FEET)
1 inch = 80 ft.

THIS SURVEY HAS BEEN PERFORMED IN THE FIELD UNDER MY SUPERVISION, AND TO THE BEST OF MY KNOWLEDGE, BELIEF, AND INFORMATION, THIS SURVEY HAS BEEN PERFORMED IN ACCORDANCE WITH CURRENTLY ACCEPTED ACCURACY STANDARDS.

NOT A VALID ORIGINAL DOCUMENT UNLESS EMBOSSED WITH RAISED IMPRESSION SEAL

11-29-2017
DATE

JAMES A. CONWAY JR.
NEW JERSEY PROFESSIONAL LAND SURVEYOR #24GS04323500
NEW JERSEY CERTIFICATE OF AUTHORIZATION #24GA27938600

FIELD DATE	8-5-2015
FIELD BOOK NO.	15-21
FIELD BOOK PG.	94
FIELD CREW	BB JR./RC
DRAWN:	E.S.E.

BOUNDARY & WETLAND LOCATION SURVEY

LOT 9, BLOCK 44

1801 NJSH ROUTE 37
TOWNSHIP OF MANCHESTER
OCEAN COUNTY, NEW JERSEY

CONTROL POINT ASSOCIATES, INC.
305 FELLOWSHIP ROAD - SUITE 210
MT. LAUREL, NJ 08054
609.857.2099 → 908.668.9595 FAX
MANHATTAN, NY 646.780.0411
WARREN, NJ 908.668.0099
CHALFONT, PA 215.712.9800
SOUTHBOROUGH, MA 508.948.3000

REVIEWED:	APPROVED:	DATE	SCALE	FILE NO.	DWG. NO.
P.J.	J.C.W.	8-6-2015	1"=80'	B01-040065	1 OF 1

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF LAND USE REGULATION

CAFRA
INDIVIDUAL PERMIT APPLICATION
for

Proposed Retail Development
N.J.S.H. Route 37 and Northampton Boulevard

Block 44, Lots 2, 3, 5 and 9
Block 75.01, Lot 3
Township of Manchester
Block 505, Lots 14 and 15
Toms River Township
Ocean County, New Jersey

Prepared for:

Jaylin Holdings, LLC
c/o Grunin Properties
Dover Esplanade Building 1
1027 Hooper Avenue
Toms River, New Jersey 08753

Prepared by:

BOHLER
ENGINEERING

10000 Midlantic Drive, Suite 410W
Mount Laurel, New Jersey 08054
856-930-4000

December 2017
Last Revised June 2019
BENJ #JM170508

State of New Jersey
Department of Environmental Protection

Revised: April 15, 2019 **Website: www.nj.gov/dep/landuse**

COASTAL ZONE MANAGEMENT APPLICATION CHECKLIST

CAFRA Individual Permit

CALL NJDEP AT (609) 777-0454 IF YOU HAVE ANY QUESTIONS

To apply for a CAFRA individual permit, please submit the information below to:

Postal Mailing Address	Street Address (Courier & Hand Carry Only)	Electronic Submission
NJ Department of Environmental Protection Division of Land Use Regulation P.O. Box 420, Code 501-02A Trenton, New Jersey 08625-0420 **Attn: Application Support**	NJ Department of Environmental Protection Division of Land Use Regulation 501 East State Street Station Plaza 5, 2nd Floor Trenton, New Jersey 08609 **Attn: Application Support**	Access the submission system at https://njdeponline.com. Follow the registration process and create an account. To submit an application, select the service "Apply for a Land Use Permit or Authorization."

CALL NJDEP AT (609) 777-0454 IF YOU HAVE ANY QUESTIONS

1. A completed application form (Paper submissions ONLY)

2. A completed Property Owner Certification form (Electronic submissions ONLY)
   - Acceptable file formats include pdf, jpg, and png.

3. Public notice:
   - **Electronic Submissions:** A completed Public Notice form. Documentation that notice of the application has been provided in accordance with N.J.A.C. 7:7-24 must be attached to the form (see below for details). Acceptable file formats include pdf, jpg, and png.
   - **Paper Submissions:** Documentation that notice of the application has been provided in accordance with N.J.A.C. 7:7-24 (see below for details).

Both electronic and paper submissions require documentation of public notice as follows:

i. Notice to municipal clerk (N.J.A.C. 7:7-24.3(a))

A copy of the entire application, as submitted to the Department, must be provided to the municipal clerk in each municipality in which the site is located. For electronic submissions, the application consists of a description of the project, the specific permit(s)/authorization(s) being sought, and all items that will be uploaded to the online service, including all required items on this checklist.

- Documentation of compliance with this requirement shall consist of a copy of the certified United States Postal Service white mailing receipt, or other written receipt, for each copy of the application sent.

ii. Notice to governmental entities and property owners (N.J.A.C. 7:7-24.3(b) and (c))

A brief description of the proposed project, a legible copy of the site plan, and the form notice letter described at N.J.A.C. 7:7-24.3(d)1iii must be sent to the following recipients:

A. The construction official of each municipality in which the site is located;
B. The environmental commission, or other government agency with similar responsibilities, of each municipality in which the site is located;
C. The planning board of each municipality in which the site is located;
D. The planning board of each county in which the site is located;
E. The local Soil Conservation District if the regulated activity or project will disturb 5,000 square feet or more of land;
F. The Delaware Coastal Management Program if the activity is within the 12-mile circle with Delaware or is within 200 feet of the 12-mile circle; and
G. Adjacent property owners:

If the application is for one of the following projects (listed at N.J.A.C 7:7-24.3(c)1-5), notice shall be sent to all owners of real property, including easements, located within 200 feet of any proposed above-ground structure that is part of the proposed development, such as a pumping station, treatment plant, groin, bulkhead, revetment or gabion, or dune walkover:

- A linear project of one-half mile or longer
- A shore protection development, including beach nourishment, beach and dune maintenance, or dune creation of one-half mile or longer
- A public project on a site of 50 acres or more
- An industrial or commercial project on a site of 100 acres or more
- Maintenance dredging of a State navigation channel of one-half mile or longer

For any other project, notice shall be sent to all owners of real property, including easements, located within 200 feet of the site of the proposed regulated activity.

The owners of real property, including easements, shall be those on a list that was certified by the municipality, with a date of certification no more than one year prior to the date the application is submitted.

- Documentation of compliance with this requirement shall consist of:

1. A copy of the certified United States Postal Service white mailing receipt for each public notice that was mailed, or other written receipt;
2. A certified list of all owners of real property, including easements, located within 200 feet of the property boundary of the site (including name, mailing address, lot, and block) prepared by the municipality for each municipality in which the project is located. The date of certification of the list shall be no earlier than one year prior to the date the application is submitted to the Department; and
3. A copy of the form notice letter.

- The form notice letter required under N.J.A.C. 7:7-24.3(d)1iii shall read as follows:

"This letter is to provide you with legal notification that an application for a CAFRA individual permit <<has been/will be>> submitted to the New Jersey Department of Environmental Protection, Division of Land Use Regulation for the development shown on the enclosed plan(s). A brief description of the proposed project follows: <<INSERT DESCRIPTION OF THE PROPOSED PROJECT>>

The complete permit application package can be reviewed at either the municipal clerk's office in the municipality in which the site subject to the application is located, or by appointment at the

Department's Trenton Office. Either a 30-day public comment period or public hearing will be held on the application in the future. Individuals may request a public hearing on the application within 15 calendar days of the date of receiving this letter. Requests for a public hearing shall be sent to the Department at the address below and shall state the specific nature of the issues to be raised at the hearing:

New Jersey Department of Environmental Protection
Division of Land Use Regulation
P.O. Box 420, Code 501-02A
Trenton, New Jersey 08625
Attn: (Municipality in which the property is located) Supervisor"

iii. Newspaper notice (N.J.A.C. 7:7-24.5)

Newspaper notice, in the form of a legal notice or display advertisement in the official newspaper of the municipality(ies) in which the project site is located, or if no official newspaper exists, in a newspaper with general circulation in the municipality(ies), is required to be published **within 10 days of submitting your application.**

- If newspaper notice is published prior to submitting your application, include documentation with the application. If published after the application is submitted, submit documentation to the Department when the notice is published. Documentation of newspaper notice shall consist of:

  1. A copy of the published newspaper notice; and

  2. The date and name of the newspaper in which notice was published.

- The newspaper notice may be either a legal notice or display advertisement and must read as follows:

  "Take notice that an application for a CAFRA individual permit<<has been/will be>> submitted to the New Jersey Department of Environmental Protection, Division of Land Use Regulation for the development described below:

  APPLICANT:

  PROJECT NAME:

  PROJECT DESCRIPTION:

  PROJECT STREET ADDRESS:

  BLOCK: LOT:

  MUNICIPALITY: COUNTY:

  The complete permit application package can be reviewed at either the municipal clerk's office in the municipality in which the site subject to the application is located, or by appointment at the Department's Trenton Office. Either a 30-day public comment period or public hearing will be held on the application in the future. Individuals may request a public hearing on the application within 15 calendar days of the date of this notice. Requests for a public hearing shall be sent to the Department at the address below and shall state the specific nature of the issues to be raised at the hearing:

New Jersey Department of Environmental Protection
Division of Land Use Regulation
P.O. Box 420, Code 501-02A
501 East State Street

Trenton, New Jersey 08625
Attn: (Municipality in which the property is located) Supervisor"

iv. Notice for projects located in the Pinelands Area

For a project in the Pinelands Area as designated by as designated under the Pinelands Protection Act at N.J.S.A. 13:18A-11(a), documentation showing that a copy of the entire application has been provided to the New Jersey Pinelands Commission. For electronic submissions, the application consists of a description of the project, the specific permit(s)/authorization(s) being sought, and all items that will be uploaded to the online service, including all required items on this checklist.

Note that additional notice is required for the public comment period and, as applicable, public hearing, scheduled by the Department under N.J.A.C. 7:7-26.4 and 26.5, during the Department's review of the application.

4. Application fees:

- **Electronic Submissions:** The appropriate application fee, as specified in N.J.A.C. 7:7-25.1, payable through the online service via credit card or e-check, or to receive a bill, select "Bill Me" on the payment screen. Bills will be sent to the Fee Billing Contact identified in the service and must be paid directly to the Department of Treasury.

- **Paper Submissions:** The appropriate application fee, as specified in N.J.A.C. 7:7-25.1, in the form of a check (personal, bank, certified, or attorney), money order, or government purchase order made payable to "Treasurer State of New Jersey."

5. Site plans:

All site plans must include the scale of the site plans, a north arrow, the name of the person who prepared the plans, date the site plans were prepared, and the applicant's name and the block, lot, and municipality in which the site is located. In addition, the site plans shall include the following information, both on and adjacent to the site:

i. Existing features such as lot lines, structures, land coverage, and vegetation;

ii. All proposed regulated activities such as changes in lot lines; the size, location, and details of any proposed structures, roads, or utilities; details of any clearing, grading, filling, and excavation; the location and area of any riparian zone vegetation that will be disturbed; cross-sections of regulated waters or water control structures being analyzed; and the anticipated limits of disturbance;

iii. Topography:

A. Existing and proposed topography where necessary to demonstrate that the proposed regulated activity or project meets the requirements of this chapter. All topography must reference NGVD or include the appropriate conversion factor to NGVD.

iv. Tidelands:

A. The limits of any existing or proposed tidelands instrument;

v. Soil erosion and sediment control:

A. Details of any proposed soil erosion and sediment control measures.

vi. Water information:

A. For all applications, as applicable: The mean high, mean low, and spring high water lines of any tidal waters, water depths, and location of navigation channels.

B. Where the regulated activity is the construction of a dock, pier, or mooring area, the site plan must show the location and orientation of the proposed mooring area(s), the water depths at mean low water within the mooring area(s), and cross sections of the dock including the height

and width of the structure over the water and crossing wetlands. Except for docks proposed within lagoons, the site plan must also depict water depths at mean low water for a distance of at least 100 feet waterward of the dock. The site plan must include the method, date, and time of all soundings;

C. For dredging activities, the area to be dredged, existing and proposed water depths at mean low water, the water depths at mean low water adjacent to the area to be dredged, the amount of material to be dredged, the method of dredging, the location of the dredged material dewatering and placement site, including the municipal block and lot, and the means of containing the dredged material;

vii. The upper and lower limits of all special areas, as described at N.J.A.C. 7:7-9. For the purposes of this requirement, "upper" refers to the upland or landward limit and "lower" refers to the waterward limit of the special area; and

viii. The location of any existing or proposed public access to lands and waters subject to public trust rights as set forth at N.J.A.C. 7:7-9.48.

- **Electronic Submissions:** Acceptable file formats include pdf and zip. Site plans must be certified in accordance with N.J.A.C. 7:7-23.2(j) and prepared according to the Department's site plan specifications for electronic site plans. All plans must be digitally signed and sealed by a New Jersey licensed professional engineer, surveyor, or architect, as appropriate, pursuant to N.J.A.C. 13:40-7.2 through 7.4, with signatures and seals that meet the requirements of N.J.A.C. 13:40-8.1A. Site plans with electronic signatures, such as scans of site plans with a handwritten signature, will not be accepted.

- **Paper Submissions:** Three sets of site plans, certified in accordance with N.J.A.C. 7:7-23.2(j). Prior to issuance of any permit, the Department will require four to five sets of final site plans. The site plans must be signed and sealed by a New Jersey licensed professional engineer, surveyor, or architect, as appropriate, pursuant to N.J.A.C. 13:40-7.2 through 7.4.

NOTE: In accordance with N.J.A.C. 7:7-23.3(h), an applicant may elect to prepare his or her own plan if both of the following are true: (1) the applicant proposes an activity in a man-made lagoon, or the applicant proposes the construction of a single-family home or duplex or an accessory development located landward of the mean high water line, such as a patio, garage, or shed on his or her own property for his or her own use, and (2) the proposed regulated activity or project is one for which no survey, topography, or calculations are necessary to demonstrate the requirements of N.J.A.C. 7:7 are met.

6. Photographs:

   i. Color photographs depicting the entire project area; and

   ii. A photo location map showing the location and direction from which each photograph was taken.

- **Electronic Submissions:** Acceptable file formats include pdf, doc, docx, jpg, zip, ppt, and pptx.

- **Paper Submissions:** One set of photographs mounted on 8½-inch by 11-inch paper. Copies of photographs are acceptable provided they are color copies. Black and white copies of photographs are not acceptable.

7. An Environmental Impact Statement (EIS) prepared in accordance with N.J.A.C. 7:7-23.6(b) that:

   i. Describes in narrative form:

      A. The proposed development or activity;

      B. The characteristics of the site and the surrounding region; and

      C. The location of all proposed regulated activities, potential impacts from the construction process, and, as applicable the operation of the development after completion; and

D. Any anticipated impacts of the proposed activity or project, including any monitoring or reporting methods that will be used.

- For an application for an individual permit for the construction of wind turbines for which, in accordance with the energy facility use rule at N.J.A.C. 7:7-15.4, pre- and/or post-construction monitoring is required, include the proposed monitoring methodology (see Technical Manual for Evaluating Wildlife Impacts of Wind Turbines Requiring Coastal Permits, available at https://www.nj.gov/dep/landuse/guidance.html).

ii. Discusses the applicability of the Coastal Zone Management rules to the proposed development, including a detailed statement of compliance with each rule applicable to the type of development proposed. Where the applicant believes a rule otherwise applicable to the type of development proposed does not apply, the applicant shall explain the reasons why the rule does not apply to the applicant's development;

iii. Demonstrates that the findings set forth in CAFRA at N.J.S.A. 13:19-10, and at N.J.A.C. 7:7-1.4, which must be addressed in order for the Department to issue the approval, can be made for the proposed development;

iv. As necessary based on project-specific and site-specific circumstances, provides support by relevant experts for the assessments, discussions, and statements made in the EIS; includes the qualifications of the persons who prepared each part of the EIS; and provides references and citations to all information, reports, or treatises that are mentioned in the EIS but not contained in the EIS; and

v. For an activity or project in the Pinelands Area as designated under the Pinelands Protection Act at N.J.S.A. 13:18A-11(a), incudes a Certificate of Filing, a Certificate of Completeness, or a resolution approving an application for public development, issued by the NJ Pinelands Commission.

- **Electronic Submissions:** The EIS should be uploaded under the attachment type "Environmental Report with Site Location Maps." Acceptable file formats include pdf, doc, docx, rtf, and zip.

- **Paper Submissions:** Three copies of the EIS are required.

8. Color copies of the following maps:

   i. The tax map for the property;

   ii. A copy of the portion of the county road map showing the property location; and

   iii. A copy of the USGS quad map(s) that include the site, with the site clearly outlined to scale.

- **Electronic Submissions:** The required maps should be uploaded with the compliance statement under the attachment type "Environmental Report with Site Location Maps." Acceptable file formats include pdf, doc, docx, rtf, and zip.

9. Calculations and analyses:

   i. If the project is a major development as defined by N.J.A.C. 7:8-1.2, a demonstration of compliance with the requirements of the Stormwater Management Rules, N.J.A.C. 7:8.

All calculations or analyses submitted as part of an application must include the certification set forth at N.J.A.C. 7:7-23.2(j). Any necessary stormwater calculations must be signed and sealed by a New Jersey licensed professional engineer.

- **Electronic Submissions:** Acceptable file formats include pdf, doc, docx, rtf, and zip unless stormwater calculations are necessary. Stormwater calculations must be digitally signed and sealed in accordance with N.J.A.C. 13:40-8.1A. Stormwater calculations with electronic signatures, such as scans of calculations with a handwritten signature, will not be accepted. Therefore, when calculations are necessary, the acceptable file formats are limited to pdf and zip.

10. Natural Heritage Program Letter:

A copy of an NJDEP, Office of Natural Lands Management Natural Heritage Database data request response for endangered or threatened species of flora or fauna, including a Landscape Map report, if available

- **Electronic Submissions:** Acceptable file formats include pdf, jpg, and png.

11. Mitigation:

For an activity that requires mitigation in accordance with N.J.A.C. 7:7, the applicant may submit a mitigation proposal as part of the application for the individual permit. If the applicant does not submit a mitigation proposal with the application, the applicant must submit the mitigation proposal at least 90 calendar days before the start of activities authorized by the permit, in accordance with N.J.A.C. 7:7-17.

- **Electronic Submissions:** If a mitigation proposal is available at the time of submission, the service will provide an attachment type for "Mitigation Proposal." Alternatively, it may be uploaded separately at a later time through the service "Submit Additional Information for a Land Use Permit or Authorization." Acceptable file formats include pdf, doc, docx, rtf, and zip.

12. Additional requirements:

i. Conservation restriction – applies only if the proposed project is subject to an existing conservation restriction

- **Electronic Submissions:** Acceptable file formats include pdf, jpg, and png.

ii. Tidelands license application or documentation – applies only if the proposed project is below the mean high water line or in an area formerly flowed by the tide. Documentation of compliance with the tidelands requirements may include one of the following:

A. Information regarding the existing Tidelands instrument

B. Information regarding an intended submission to the Bureau of Tidelands Management for a Tidelands instrument

C. An explanation regarding why a Tidelands instrument is not required for the project

- **Electronic Submissions:** Acceptable file formats include pdf, doc, docx, rtf, jpg, and png.

iii. Sewer/water authority letter – applies only if the project will require public sewer and or water. The letter should provide details regarding the availability of public water and sewer to service the project, which may include, but is not limited to, the following:

A. Information about the required water and/or sewer demand for the project

B. The available water and/or sewer capacity of the utility provider

C. Information regarding consistency with the applicable Water Quality Management Plan to demonstrate compliance with Section 10 of CAFRA

- **Electronic Submissions:** Acceptable file formats include pdf, jpg, and png.

iv. Written consent from municipality – applies only if the project includes a gas pipeline and any section of that pipeline is located within a municipally-owned right-of-way. Written consent shall consist of one of the following:

A. Written consent from the municipality in the form of a resolution of the governing body or an ordinance

B. A municipal designation of the route pursuant to N.J.S.A. 48:9-25.4

C. A Board of Public Utilities designation of route pursuant to N.J.S.A. 48:9-25.4

- **Electronic Submissions:** Acceptable file formats include pdf, jpg, and png.

v. Traffic impact study – applies only if the proposed project will have the potential to result in the operation of any roadway in excess of Level of Service (LOS) D

- **Electronic Submissions:** Acceptable file formats include pdf, doc, docx, rtf, and zip.

vi. A completed Impervious Cover and Vegetative Cover Calculations Spreadsheet Form – applies only if the proposed project is subject to compliance with the impervious and vegetative cover requirements at N.J.A.C. 7:7-13

- **Electronic Submissions:** Acceptable file formats include pdf, xls, and xlsx.

13. A computer disk containing a copy of the entire application (Paper submissions ONLY)

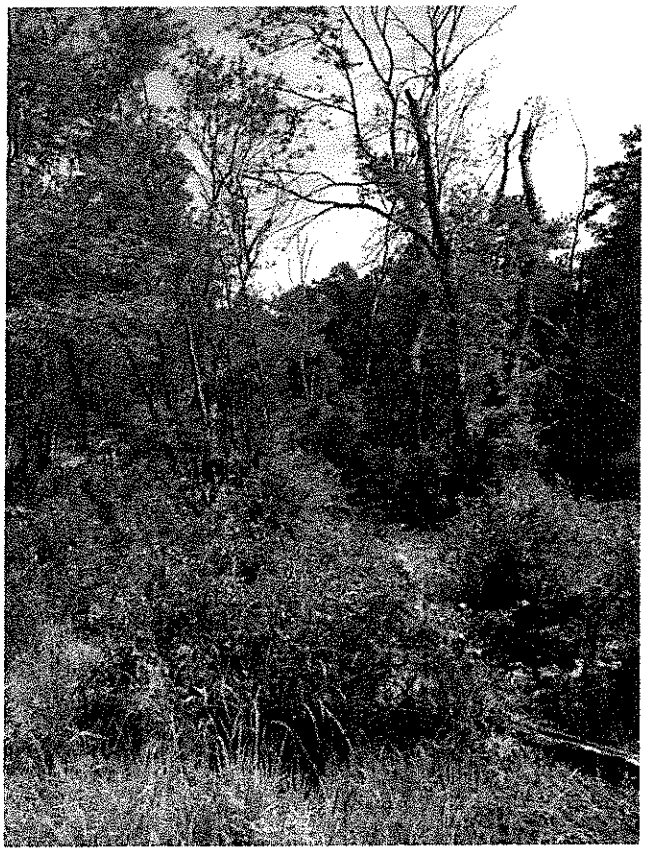


Photo 1

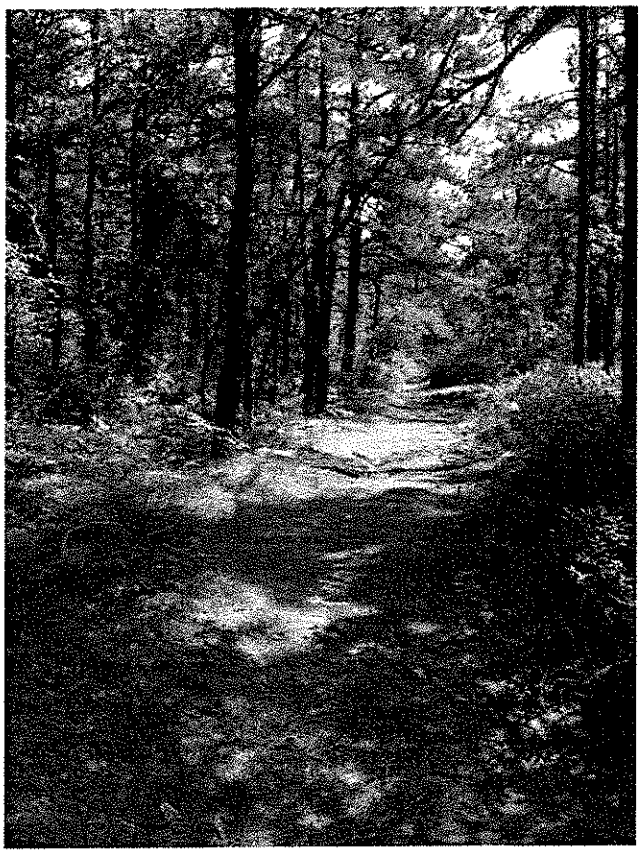


Photo 2

Grunin Properties

Block 505/44, Lots 14 & 15/2, 3, 5, 9	Toms River and Manchester, Ocean County, NJ
BENJ #JM170508	BOHLER ENGINEERING
Prepared by: MM	Date: 4/8/2016
Checked by: GD	Scale: NTS

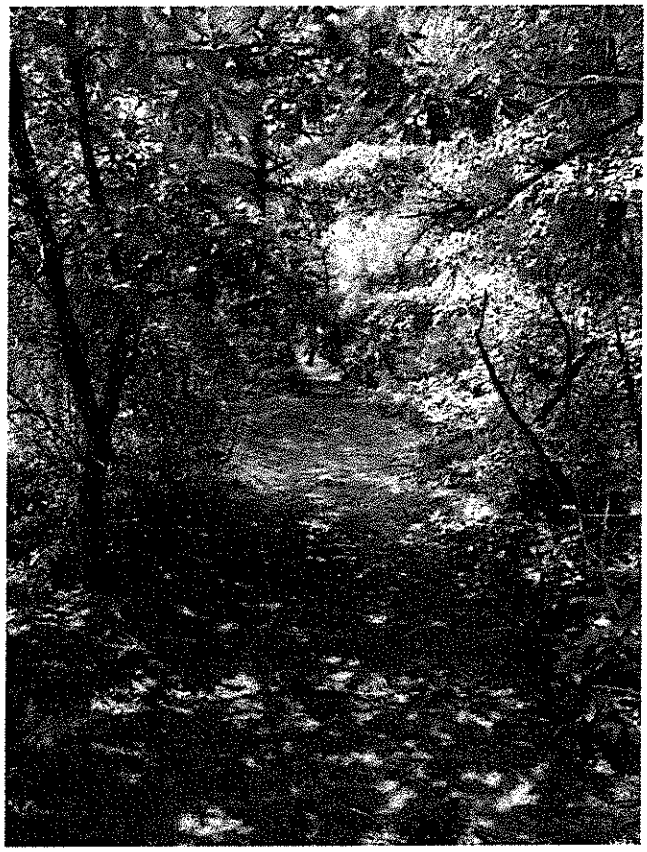
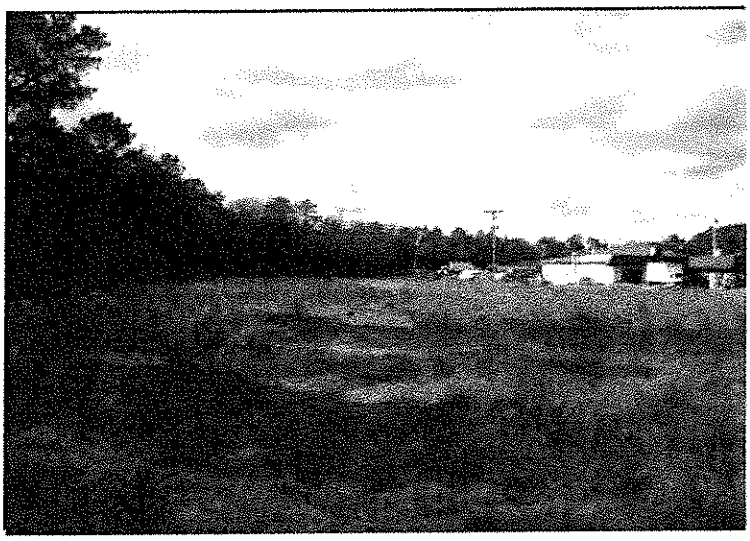


Photo 3

Photo 4

Grunin Properties

Block 505/44, Lots 14 & 15/2, 3, 5, 9	**Toms River and Manchester, Ocean County, NJ**
BENJ #JM170508	BOHLER ENGINEERING
Prepared by: MM	Date: 4/8/2016
Checked by: GD	Scale: NTS



5. NORTHWESTERN PORTION OF SITE (LOT 5); VIEW TO THE SOUTH.

6. NORTHERN PORTION OF SITE (LOT 2); VIEW TO THE SOUTHEAST.

7. UNPAVED PATHWAY IN EASTERN PORTION OF SITE; VIEW TO THE WEST

8. SOUTHERN PORTION OF LOT 4; VIEW TO THE SOUTHWEST.

9. OUT-OF-SERVICE POTABLE WELL LOCATED ON LOT 3.

10. SOUTHERN PROPERTY BOUNDARY; VIEW TO THE WEST.

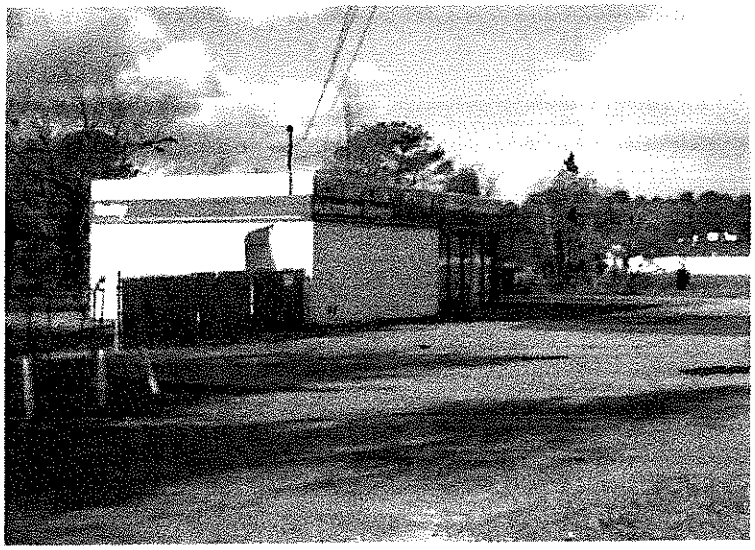
11. SOUTHEASTERN PORTION OF SITE (LOT 14); VIEW TO THE NORTH. NOTE MISCELLANEOUS DEBRIS.

12. SOUTHWESTERN PORTION OF SITE (LOT 2); VIEW TO THE NORTH.

13. WETLAND AREAS LOCATED IN SOUTHWESTERN PORTION OF THE SITE (LOT 2).

14. WETLAND AREA LOCATED IN SOUTHERN PORTION OF SITE (LOT 14).

15. ABANDONED GROUNDWATER MONITOR WELLS LOCATED ON LOT 2.



16. ABANDONED GETTY GASOLINE STATION LOCATED ON LOT 4 (ADJOINING); VIEW TO THE SOUTHWEST.

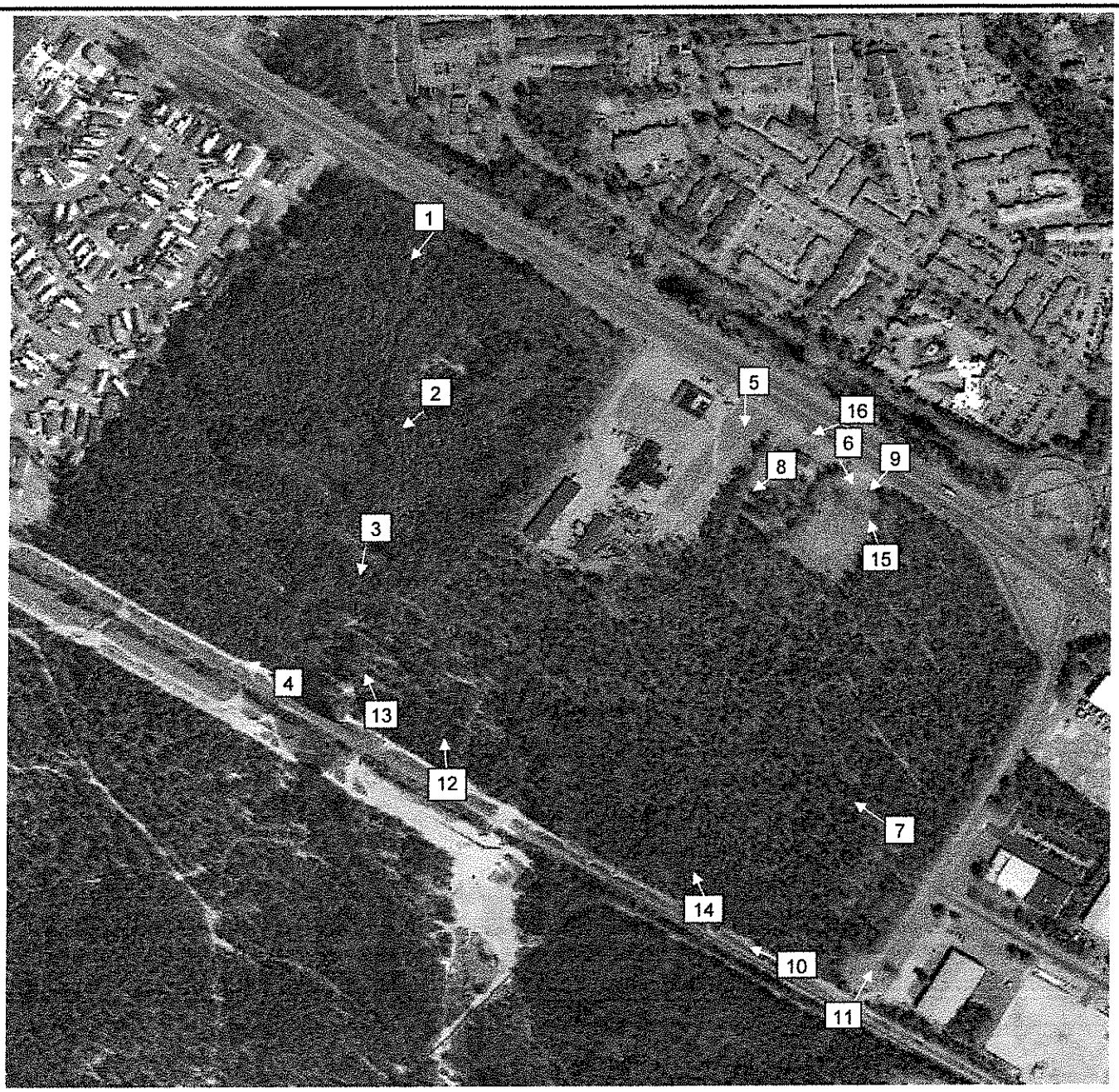


Photo Location Map

Grunin Properties		
Block 505/44, Lots 14 & 15/2, 3, 5, 9		Toms River and Manchester, Ocean County, NJ
BENJ #JM170508		BOHLER ENGINEERING
Prepared by: MM	Date: 4/8/2016	
Checked by: GD	Scale: NTS	

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF LAND USE REGULATION

CAFRA
INDIVIDUAL PERMIT APPLICATION REPORT
for

Proposed Retail Development
N.J.S.H. Route 37 and Northampton Boulevard

Block 44, Lots 2, 3, 5 and 9
Block 75.01, Lot 3
Township of Manchester
Block 505, Lots 14 and 15
Toms River Township
Ocean County, New Jersey

Prepared for:

Jaylin Holdings, LLC
c/o Grunin Properties
Dover Esplanade Building 1
1027 Hooper Avenue
Toms River, New Jersey 08753

Prepared by:

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10000 Midlantic Drive, Suite 410W
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December 2017
Last Revised June 2019
BENJ #JM170508

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1.0 SUMMARY STATEMENT

Site Description

This application concerns a 72-acre parcel that straddles the municipal border between Toms River and Manchester Townships, to the south of Route 37 and west of Northampton Boulevard, in Ocean County, New Jersey (Appendix A). Approximately 23% of the parcel (17-acres) is located in Toms River Township, and is identified on the municipal tax maps as Lots 14 and 15 in Block 505. The remaining 77% (55-acres) is in Manchester Township, and is identified on the municipal tax maps as Lots 2, 3, 5 and 9 in Block 44. Also included in the Project site parcel is Block 75.01, Lot 3, located southwest of the railroad Right-Of-Way. The Toms River Township portion of the site lies within the Toms River coastal regional center. With the exception of an abandoned/overgrown parking lot in lots 2 and 3 in Manchester Township, the parcel is undeveloped and mostly forested. Wetlands are present at the southern edge of the site in both townships, and their location was confirmed by the Department in a line verification LOI dated May 18, 2004, File No. 1500-04-0001, FWW 040001 and recently File No. 1500-04-0001.3 on April 13, 2016 for Lot 9 (Appendix B).

Proposed Development

The proposed development includes one (1) 81,275-SF retail building, one (1) 4,800-SF restaurant and one (1) 9,322-SF retail building. Also included is the associated parking, circulation, utilities, stormwater management, landscaping and lighting associated with these uses. The proposed development will require front yard setback variances. 570 parking spaces are proposed for the entire development. A stormwater management system that utilizes two above-ground basins has been designed to accommodate the development.

Major Environmental Concerns

This project initially received CAFRA approval dated April 18, 2012 (Application File No. 1500-04-0001.1). In that approval the environmental conditions were evaluated for wetlands and threatened or endangered species habitat. The results of those investigations as well as subsequent submissions and coordination with the NJDEP led to "protected lands" and permanent conservation restricted pine snake corridor of 212.79 acres. Associated with those protected and conserved lands was the establishment of wetland mitigation plans, protective snake corridors, herpetofauna fence barriers, and off-site habitat enhancement and restoration.

The 2012 CAFRA approval was based upon impervious area allowances over the portion of the site in Toms River, which allowed up to 80% of the net land area and in the Manchester Township portion of the site, allowed up to 30% of the net land area. However, although the Appellate Division otherwise upheld all the other aspects of the permit approval, the Appellate Division remanded the application to DEP to determine the appropriate impervious cover allowed for the property and determine whether the application was consistent with that determination."

A subsequent 2016 CAFRA application, which was approved on September 14, 2016, sought to

address impervious cover questions raised after the approval of the 2012 application and as a result, the development area was reduced by approximately 1.9 acres of impervious cover, increasing the overall tract to a maximum impervious cover of 30% over the net land area across the entire development. The 2016 CAFRA application was approved by NJDEP on September 14, 2016 (Application File No. 1500-04-0001.3).

The current 2019 CAFRA application eliminates the Walmart facility and further reduces the scope of development to include multiple and smaller pad sites. A smaller pad site is proposed in a similar location to the previously approved Walmart facility as indicated on past CAFRA applications for the site.

Water quality and stormwater management requirements have been satisfied utilizing two (2) infiltration/detention basins. Additional non-structural strategies have been considered in the design of the proposed development and are outlined in the Low Impact Development Checklist in the Stormwater Management Report included with this application. By protecting wetlands and associated transition area, land disturbance has been minimized.

Required Approvals

The following is a list of municipal, state, or Federal approvals required or received for the proposed activity. Note that these approvals were originally obtained for the initial application but will require new approvals based on the modified plans depicting a smaller development footprint and more land acquisition.

Agency	Approval	Status
Toms River Planning Board	Site Plan	To be submitted
Manchester Planning Board	Site Plan	To be submitted
NJDEP, Div. of Water Quality	Treatment Works Approval	To be submitted
NJDEP, Water Supply	Water Main Extension	To be submitted
NJDEP, Div. of Land Use	Letter of Interpretation	Approved
NJDEP, Div. of Land Use	TAW Averaging Plan	Herein
NJDEP, Div. of Land Use	CAFRA Permit	Herein
NJDEP, Div. of Land Use	Flood Hazard Area	Approved
NJDOT	Access Permit	Approved
Ocean County Planning Board	Site Plan & Minor Subdivision	To be submitted
Ocean County SCD	SESC Permit	To be submitted

2.0 PROJECT DESCRIPTION

The proposed development includes one (1) large retail building, one (1) restaurant and one (1) retail building. The proposed development will require front yard setback variances. The proposed development complies with the zoning for both townships, as shown below.

TOWNSHIP	ZONING	PERMITTED USES
Toms River	RHB, rural highway business	Shopping center
Manchester	HD-3, highway development	General merchandise stores

The outparcel fronts a ramp from Route 37 eastbound to Northampton Boulevard. The larger pad site, and parking areas are proposed for the southeasterly portion of the site. The larger pad site, would occupy 81,275-SF, one (1) 4,800-SF restaurant would occupy the northeastern portion of the site and one (1) 9,322-SF retail building is located in the eastern portion of the site. 570 parking spaces of 9' x 18' are proposed in Toms River Township and zero parking spaces are proposed in Manchester Township.

Stormwater management for the site will utilize two above-ground basins, as described in the November 2017 Stormwater Management Report prepared by Bohler Engineering, last revised June 2019, which accompanies this application. The system is designed to accommodate the development of the Project site at 30% impervious cover. Basins #1 and #2 are designed for infiltration and detention. Based on the Stormwater Management Report, the development of the site at 30% impervious cover will not adversely affect the existing drainage.

Proposed landscaping for the project includes seeded lawn area various shade trees, evergreen trees and shrubs, sweet spires, day lilies, ornamental grasses, and ground cover for the remainder of the site. Several native coastal species are included in the plantings: Bayberry, Sassafras, Sourgum, Sweetbay Magnolia, and Sweetgum.

No on-site potable water wells are proposed for the project. The development is expected to utilize public water and an application will be made to United Water Toms River.

No on-site septic systems are proposed for the project. The development is expected to utilize the municipal sanitary sewer, and an application will be made to the Toms River Municipal Utility Authority sewage treatment plant.

Underground telephone and electric utility lines are shown on Sheets 10 and 11. HVAC units for the proposed structure are expected to utilize natural gas.

3.0 ENVIRONMENTAL INVENTORY

A brief summary of site conditions is provided below and in the following sections of this report.

Figure 1 shows the site location on a local street map (Appendix A). The property is bordered

by Route 37 to the north, Northampton Boulevard and commercial/industrial properties to the east, the railroad tracks and undeveloped land to the south, and mobile residences to the west. Figure 2 provides an aerial photo view of the site and adjacent properties from NJ GeoWeb.

Figure 3 identifies the site location on the Keswick Grove, NJ, quadrangle of the USGS 7.5' series. The USGS map suggests a fairly level site at an elevation of 54± feet above sea level crossed by several unimproved roads. The USGS map also shows an unnamed tributary to Sunken Branch originating in the southwestern portion of the site. Sunken Branch is located within Wrangel Brook, below Michaels Branch HUC-14 sub-watershed, and is not classified as a Category One water (FW2-NT/SE1).

Figure 4 shows the NJ GeoWeb wetland mapping for the site. Four wetland habitats were identified onsite including, Atlantic White Cedar, Coniferous Wooded Wetlands, Mixed Wooded Wetlands (Coniferous Dominant) and Deciduous Wooded Wetlands. The wetlands shown on the NJ GeoWeb mapping are comparable to the wetland areas confirmed in the approved LOI (NJDEP File No. 1500-04-0001.1) a copy of the May 18, 2004, approval letter is provided in Appendix B). An LOI for Block 505, Lot 9 in Toms River Township (NJDEP File No. 1500-04-0001.3) was approved on April 13, 2016 (Appendix B).

The Natural Resources Conservation Service (NRCS), maps the site soils as listed below (see Figure 5).

MAP SYMBOL	SOIL NAME	HYDRIC SOIL RATING PERCENT
AtsA	Atsion sand, 0 to 2 percent slopes	95
LakB	Lakehurst sand, 0 to 5 percent slopes	10
LasB	Lakewood sand, 0 to 5 percent slopes	5
MumA	Mullica sandy loam, 0 to 2 percent slopes	100

4.0 INVENTORY OF SPECIAL AREAS

The areas applicable to this site are identified below; those not discussed are considered not to apply to the project in question.

7:7-9.25 Flood Hazard Areas

The National Flood Insurance Program Flood Insurance Rate Maps were utilized to identify potential flood hazard areas on the property. The Manchester Township portion of the site is mapped as Zones X and A, Zone X (areas of minimal flooding) and Zone A (areas of 100-year flood; base flood elevations and flood hazard factors not determined). The Toms River Township portion of the site is also mapped as Zones X and A, with Zone A adjacent to the rear of the site nearest the railroad right-of-way. Figure 6 in Appendix A contains reduced copies of the FEMA map for the Project site. A flood hazard area verification for Sunken Branch was approved by NJDEP on March 4, 2005 (NJDEP File No. 1500-04-0001.1) (Appendix B).

Therefore, this Rule is met.

7:7-9.27 and 9.28 Wetlands and Wetland Buffers

Wetlands were identified on the site in question, and a line verification LOI was approved by the Department on May 18, 2004 (a copy of the approval letter is included in Appendix B). The approved wetland delineation is shown on the Overall Site Plan (Sheet 3). According to the original LOI approval in 2004, wetland habitats identified by NJDEP were assigned a resource value of intermediate, with a standard transition area width of 50 feet. However, recent threatened and endangered species documented in the vicinity of the site resulted in a re-classification of the resource value to exceptional, resulting in a 150-ft transition area width adjacent to all wetland limits on site. The LOI approval on Block 44, Lot 9 was initially assigned both intermediate and exceptional resource value classifications. However, re-classification by NJDEP to an exceptional resource value for all wetlands on Lot 9 requires a 150-ft transition area adjacent to all wetland limits. Refer to the Overall Site Plan (Sheet 3) for exact locations of wetlands and associated transition areas. Onsite wetlands drain to Barnegat Bay and are designated at "Priority Wetlands" by the U.S. Environmental Protection Agency.

A Transition Area Waiver Averaging Plan is proposed as part of this application to reduce the Transition Area in the southeastern portion of the Site near the larger pad site. A compliance statement has been prepared as part of that application to demonstrate compliance with N.J.A.C. 7:7A-6.2.

Therefore, this Rule is met.

7:7-9.34 Historic and Archaeological Resources

A review of the Historic Preservation Office files found that the site in question does not appear

on the National Register or the New Jersey Register of Historic Places, nor do any of the neighboring properties. The HPO file search revealed a cultural resource survey which included Lot 2 in Manchester Township (Wilson, 1987). This survey concluded that any remnants of the iron industry or cranberry bogs that may be present on the study site were representative of industries that were present elsewhere in the Pine Barrens and were not significant enough for placement on either the State or National Registers.

Comments supplied by the Historic Preservation Office, dated May 24, 2011, associated with the previous CAFRA application, confirmed that no buildings, structures, sites, objects, or historic districts on or adjacent to the project location have been listed on or identified as eligible for listing on the New Jersey or National Registers of Historic Places.

Therefore, this Rule is met.

7:7-9.36 Endangered or Threatened Wildlife or Vegetation Species Habitats

Northern Pine Snake

During the prior CAFRA permit application review by the NJDEP, extensive habitat and impact assessments were conducted confirming Northern Pine Snake habitat on and adjacent to the site. This determination was upheld in the decision by the Appellate Division. In addition, mitigation for impacts to Northern Pine Snake habitat were secured in preparation for permit approvals and project construction impacts. Lot 9 is immediately adjacent to the lands on the Project site that continue to be proposed for permanent protection. This determination was upheld in the decision by the Appellate Division. The following excerpt is taken from the approved CAFRA permit demonstrating project compliance with this policy.

> In conclusion, after reviewing the memorandum issued by ENSP, the Endangered or Threatened Wildlife Habitat Impact Assessment, and the Analysis of Conceptual Habitat Evaluation Method for Northern Pine Snakes submitted by the Applicant, the Division has determined that the pine snake habitat on site and in the surrounding area will not be adversely affected. To the contrary, the Division has determined that, even though a portion of on-site habitat will be lost due to the Project, the measures included in the application will sufficiently reduce the risk to the snakes that may remain on the site. The construction of the snake barrier on site will direct snakes away from the project, Northampton Boulevard, Route 37, and adjacent develop parcel to an undeveloped area that is pine snake habitat. In the long run, installation of the snake barrier that keeps pine snakes away from the roads and intense development adjacent to and in the immediate area of the subject parcel and will be more protective of these snakes. Further, the proposed preservation and/or enhancement of the mitigation parcels that are part of this application will, in fact, improve habitat in the surrounding area by enhancing habitat suitability for northern pine snakes. Based upon the site specific measures to protect individual pine snakes, the acquisition of 192 acres of pine snake habitat in the area, the overall increase in habitat units (habitat value), and the existing adjoining contiguous pine snake habitat on the Heritage Minerals lands which extends for over 4 miles from

the edge of the Project, the Project would not adversely affect the relevant site and surround area for pine snake habitat.

Pine Barrens Treefrog

In addition to the Northern Pine Snake, the pine barrens treefrog occurs throughout the Pine Barrens in Ocean, Burlington, and Atlantic Counties. Smaller populations exist in Monmouth, Camden, Gloucester, Cumberland, and Cape May Counties. Historically, the species was present in Middlesex County (New Jersey State Museum, 1906) but is now believed to be extirpated from that county (NJDEP, 2008).

Pine barrens treefrog breeding habitat includes seepage bogs, cranberry bogs, small and ephemeral ponds, streams, Atlantic white cedar swamps, pitch pine lowlands and, occasionally, disturbed wet habitats such as power and gas rights-of-way, borrow pits, and vehicle ruts (NJDEP, 2002). In many cases, but not all, pine barrens treefrog breeds in inundated habitats that dry up in mid-summer (Hulmes et al., 1980). Plant species reported from Pine Barrens treefrog breeding sites include sphagnum moss, sundews, pitcher plants, orchids, Atlantic white cedar, pitch pine, mountain laurel, highbush blueberry, swamp azalea, sheep laurel, blackjack oak, sweetbay magnolia, greenbrier, maples, and sweet pepperbush. Based upon the literature, however, vegetative species structure, not composition, is one of the primary parameters determining the suitability of a wetland for colonization by the species. Freda and Morin (1984) have reported that the preferred pine barrens treefrog breeding habitat consists of open canopy, early successional shrub-herb bogs, seeps and sphagnum ponds that are influenced by fire and other disturbances that prevent the growth of trees and the aging of these habitats.

Another primary parameter determining the suitability of a wetland for colonization by pine barrens treefrog is water quality. While the Pine Barrens treefrog is generally restricted to clean water, low in nutrients and other dissolved ions, the water quality parameter that most clearly defines its distribution is pH. Pine barrens treefrogs are able to breed in water that is too acid for most other species of frogs. Although preferring to breed in water having a pH of 4.1 - 4.5 (NJDEP, 2008), the species is tolerant of pH as low as 3.7 (Freda and Morin, 1984; Freda and Dunson, 1986). A pH value less than 3.7 has been shown in laboratory experiments to significantly inhibit hatching success of the species, and pH values of 3.5 and below represent the lethal levels for frog embryos (Freda and Morin, 1984).

The isolated wetland habitat located across Block 44 Lot 2.01 (Manchester Township)/Block 505, Lot 15 (Toms River Township) adjacent to the Conrail right of way along the southwestern property boundary can be characterized as a forested wetland with a dominance of pitch pine (*Pinus rigida*), red maple (*Acer rubrum*) and blackgum (*Nyssa sylvatica*)...Sweet pepperbush (*Clethra alnifolia*) and highbush blueberry (*Vaccinium corymbosum*) compose the wetland shrub-layer vegetation and herbaceous species include sphagnum moss *(Sphagnum*, sp.), cinnamon fern (*Osmunda cinnamomea*) and sensitive fern (*Onoclea sensibilis*). The vegetation structure/composition and hydrologic features found within this wetland are marginal with respect to potential breeding habitat for pine barrens treefrogs. Prior to the issuance of a General

Permit for the previous development, a survey of the isolated wetlands was performed and no pine barrens treefrogs were found.

The Applicant acquired Block 44, Lot 9 (Manchester Township) containing approximately 29.3-acres. A portion of wetlands on Block 44, Lot 9 have been identified as pine barrens treefrog habitat. A wetlands Letter of interpretation issued for that parcel requires that a 150 -ft transition area be assigned to those wetlands. This parcel will be subject to the deed restriction precluding development as is required to be placed on the 20.9-acre portion of the original parcel. The 20.9 acres and the 29.3 acres are contiguous to each other so there will be approximately 50.2 contiguous acres that will be permanently protected. Those 50.2 acres are located across the Conrail right of way from Block 75.01, Lot 3 (Manchester Township) which contains approximately 21 acres and will also be permanently protected from development as part of this application. All proposed development will be located more than 300 feet from those wetlands. Given the deed restriction that will be imposed on Block 44, Lot 9 precluding development of that lot and the distance the proposed development will be located from those wetlands, the existing pine barrens treefrog habitat will be permanently protected.

Barred Owl

NJDEP has recently concluded that wetlands and upland forest on site provide "suitable breeding, resting and/or feeding habitat for Barred Owl" based on a June 2016 sighting of this species within1/4-mile south of the site. Ecolsciences was contacted to conduct a habitat suitability analysis and make a determination as to whether the proposed mixed use development potentially impacts Barred Owl habitat. Below is an excerpt from their analysis.

> The most recent NJDEP Landscape Project critical wildlife habitat map (Version 3.3, released in May 2017) has not incorporated the June 2016 Barred Owl sighting, as, according to the map, the site is not valued as Barred Owl habitat (Appendix C – Figure 1). Present mapping indicates Barred Owl habitat occurs just opposite the Conrail Railroad immediately south of the site (Appendix C – Figure 2). The nearby mapped Barred Owl habitat consists of nearly 16 square miles of contiguous forest bound by Conrail to the north, County Route 2 (Manchester Boulevard) to the west, County Route 530 (Pinewald-Keswick Road) to the south, and the Garden State Parkway to the east (Appendix C – Figure 3). The habitat is valued by three Barred Owl records, most recently documented in 2012.
>
> The site, though it has suitable forested land covers valued by Barred Owl according to Landscape Project methodology, had not been mapped as habitat for this species as 1) there had been no nearby records prior to 2016 and 2) the railroad effectively separated the on-site forest from the mapped forest just to the south. Landscape Project applies a buffer, or occurrence area, of one kilometer radius to Barred Owl records, valuing all intersecting contiguous forested habitats. The on-site forest habitats are less than one kilometer from the June 2016 record, and as such, would now be valued as Barred Owl habitat.
>
> EcolSciences conducted a field assessment of the approximately 74-acre site and surrounding area in November 2017. Approximately 67 acres (90%) of the site is forested. The proposed development would occur in the eastern portion of the site along State Highway 37 (Block 44, Lots 3, 4, and 5 and a portion of Lot 2) and Northampton Boulevard (Block 505, Lots 14 and 15),

an area mostly occupied by coniferous-dominant forest. Approximately 19 acres of the on-site forest would be cleared to accommodate the proposed development, leaving ±48 acres or over 70% of the on-site forest preserved post-development. In addition to coniferous forest the site also has deciduous and mixed wooded wetlands, pitch pine lowlands, and Atlantic white cedar wetlands.

Although the on-site forested habitats are essentially connected to a vast area valued by Barred Owl, the site is of limited breeding and foraging utility to this species based on its position in the landscape and forest structure. The site occupies an outer corner of potential Barred Owl habitat bound on three sides by roads and existing development, providing no connectivity to additional forested areas. At about 67 acres, the on-site forest would only include a small fraction (under 10%) of the areal requirement for Barred Owl based on the occurrence area applied in Landscape Project. There is heavy off-road vehicle use in the immediate area. Nearby Conrail and powerline rights-of-way provide main conduits, and there are numerous trails in forested areas both on and off-site.

While the on-site forest could hypothetically host a foraging owl, it is of no discernable significance as potential breeding habitat. Barred Owl is a cavity nester. No cavities were identified on-site that could accommodate Barred Owl. Some maples associated with deciduous wooded wetlands along the Sunken Branch tributary in Block 44, Lot 9 were the only identified hardwoods of significant girth on-site. There are no hardwoods of substantial diameter within the on-site uplands, including the coniferous-dominant forest community making up the majority of the area of proposed development.

In conclusion, the proposed development will not negatively affect Barred Owl nor its habitat. The majority of the on-site forest habitat will be preserved and maintain connectivity to the massive area of Landscape Project-mapped Barred Owl habitat south of the site.

Therefore, this Rule is met.

7:7-9.37 Critical Wildlife Habitat

During the prior CAFRA permit application review by the NJDEP, the Department identified 39 acres of forested habitat as "critical wildlife habitat" due to its functioning as a migratory bird stopover habitat. In response, the Applicant agreed to mitigate for the disturbance by preservation of approximately 21 acres of remaining on-site forest as well as 21 acres on several off site parcels. The Department determined that permanent preservation of 42 acres of forested critical wildlife habitat on and adjacent to the Project for use as migratory song bird stopover habitat represents an appropriate mitigation measure. In addition, the remaining approximately 171 acres of offsite parcels that will be permanently protected by the Applicant are forested critical wildlife habitat.

This application is proposing the permanent protection of an additional 29.3 acres of contiguous forested critical wildlife habitat on Block 44, Lot 9.

Therefore, the Applicant meets this Rule.

7:7-9.45 Geodetic Control Reference Marks

As shown on the Control Point survey, NJDOT monuments are present on both sides of Route 37 in Manchester Township (near Lot 6). In addition, a benchmark (dock spike set elev. = 59.83) is present in Lot 4 (Manchester Township).

5.0 GENERAL WATER AREAS

Not applicable to this project.

6.0 REQUIREMENTS FOR IMPERVIOUS COVER AND VEGETATIVE COVER

7:7-13.17 Impervious Cover Limits

The entire Project site except for Block 75.01, Lot 3 is located in the Coastal Suburban Planning Area and is within a sewer service area. Based on this location, the maximum permitted impervious cover for the project site within the Coastal Suburban Planning Area is 30% of the net land area. See the table below for the calculations for the Coastal Suburban Planning Area.

	Lot Area (SF)	Net Land Area (SF)	Proposed Impervious Area (SF)	Total Impervious (%)
Toms River*	761,220	622,224	363,153	**58.4%**
Manchester**	2,374,921	901,681	0	**0%**
Total Proposed***	3,199,469	1,523,905	363,153	**23.8%**

* Includes Lots 14 and 15.

** Includes Lots 2, 3, 5 and 9.

*** Impervious area available following construction is 94,482-SF [(30%-23.8%) X 1,523,905-SF]

7:7-13.18 Vegetative Cover Percentages in the CAFRA Area

The Project site is located within the Coastal Suburban Planning Area, within a sewer service area, 35% of existing forested areas within the net land area must be preserved and 5% of the unforested areas within the net land area must be preserved or planted with trees. The Project site contains 30.644 acres of forest, of which 10.725 acres must be preserved and 5.676 acres of unforested area, of which 0.283 acres must be planted or preserved. A total of 51.77 acres of forested lands on the Project site will be preserved.

The remaining portion of the net land area that will not be impervious cover will be comprised of planted or preserved herb/shrub vegetation as required by N.J.A.C. 7:7-13.18.

Therefore, these Rules are met.

7.0 GENERAL LOCATION POLICIES

Those policies not discussed are considered not to apply to the project in question.

7:7-14.2 Basic Location Rule

As previously stated in the 2012 CAFRA permit approval by the NJDEP, the "Applicant has continually demonstrated a willingness to modify the Project and to acquire additional lands for preservation in order to accommodate a threatened species Northern Pine Snake, and to fulfill its obligation to minimize impacts to wildlife and to preserve, protect, and enhance the natural environment". In addition, it is also anticipated that approval of this CAFRA permit will impose conditions to the permit to ensure that requirements under this Rule are met. The Project has been designed to cause minimal interference with the natural functioning of the plant, animal, fish and human life processes at the site and the surrounding region by complying with applicable municipal and state land use regulations and by making every effort, short of project abandonment, to protect the Northern Pine Snake located within and adjacent to the Project area and to promote the viability of Northern Pine Snakes in the region.

Therefore, this Rule is met.

7:7-14.3 Secondary Impacts

No additional development is expected to result from the approval of this project. Retail use of this site will not result in increased demands for recreation facilities, schools, etc., as would residential usage of the site.

Therefore, this Rule is met.

8.0 USE RULES

The Rules not discussed are considered not to apply to the project in question.

7:7-15.10 Commercial Use Rule

The proposed development falls into the retail trade category. As noted at 15.10(b)3, new or expanded retail trade establishments are conditionally acceptable so long as the following conditions are met.

- The development must comply with all applicable Location and Resource rules;
- The development must be compatible with surrounding development; and
- Where appropriate, the water area must be the central focus of the development.

The proposed retail development complies with the first two conditions. The third condition does not apply to this site.

Therefore, this Rule is met.

9.0 RESOURCE RULES

The Rules applicable to this site are identified below; those not discussed are considered not to apply to the project in question.

7:7-16.3 and 7:7-16.6 Water Quality and Stormwater Management

The system is designed to accommodate the development of the Project site at 30% impervious coverage. Basins #1 and #2 were designed for infiltration and detention. According to the Stormwater Management Report, the proposed development will not adversely impact the existing drainage system.

The proposed development satisfies Toms River Township, Manchester Township, Ocean County, NJDEP, NJDOT and CAFRA criteria Specifically, the design meets water quality, peak runoff rate reduction, and groundwater recharge requirements. In addition, the development proposes minimal disturbance to the wetland and wetland transition area and provides water quality for the stormwater runoff generated from a portion of Northampton Boulevard. No encroachment is proposed in the Flood Hazard Area, and it is anticipated that the pine snake habitat will be protected and preserved in accordance with NJDEP requirements. As a result, we would anticipate the proposed development will have no negative impact on the existing stormwater management system in the vicinity of the subject parcel.

Please see the Bohler Stormwater Management Report for details.

Therefore, this Rule is met.

7:7-16.7 Vegetation

The proposed landscaping plan on Sheets 14 and 15, with details on Sheet 16, provides plantings and tree preservation in excess of the regulatory requirements. The landscaping plan includes several native coastal species.

Therefore, this Rule is met.

7:7-16.8 Air Quality

The proposed mixed use retail proposed is not anticipated to adversely affect regional air quality. The nature of the development is such that vehicle trips regionally will likely be reduced by some factor. The reason behind this is the nature of a mixed use retail center. Customers travel and park without congestion and do several kinds of shopping and dining at one location. Specifically, customers shop for goods in one spot without making many trips. This will enable the proposed development to comply with air quality standards.

<u>New Jersey State Implementation Plan</u>

In general, the proposed facility will concentrate a degree of shopping and is expected to ultimately reduce traffic mileage per household. In the end, this will be a benefit to regional air quality.

Ozone – the backbone of the plan relies on inspection and vehicle maintenance. NJ put in place an enhanced plan. This development will not have a negative impact on the control of ozone emissions and is not in conflict with the NJ plan.

Sulfur dioxide – the use of low sulfur fuels ensures that the proposed facility will not adversely impact air quality in the region and will not be in conflict with the NJ plan to meet EPA air quality standards.

Nitrogen dioxide – automobile inspections and maintenance ensure the continued compliance with EPA requirements. The project will be neutral with respect to oxides of nitrogen.

Carbon monoxide – again the NJ plan emphasizes maintenance with respect to compliance with EPA requirements and the proposed facility will not adversely impact the plan.

Lead – the removal of lead from gasolines assures that the project will be in compliance with the NJ SIP. The project will not increase emissions of lead to the atmosphere.

Visibility – There is no reason believe that any element of the proposed development will decrease visibility in the area so long as the vehicle inspection and maintenance programs are in place. In a related matter, power sources for heating/cooling/electricity on site will not emit significant particulates to impair visibility.

Therefore, this Rule is met.

7:7-16.10 Scenic Resources and Design

Existing land use in the immediate vicinity of the Project site consists of commercial service and retail establishments. There are no residential uses located on the south side of Route 37 in the immediate vicinity of the property. The project is therefore compatible with the adjoining uses in terms of building and site design.

Therefore, this Rule is met.

7:7-16.11 Buffers and Compatibility of Uses

The proposed retail development is clearly compatible with other sites in the Toms River RHB (rural highway business) and Manchester HD-3 (highway development) zones. Plantings will be provided along Route 37, Northampton Boulevard and the access driveways.

Therefore, this Rule is met.

7:7-16.12 Traffic

Orth-Rodgers & Associates, Inc. (ORA) prepared a traffic impact statement for the proposed development which identified trip generation numbers, a distribution model, and a list of locations to be analyzed. NJDOT issued an Access Conforming Lot Permit (A-37-C-C059-2009) and an Access Street Intersection Permit (S-37-C-0017-2009) to allow driveway access from the site to Route 37. These permits are currently valid.

In accordance with N.J.A.C. 7:7-16.12 Traffic rule, a traffic impact statement had been prepared by Orth-Rodgers Associates, Inc. This report was previously submitted.

Therefore, this Rule is met.

10.0 COMPLIANCE WITH N.J.S.A. 13:19-10

7:7-23.6(b) Additional Requirements for an Individual Permit

The proposed development will add aesthetic value, provide environmental controls, and contribute to the economy of the area. The proposed development meets the conditions of N.J.A.C. 13:19-10 as follows:

(a) Conforms with all applicable air, water, radiation emission, and effluent standards and all applicable water quality criteria and air quality standards.

The proposed uses of the site will have no radiation emissions and no permitted air emissions. Effluents will consist of stormwater and sewage wastes. Stormwater management, as proposed, satisfies municipal, county, and NJDEP, NJDOT, and CAFRA criteria for peak runoff rates for various storm frequencies. The proposed system also meets NJDEP criteria for ground water recharge, water quality, and TSS removal. Sewage wastes will be handled by the existing sanitary system.

(b) Prevents air emissions and water effluents in excess of the existing dilution, assimilative, and recovery capacities of the air and water environments at the site and within the surrounding region.

As noted, the proposed use of the site will have no air emissions requiring permitting. Changes in traffic flow and Levels of Service have the potential to increase automobile emissions, and this will be discussed in the full traffic study. The Stormwater Management Report concludes that "the proposed development will not adversely impact the existing drainage system."

(c) Provides for the collection and disposal of litter, recyclable material, and solid waste in such a manner as to minimize adverse environmental effects and threats to the public health, safety, and welfare.

Active use of the site as proposed will provide for the collection and disposal of litter, recyclable materials, and solid waste in a manner that is consistent with the appropriate regulations and beneficial to the public.

(d) Would result in minimal feasible impairment of the regenerative capacity of water aquifers or other ground or surface water supplies.

The proposed stormwater management system complies with NJDEP criteria for annual ground water recharge.

(e) Would cause minimal feasible interference with the natural functioning of plant, animal, fish, and human life processes at the site and within the surrounding region.

While any development will cause some impacts, the proposed development has been designed to minimize interference with the natural functioning of plant, animal and human life processes at the site and in the surrounding region. Every effort has been made to ensure the survival of the threatened northern pine snake in the region. In addition to permanently protecting over 70% of the Project site; over 170 acres of additional lands will be permanently protected. In addition to precluding development on about 220 acres, enhancement of pine snake habitat will occur at numerous locations. This will result in an overall enhancement to pine snake habitat in the region. The preserved lands are predominantly forested so significant habitat for migratory birds will also be protected.

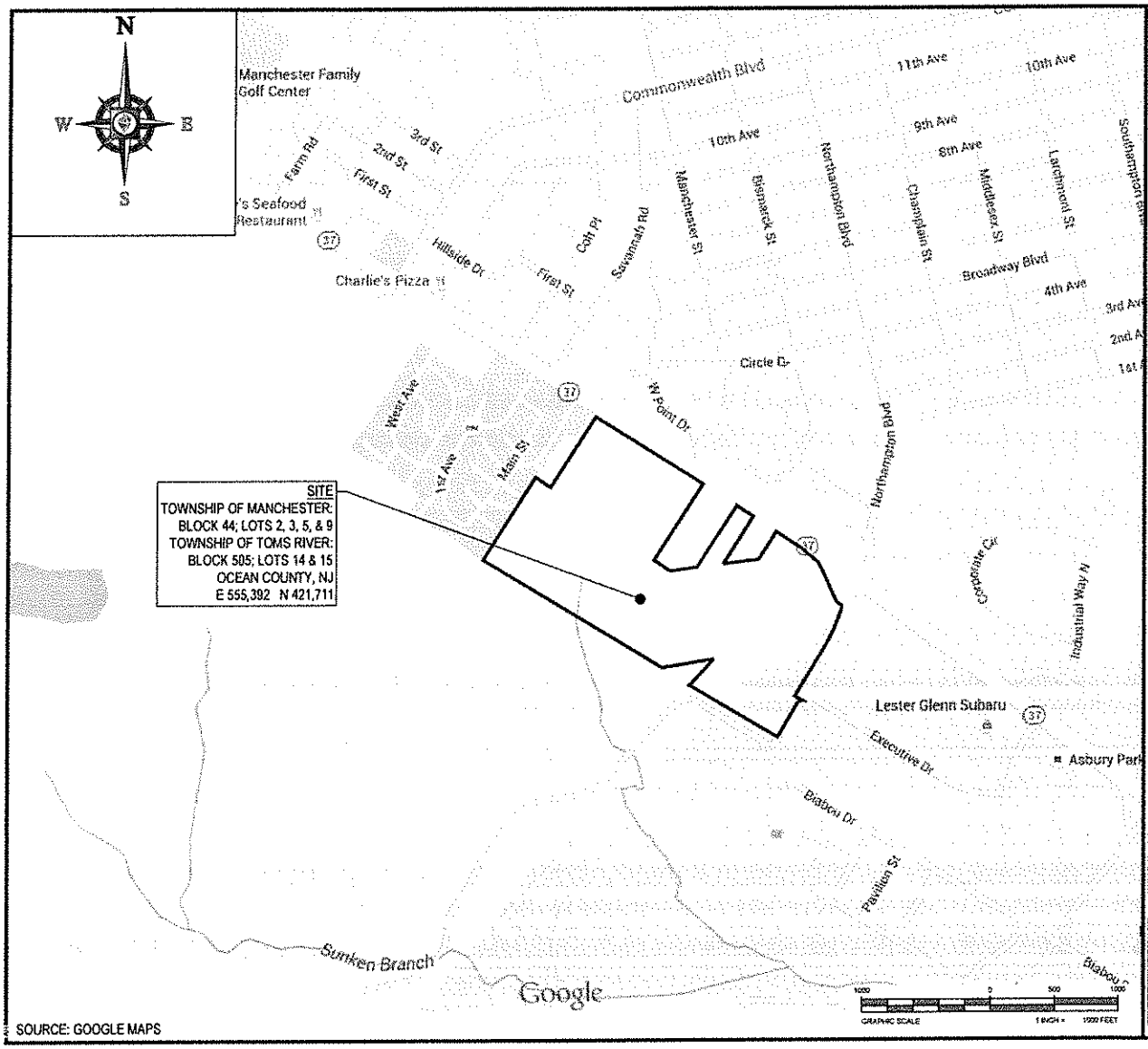
(f) Is located or constructed so as to neither endanger human life or property nor otherwise impair the public health, safety, and welfare.

The proposed development mixed retail use is consistent with the zoning ordinances of Manchester and Toms River Townships, the state Development and Redevelopment Plan and the Pinelands Comprehensive Management Plan. Any necessary site remediation of the mitigation parcels will be done in conjunction with the development of the site.

(g) Would result in minimal practicable degradation of unique or irreplaceable land types, historical or archeological areas, and existing public scenic attributes at the site and within the surrounding region.

None of the lots which make up this project have been found to contain unique or irreplaceable land types, historical or archeological areas, and/or existing public scenic attributes. Since development of the Project site was first proposed, the development footprint has been continually reduced in order to minimize any degradation of any unique or irreplaceable land types. In addition, about 241 acres of land types comparable to the reduced area that will be disturbed will be permanently protected. The extensive existing development on both sides of Route 37 in the vicinity of the Project site minimize public scenic attributes at the Project site. The preservation of the mitigation parcels will protect the significant public scenic attributes of these parcels.

APPENDIX A
FIGURES



SOURCE: GOOGLE MAPS

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / REVIEW
1	05/16/2019	REV. PER CLIENT COMMENTS	AJH / DSD

PROJECT No.	JM170509
DRAWN BY	SLM
CHECKED BY	MM
DATE	11/30/2017
SCALE	AS SHOWN
CAD I.D.	JM170509-SE-1A

PROJECT
PRELIMINARY & FINAL SITE PLAN
FOR
GRUNIN PROPERTIES
LOCATION OF SITE
MANCHESTER TOWNSHIP
TOMS RIVER TOWNSHIP
NJSH RT#37 & NORTHAMPTON BLVD.
OCEAN COUNTY, NEW JERSEY

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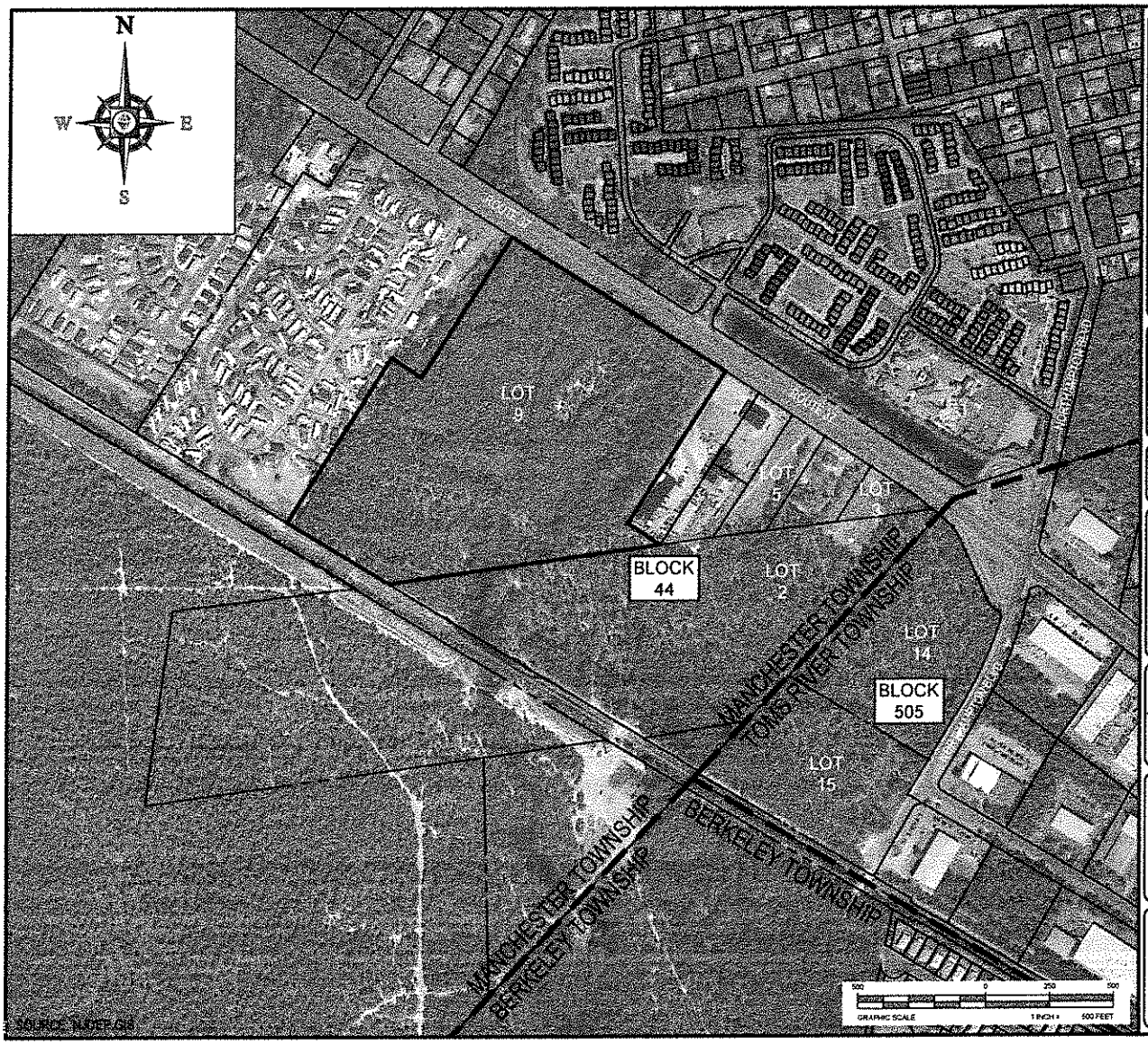
FIGURE
A-1

SHEET TITLE
ROAD MAP

SHEET NUMBER
1 OF 6



SOURCE: NJDEP GIS

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	06/16/2019	REV. PER CLIENT COMMENTS	AJH / GSD

PROJECT No.	JM170506
DRAWN BY:	SLM
CHECKED BY:	MM
DATE:	11/09/2017
SCALE:	AS SHOWN
CAD I.D.	JM170506-EE-1A

PROJECT
PRELIMINARY & FINAL SITE PLAN
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GRUNIN PROPERTIES
LOCATION OF SITE
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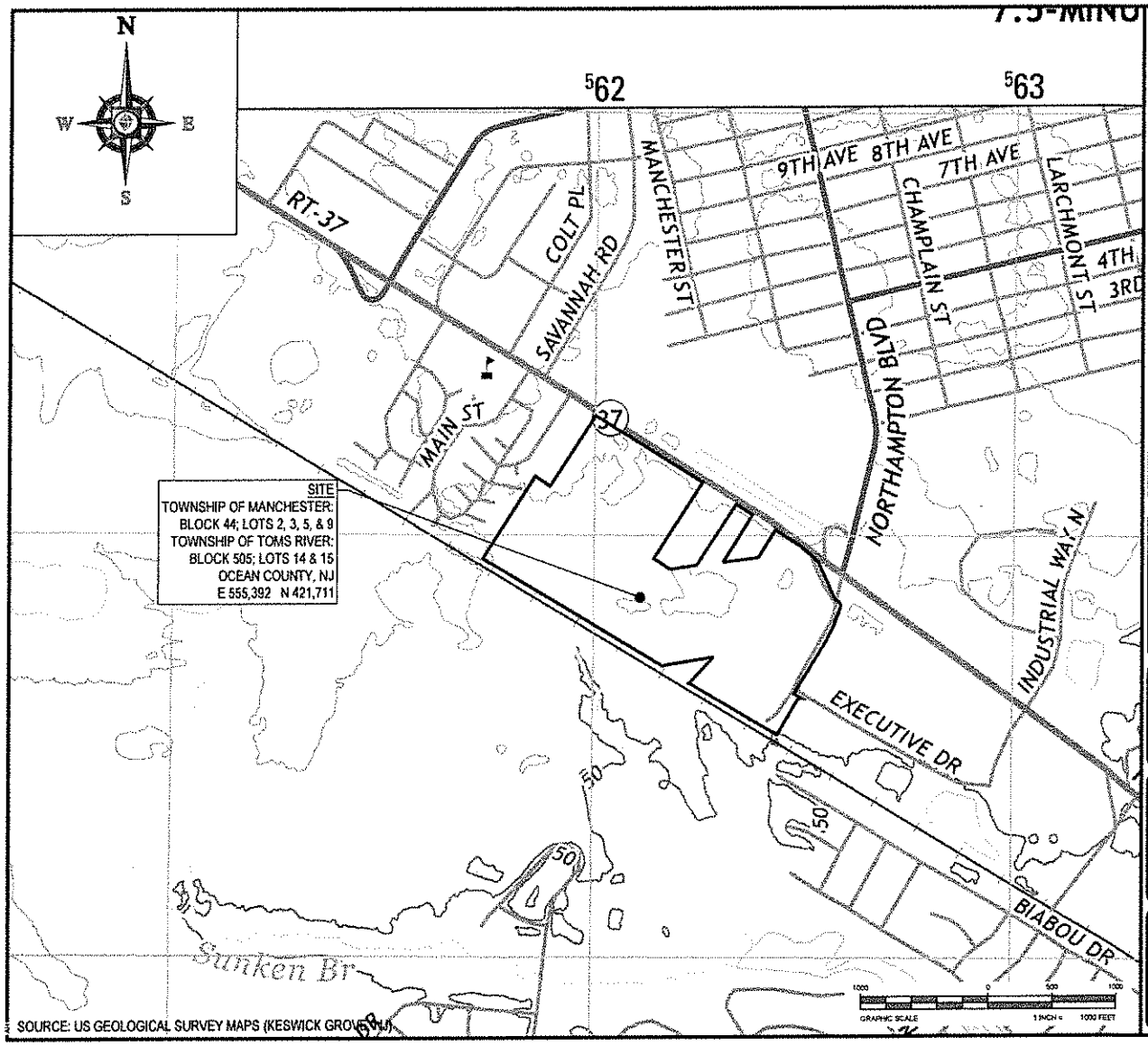
FIGURE
A-2

SHEET TITLE
AERIAL PHOTO

SHEET NUMBER
2 OF 6



SOURCE: US GEOLOGICAL SURVEY MAPS (KESWICK GROVE, NJ)

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REVISIONS

REV	DATE	COMMENT	DRAWN / CHECKED
1	09/16/2019	REV. PER CLIENT COMMENTS	AJH / GSD

PROJECT No.:	JM17050
DRAWN BY	SLJ
CHECKED BY	MM
DATE	11/30/2017
SCALE	AS SHOWN
CAD I.D.	JM17050-EE-1A

PROJECT
PRELIMINARY & FINAL SITE PLAN
FOR
GRUNIN PROPERTIES

LOCATION OF SITE
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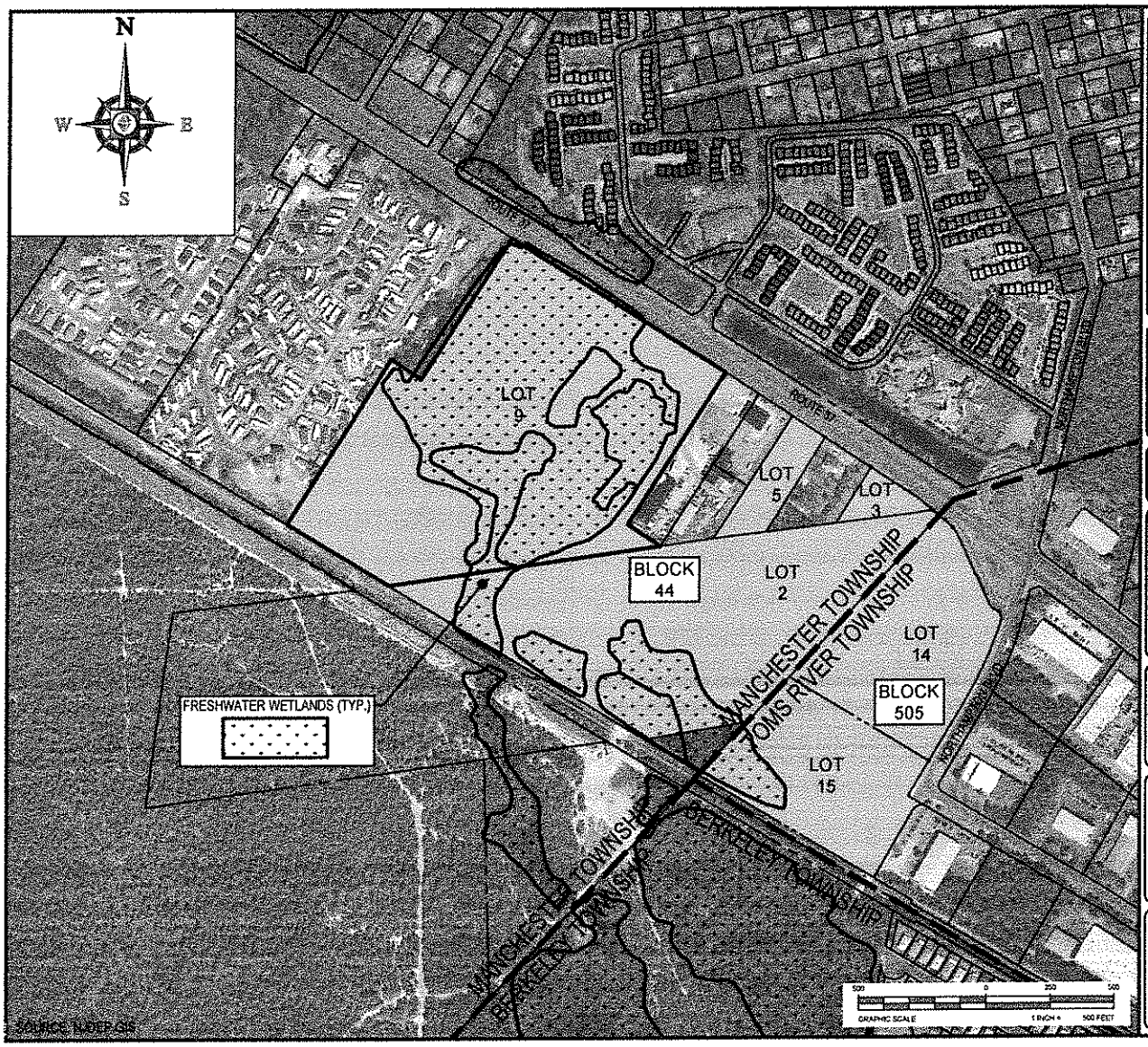
FIGURE
A-3

SHEET TITLE
USGS SITE LOCATION MAP

SHEET NUMBER
3 OF 6



Source: NJGP GIS

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REVISIONS

REV.	DATE	COMMENT	DRAWN BY / CHECKED BY
1	06/19/2018	REV. PER CLIENT COMMENTS	AJM / GSD

PROJECT No.	JM17506
DRAWN BY	SLM
CHECKED BY	MM
DATE	11/30/2017
SCALE	AS SHOWN
CAD I.D.	JM17506-EE-1A

PROJECT
PRELIMINARY & FINAL SITE PLAN
FOR
GRUNIN PROPERTIES

LOCATION OF SITE
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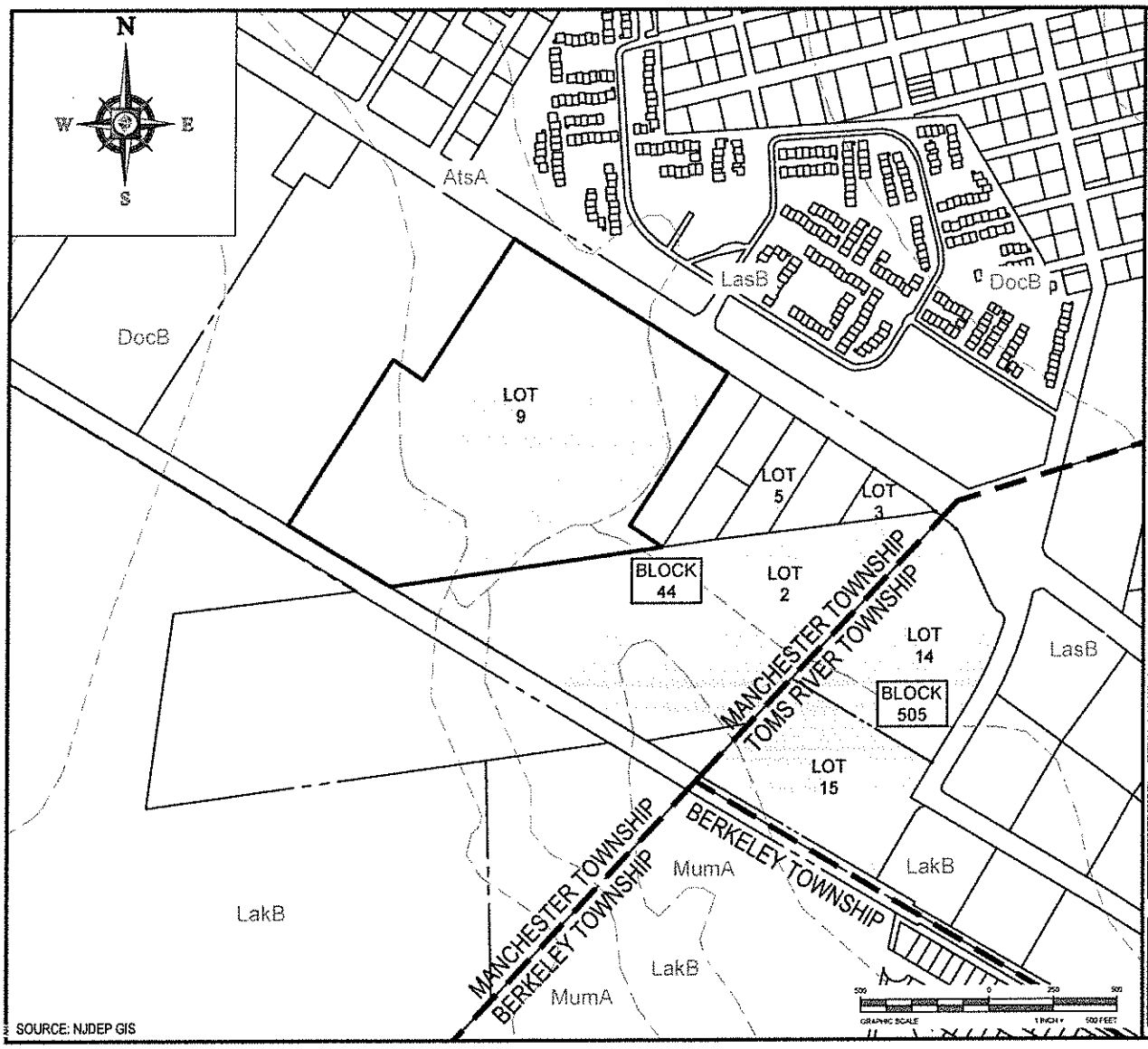
FIGURE
A-4

SHEET TITLE
NJ GEOWEB WETLANDS MAPPING

SHEET NUMBER
4 OF 6



SOURCE: NJDEP GIS

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REVISIONS

REV.	DATE	COMMENT	DRAWN BY
1	06/19/2018	REV. PER CLIENT COMMENTS	KJM DSG

PROJECT No.: JN170506
DRAWN BY: SLM
CHECKED BY: MM
DATE: 11/30/2017
SCALE: AS SHOWN
CAD I.D.: JN170506-EIE-1A

PROJECT:
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FOR
GRUNIN PROPERTIES

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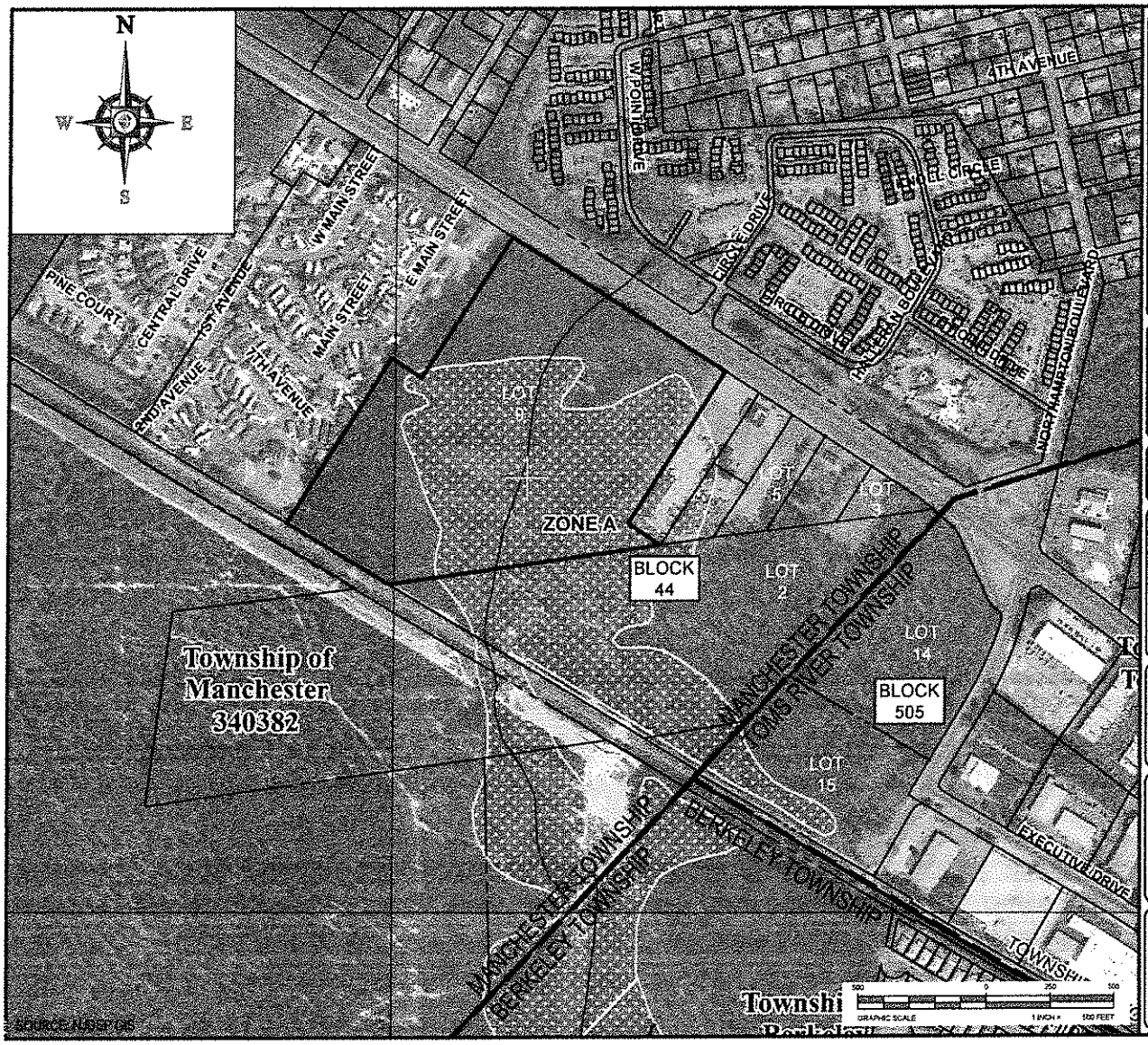
FIGURE
A-5

SHEET TITLE
NRCS SOILS MAP

SHEET NUMBER
5 OF 6



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REVISIONS

REV	DATE	COMMENT	Drawn by / Ck'd by
1	09/18/2012	REV. PER CLIENT COMMENTS	JLH / SSB

PROJECT No. JM17550B
DRAWN BY: SLM
CHECKED BY: MW
DATE: 11/30/2011
SCALE: AS SHOWN
CAD I.D.: JM17550B-GE-1A

PROJECT
PRELIMINARY & FINAL SITE PLAN
FOR
GRUNIN PROPERTIES
LOCATION OF SITE
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FIGURE
A-6

SHEET TITLE
FEMA MAP

SHEET NUMBER
6 OF 6

APPENDIX B
AGENCY APPROVALS

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

(See Issuing Division below)

PERMIT*

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to the further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit.

Permit No.	Application No.
1500-04-0001.3 CAF160001	1500-04-0001.3 CAF160001

Issuance Date	Effective Date	Expiration Date
SEP 1 4 2016	SEP 1 4 2016	SEP 1 3 2021

Name and Address of Applicant	**Name and Address of Owner**	**Name and Address of Operator**
Jaylin Holdings, LLC c/o Grunin Properties Dover Esplanade, Building 1 1027 Hooper Avenue Toms River, NJ 08753	Applicant	Applicant
Location of Activity/Facility *(Street Address)*	**Issuing Division**	**Statute(s)**
Route 37 & Northampton Boulevard Toms River Township, Ocean County Lots: 14 & 15 Block: 505 Manchester Township, Ocean County Lots: 2, 3, 4, 5, 9; 3 Blocks: 44; 75.01	Land Use Regulation	NJSA 13:19-1

Type of Permit: CAFRA Individual Permit	Maximum Approved Capacity, if applicable

This permit authorizes the construction of a 193,240 SF Walmart retail store that includes a water tower, a seasonal garden center, retaining walls, a stormwater management system, access from Route 37 and Northampton Boulevard and a parking area which will accommodate 774 vehicles (the "Project"). The Project is shown on the approved plans referenced on page 3 of this permit.

This permit is authorized under and in compliance with applicable Rules on Coastal Zone Management (N.J.A.C. 7:7-1.1 et seq.) provided the conditions listed are met. The Division of Land Use Regulation ("DLUR") hereby determines that the applicable findings as required by Sections 10 & 11 of the CAFRA statute (N.J.S.A. 13:19-1 et seq.) and the Rules on Coastal Zone Management have been met. The issuance of this permit is contingent upon compliance with the listed conditions and failure to comply with any or all conditions may result in appropriate enforcement action and revocation of this permit.

Revised Date	Approved by the Department of Environmental Protection
	Name (Print or Type) DRAFT Title Signature DRAFT Date

**The word permit means "approval, certification, registration, etc." (General Conditions are on Page Two)*

STANDARD PERMIT CONDITIONS

1. The issuance of the permit shall not be deemed to affect in any way action by the Department of Environmental Protection of the State of New Jersey on any future application.

2. The works, facilities, and/or activities shown by plans and/or other engineering data, which are this day approved, subject to the conditions herewith established, shall be constructed and/or executed in conformity with such plans and/or engineering data and the said conditions.

3. No change in plans or specifications shall be made except with the prior written permission of the Department of Environmental Protection of the State of New Jersey.

4. The granting of this permit shall not be construed to in any way affect the title or ownership of property, and shall not make the Department of Environmental Protection or the State a party in any suit or question of ownership.

5. This permit does not waive the obtaining of Federal or other State or local government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained.

6. A copy of this permit shall be kept at the work site, and shall be exhibited upon request of any person.

7. In cases of conflict, the conditions of this permit shall supersede the plans and/or engineering data.

8. The permittee shall allow an authorized representative of the Department of Environmental Protection the right to inspect construction pursuant to N.J.A.C. 7:7-27.2(c)13.

9. In accordance with N.J.A.C. 7:7A-1.7, any person who is aggrieved by this decision may request a hearing within 30 days after notice of the decision is published in the DEP Bulletin by writing to: New Jersey Department of Environmental Protection, Office of Legal Affairs, Attention: Adjudicatory Hearing Requests, 401 East State Street, PO Box 402, Trenton, NJ 08625-0402. This request must include a completed copy of the Administrative Hearing Request Checklist. If a person submits the hearing request after this time, the Department shall deny the request. The DEP bulletin and checklist are available through the Department's website at www.state.nj.us/dep.

ADMINISTRATIVE PERMIT CONDITIONS

1. This permit shall be RECORDED in the office of the Ocean County Clerk within ten (10) days after receipt of the permit by the applicant and the Applicant shall immediately send documentation of its recordation to the DLUR.

2. The following approved plans were prepared by Bohler Engineering and are hereafter referred to as the "Revised Plans":

   - "PRELIMINARY AND FINAL SITE PLAN AND MINOR SUBDIVISION FOR PROPOSED WALMART (STORE #1844-05), BLOCK 44, LOTS 2, 3, 5, 9 AND PART OF 4, MANCHESTER TOWNSHIP (TAX MAP SHEETS 7.02, 8 & 9); BLOCK 505, LOTS 14 & 15, TOMS RIVER TOWNSHIP (TAX MAP SHEET 54), NJSH RT#37 & NORTHAMPTON BLVD., OCEAN COUNTY, NEW JERSEY", all sheets (1-32) are dated April 8, 2016. Sheets 3 & 6 were last revised on September 14, 2016 and sheets 1-2, 4-5, 7-32 were last revised on August 10, 2016.

   - "TREE MANAGEMENT PLAN", two sheets, dated December 11, 2015.

   - "DEVELOPMENT / CONSERVATION AREA PLAN" dated September 9, 2016.

- "WETLANDS MITIGATION PLAN" originally dated June 26, 2009, revised through November 2, 2011.

- "OVERALL SITE PLAN", sheet 5 of 29, depicting wire exclusion fencing revised through November 9, 2011. This plan is approved for the installation of the exclusion fence during the construction phase only.

PRE-CONSTRUCTION / PROJECT SPECIFIC PERMIT CONDITIONS

1. Within (30) days of permit issuance, and prior to the start of any site disturbance, pre-construction earth movement or construction for the Project, and as more fully set forth in the December 20, 2011 Settlement Agreement which is incorporated herein and made a part hereof ("Settlement Agreement"), the owner of the property shall grant to the Department a conservation restriction approved in advance in writing by the DLUR. The lands subjected to the conservation restriction shall be free of all buildings, dwellings, tenants, billboards and easements, including access easements, covenants, mortgages, liens, encumbrances, judgements, tax liens, outstanding taxes and any other instruments except for a cable easement granted to AT&T recorded May 21, 2009 in Deed Book 14300, page 1267 and following, and utility easements granted to Jersey Central Power and Light Company recorded in Book 2676, page 343; Book 2898, page 152; and Book1277, page 305; and all of said lands shall be insurable at regular rates by a licensed and reputable New Jersey title company on the Department's Green Acres list. The lands subjected to the conservation restrictions shall include:

   a. Block 77, Lot 27 (approximately 11.3 acres); Block 73, Lots 31 & 32 (approximately 42.9 acres; Block 73, Lot 21 (approximately 15.8 acres); and Block 73, Lot 3 & 4 (approximately 11.6 acres), located in the Township of Manchester, Ocean County.

   b. Block 77, Lots 2, 4, 5 and 6 (approximately 89.29 acres) located in the Township of Manchester, Ocean County.

   c. Block 75.01, Lot 3 (approximately 21 acres) located in the Township of Manchester, Ocean County.
      * Hereafter, subparagraphs 1a-c shall be referred to as the "Protected Lands".

   d. Those portions of lots 14 and 15 of block 505 of the official 2011 Toms River tax map and lots 2, 3, 4, 5 and 9 of block 44 of the official Manchester Township tax map where no development is proposed, which total approximately 50.197 acres shall be maintained as a permanent conservation restriction pine snake corridor area (hereafter, the Paragraph 1d Lots). This is an additional 29.297 acres as to what was previously approved.

   e. All lands with conservation restrictions shall include a reverter clause which provides for reversion of such conservation restriction to the Permittee or record owner (If not Permittee), if the issuance of the permit by the Department is overturned on appeal or if the Department otherwise precludes development of the Project pursuant to Paragraph 7 of the Stipulation of Settlement. However, if any person has commenced any site disturbance, pre-construction earth movement or any construction for the Project, or if any of the Protected Lands have been disturbed, except for the removal of waste, pollutants and contaminants or for habitat enhancement, all such reverter clauses shall lapse and expire.

   f. Within (30) days of issuance of the Permit, the Owner or Permittee shall provide proof to DLUR of recordation of the conservation restrictions for the Protected Lands and the Paragraph 1d Lots, respectively. Within (10) days of its receipt, the Owner or Permittee shall deliver to the DLUR complete copies of the recorded conservation restrictions.

2. The Permittee shall remove all waste, pollutants and contaminant materials identified by Whitestone Associates and the Department on, above, below and throughout the Protected Lands and the Paragraph 1d Lots to be conveyed to the Department and conserved for pine snake protection and/or enhancement, respectively. Upon the Department's review and approval that all waste, pollutants and contaminants have been satisfactorily removed, the Department shall issue to the Permittee a letter to said effect.

    a. The Permittee shall ensure that all soils shall be at or below the numeric concentrations needed to meet Residential Cleanup standards, N.J.A.C. 7:26E-1 et seq., that is Remediation Standards, N.J.A.C. 7:26D-1 et seq., including, but not limited to, Residential Cleanup Standards for waste, contaminants and pollutants throughout the Protected Lands and the Paragraph 1d Lots, respectively. Further, all groundwater shall be at or below the numeric concentrations for all applicable standards for waste, pollutant and contaminant requirements as defined in N.J.A.C. 7:26E-1.8 and the Groundwater Quality Standards, N.J.A.C. 7:9C-1 et seq.

    b. Adequate removal of waste, pollutants and contaminant materials identified on, above, below and throughout the Protected Lands and the Paragraph 1d Lots shall be completed, so that once the pine snake habitat enhancement is completed, there is no need to subsequently disturb the pine snake habitat enhancements.

    c. In addition, prior to commencing the construction of the Project as defined in paragraph 4 below, Permittee shall either complete the required remediation or establish and maintain a remediation funding source in an amount acceptable to the Department through the use of one of the instruments defined in N.J.A.C. 7:26C-5.2(f)1, 2, 3 or 4.

3. Any and all clearing of trees and vegetation shall only occur from August 1st through March 31st, except for clearing associated with the pine snake enhancements.

4. Prior to site disturbance, pre-construction earth movement or construction, and in accordance with the Settlement Agreement, the Permittee shall undertake and complete all pine snake habitat enhancement as follows:

    a. Permittee shall first complete all pine snake enhancements for the Protected Lands, except for the planting of saplings which shall be undertaken and completed in the next spring planting season;

    b. Upon completion of the pine snake enhancements for the Protected Lands, Permittee shall then complete all pine snake enhancements on the Paragraph 1d Lots;

    c. Pursuant to the deadlines set forth in the Settlement Agreement, the Permittee shall seek notice from the Endangered and Nongame Species Program (ENSP) and DLUR whether the pine snake enhancements have been satisfactorily completed.

5. Subject to the timing restriction referenced in Project Specific Condition #3 above, Permittee shall next install and complete the Herpetofauna Fence (as defined in the Settlement Agreement) on the Paragraph 1d Lots and then install and complete the linear barrier wall as shown on the Revised Plans, including the Development/Conservation Area Plan, dated October 6, 2011:

    a. The clearance width for the Herpetofauna Fence shall be no more than twenty feet, that is, no more than ten feet on either side of the center line of the fence.

    b. Upon the start of the installation of the Herpetofauna Fence, Permittee shall retain a qualified herpetologist who shall conduct daily site inspections of the Herpetofauna Fence, linear barrier wall and stormwater basin and their associated clearing on the construction side and monitor, protect and remove to the habitat side all reptiles found on the construction side of the Herpetofauna Fence and on both sides of the linear barrier wall.

c. Upon completion of the linear barrier wall, but no later than the issuance of a temporary certificate of occupancy for the Project, the Permittee shall remove the Herpetofauna Fence.

d. The Permittee's herpetologist shall continue to conduct the daily site inspections until clearing has been completed on the construction side of the linear barrier wall.

e. No more than ten days before clearing, preconstruction earth movement, site disturbance or construction of the Project, a qualified herpetologist shall conduct a thorough survey of the entire Development Area on the construction side of the linear barrier wall and shall remove all reptiles to the habitat side of the linear barrier wall.

The Department reserves the right to immediately revoke or suspend all regulated activities onsite should the Department determine that the Permittee has not taken proper precautions to ensure continuous compliance with this condition.

6. Subject to the timing restriction referenced in Project Specific Condition #3 above, upon the completion of all pine snake enhancements throughout the Protected Lands and the Paragraph 1d Lots except for the planting of saplings, the completion of the Herpetofauna Fence and linear barrier wall, and subject to the Settlement Agreement's requirements regarding notice of satisfactory completion thereof, the Permittee may then start pre-construction earth movement, site disturbance, and construction of the Project, in the development area, as authorized by this permit.

7. Upon completion of the Herpetofauna Fence and subject to the timing restriction referenced at Project Specific Condition #3 above, the Permittee is authorized to: construct the 1-acre freshwater wetlands mitigation area; create the stormwater basin #1 on the construction side of the Herpetofauna Fence; and place excavated material from stormwater basin #1 or the wetlands mitigation area in the Development Area adjacent to the proposed location of the linear barrier wall.

   a. Prior to any site disturbance, pre-construction earth movement, or filling of the isolated freshwater wetlands and associated transition areas in the Development Area, the Permittee shall construct and vegetate the vernal pool as shown on the "WETLANDS MITIGATION PLAN" revised through November 2, 2011.

   b. The Permittee may only start site disturbance, pre-construction earth movement, or construction of the vernal pool after the Permittee has submitted and the Department has approved all of the documentation and plans required pursuant to the issuance of this permit.

8. In accordance with the Settlement Agreement, if ENSP or DLUR identifies deficiencies in the pine snake habitat enhancements, linear barrier wall, herpetofauna fence, or vernal pond mitigation and the Permittee either does not dispute the deficiencies or disputes the deficiencies and a determination is made by the Commissioner, and the Permittee fails either to correct any undisputed deficiency or to start to physically comply with any determination of the Commissioner concerning a disputed deficiency within ten (10) business days of receipt of the Commissioner's determination, then said failure to correct or to start to comply shall be considered a material breach and shall void this permit.

9. Prior to site disturbance, pre-construction earth movement, or construction of the Project, the Permittee shall deposit in an escrow account the full sum of $70,911 which shall be used by the Department to ensure successful project completion and ongoing monitoring and maintenance of the enhanced pine snake habitat, and in a second escrow account, a refundable sum of $15,344 for the completion of the sapling planting costs, respectively.

10. Upon the commencement of site disturbance, pre-construction earth movement and construction of the Project, the Owner shall simultaneously convey to the Department via affidavits of title with the appropriate corporate or partnership authorizing resolutions and via Bargain and Sale Deeds with

Covenants Against Grantor's Acts for any or all of the Protected Lands, which the Department in its sole discretion, may determine to acquire. The Department may defer conveyance of any portion of the Protected Lands, if it determines that adequate site remediation and clean-up has not been concluded for that portion of the Protected Lands. Upon the Department's issuance of a notice to the Owner of the Protected Lands requesting fee simple conveyance, said Owner shall convey said lands within thirty (30) days if said lands were not conveyed at the commencement of site disturbance, pre-construction earth movement or construction of the Project.

11. In accordance with the Settlement Agreement and prior to site disturbance, pre-construction earth movement, or construction of the Project, the Wetland Mitigation Plan, for the vernal pool, last revised on November 2, 2011, must be constructed. No filling of any wetlands is permitted until such time that the mitigation project has satisfactorily been constructed in its entirety and the Department has issued its letter pursuant to the procedures and deadlines set forth in the Settlement Agreement that the pond has been satisfactorily constructed pursuant to the November 2, 2011 Wetlands Mitigation Plan.

    a. At least ten (10) business days in advance of the start of construction of the approved wetland mitigation project, the Permittee shall notify the DLUR, in writing, to request an on-site pre-construction meeting between the Permittee, the contractor, the consultant and the DLUR;

    b. Following the final grading of the mitigation project, the Permittee shall notify the DLUR for a post-grading construction meeting between the Permittee, contractor, consultant and the DLUR. The Permittee must give the DLUR at least ten (10) business days notice prior to the date of this meeting;

    c. The Permittee shall assume all liability for accomplishing corrective work should the DLUR determine that the constructed mitigation project was not constructed in accordance with the approved November 2, 2011 Wetlands Mitigation Plan. Remedial work may include re-grading, replanting and/or alteration of hydrology of the mitigation site. Pursuant to the procedures and deadlines set forth in the Settlement Agreement, the Permittee shall seek approval from the Department that the vernal pond has been constructed in accordance with the approved plans.

12. Within 30 days following the post-grading construction meeting, the Permittee shall submit a "Mitigation Plan Construction Completion Report" to the DLUR detailing as-built conditions (see below) and any changes to the approved mitigation plan that were made during construction. The report shall contain, at a minimum, the following information:

    a. A completed "Wetland Mitigation Project Completion of Construction Form" (located at http://www.nj.gov/dep/landuse/forms/index.html) to certify that the mitigation project has been constructed as designed and that the proposed vernal habitat has been successfully constructed;

    b. A copy of the approved plan if the mitigation project was built in strict accordance with said plan, or an as-built plan(s) if revisions or alterations were required or occurred, which in either case depicts final grade elevations at one foot contours, includes a table of the species and quantities of vegetation that were planted including any grasses that may have been used for soil stabilization purposes, and depicts the locations of structural components intended to serve critical life functions of the target species of herpetofauna;

    c. Photos of the constructed wetland mitigation project with a photo location map as well as the GPS waypoints in NJ state plane coordinates NAD 1983.

    d. Pursuant to the deadlines set forth in the Settlement Agreement, the Permittee may seek notice from DLUR that the vernal pond construction has been satisfactorily constructed in accordance with the approved plans.

13. Subject to complete construction of the vernal pond and pursuant to the Settlement Agreement, the Permittee may start site disturbance, pre-construction earth movement and construction of the Project. However, the Permittee shall monitor the wetland mitigation project for 5 full growing seasons beginning the year after the mitigation project has been completed. The Permittee shall submit monitoring reports to the Director of the DLUR no later than December 31st of each full monitoring year.

    All monitoring reports must include the standard items identified in the checklists entitled Mitigation Project Monitoring Reports: Checklist for Completeness, located at http://www.nj.gov/dep/landuse/forms/index.html.

14. Once the required monitoring period for the mitigation project has expired and the Permittee has submitted the final monitoring report, the DLUR shall determine whether the mitigation project is either a success or a failure. This mitigation project will be considered successful if the Permittee demonstrates all of the following:

    a. That the goals of the wetland mitigation project, including creation of desired hydroperiod, demonstrated use and evidence of reproductive activity by target species of herpetofauna, required acreage of wetlands, transition areas, and critical terrestrial habitat, as stated in the approved wetland mitigation proposal and the permit, have been satisfied;

    b. The site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or hydrophytes which are species native to the area and similar to ones identified on the mitigation planting plan;

    c. The final monitoring report must include documentation demonstrating the site is less than 5 percent occupied by invasive or noxious species such as but not limited to (Source: Snyder, David and Sylvan R. Kaufman. 2004. An overview of nonindigenous plant species in New Jersey. New Jersey Department of Environmental Protection, Division of Parks and Forestry, Office of Natural Lands Management, Natural Heritage Program, Trenton, New Jersey. 107 pages.): Acer platanoides (Norway Maple), Ailanthus altissima, (Tree of Heaven), Allaria petiole (Garlic mustard), Ampelopsis brevipedunculata (Porecelain berry), Artemisia biennis (Biennial wormwood) Artemisia vulgaris (Mugwort or Common wormwood), Berberis thunbergii (Japanese barberry), Berberis vulgaris (Common barberry), Carex kobomugi (Japanese sedge), Celastrus orbiculatus (Asian Bittersweet), Centaurea biebersteiniior maculosa (Spotted knapweed), Cirsium arvense (Canadian thistle), Dipsacus fillonum (Wild teasel), Dipsacus laciniatus (Cut-leaf teasel), Elaegnus angustifolia (Russian olive), Elaegnus umbellata (Autumn olive), Euonymus alata (Winged spindletree), Lespedeza cuneata (Chinese bush-clover), Ligustrum obtusifolium (Japanese privet), Ligustrum vulgare (Common privet), Lonicera japonica (Japanese honeysuckle), Lonicera morrowii (Morrow's bush honeysuckle), Lonicera tartarica (Tartarian honeysuckle), Lythrum salicaria (Purple loosestrife), Meliotus officinalis (Yellow sweetclover), Microstegium vimineum (Japanese stiltgrass), Myriophyllum spicatum (Eurasian water-milfoil), Phalaris arundinacea (Reed canary grass), Phragmites australis (Common reed grass), Polygonum cuspidatum (Japanese knotweed), Polygonum perfoliatum (Mile-a-minute), Potamogeton crispus (Curly leaf pondweed), Pueraria montana (Kudzu), Ranunculus ficaria (Lesser celandine), Rhamnus cathartica (Common buckthorn), Robinia pseudoacacia (Black locust), Rosa multiflora (Multiflora rose), Rubus phoeniocolasius (Wineberry), Typha latifloia (Broad-leaved cattail), Typha angustifolia (Narrowed leaved cattail);

    d. The Permittee's mitigation requirement shall not be deemed to have been satisfied unless or until the DLUR confirms in writing via a Mitigation Completion Letter that the vernal habitat creation project satisfied the permit's vernal habitat mitigation requirement;

e. If the mitigation project is considered a failure, the Permittee is required to submit a revised mitigation plan. That plan will describe the steps that will be taken to rectify the failed aspects of the Project. The revised mitigation plan shall be submitted within 30 days of receipt of the letter from the DLUR indicating the wetland mitigation project was a failure.

15. Additional development or other related construction unauthorized by this permit shall require either a modification to Freshwater Wetlands Permit #1500-04-0001.2 FWW090001 and/or CAFRA Permit #1500-04-0001.3 CAF160001, or most likely a new CAFRA and/or Freshwater Wetlands permit depending on the size and scope of the proposed development as well as the activity status of the existing CAFRA and/or Freshwater Wetlands permit.

16. The Department reserves the right to review and approve or to disapprove all future modifications or revisions required as the result of review by any local, county, State or Federal entity to ensure compliance with this permit and the applicable regulations.

17. Prior to site disturbance, pre-construction earth movement or construction of the Project, the Permittee shall obtain all other necessary local, County, State and Federal construction approval, including but not limited to Treatment Works Approval, Ocean County Soil Conservation District, Ocean County Planning Board, and Air Pollution Control permits.

18. This permit is revocable, or subject to modification or change at any time, pursuant to the applicable regulations, when in the judgement of the Department of Environmental Protection of the State of New Jersey such revocation, modification or change shall be necessary.

19. The applicant shall make specific arrangements to ensure the continuous maintenance and efficient operation of all proposed stormwater management measures onsite. This includes the inspection (and cleaning where necessary) of any and all constructed swales, basins, inlets, and mechanical treatment devices at least four times per year and after every major storm totaling 1 inch of rainfall or more, the use of appropriate soil conservation practices onsite, and any other reasonable effort required to maintain the stormwater management system in good working order.

20. The Department has determined that this project meets the requirements of the Stormwater Management rules at N.J.A.C. 7:8. Any future expansion or alteration of the approved stormwater management system, which would affect water quality, increase the rate or volume of stormwater leaving the site, affect the infiltration capacity on the site, or alter the approved low impact site design, shall be reviewed and approved by the Department prior to construction. This includes any proposed changes to the discharge characteristics of any basin, the construction of new inlets or pipes that tie into the storm sewer network and/or the replacement of existing inlets or pipes with structures of different capacity.

21. Please be advised that the authorization under the Freshwater Wetlands General Permit No. 6 issued on May 10, 2012, DLUR File No. 1500-04-0001.1 FWW090001, will expire on May 9, 2017. If the wetlands disturbance authorized under this permit is not complete by this date, a new permit will be required.

9/14/16

Colleen Keller
Assistant Director
Bureau of Coastal Regulation

Date

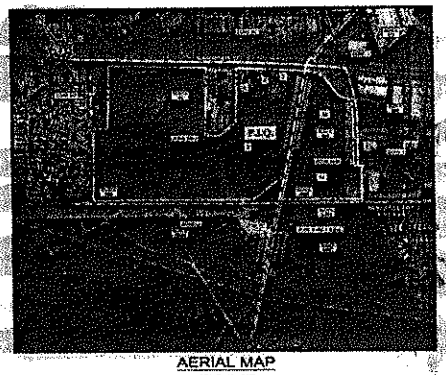
PRELIMINARY AND FINAL SITE PLAN

FOR

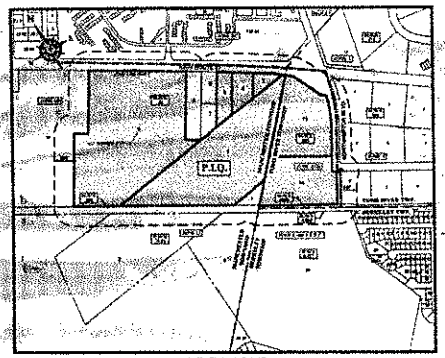
JAYLIN HOLDINGS, LLC C/O GRUNIN PROPERTIES

PROPOSED Walmart STORE (#1844-05)

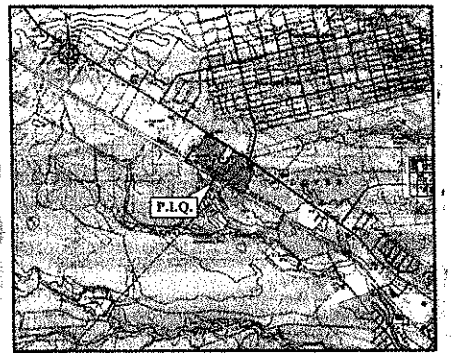
NEW JERSEY STATE HIGHWAY ROUTE #37 & NORTHAMPTON BOULEVARD
BLOCK 44, LOTS 2, 3, 4, 5, AND 9, MANCHESTER TOWNSHIP, TAX MAP SHEETS 7.02, 8 & 9 (DATED 1973);
BLOCK 505, LOTS 14 & 15, TOMS RIVER TOWNSHIP, TAX MAP SHEET 54 (DATED SEPTEMBER, 1996)
OCEAN COUNTY, NEW JERSEY



AERIAL MAP
(SCALE: 1" = 500')
SOURCE: NJGIN INFORMATION WAREHOUSE



AREA MAP
(SCALE: 1" = 500')
SOURCE: OTS PARCEL DATA MAPS



KEY MAP
(SCALE: 1" = 2,000')
SOURCE: U.S. GEOLOGICAL SURVEY MAPS

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ALERT TO CONTRACTOR:

1. THE SITEWORK FOR THE WALMART PORTION OF THIS PROJECT SHALL MEET OR EXCEED THE "WALMART STANDARD SITEWORK SPECIFICATIONS."
2. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSION AND THE FINAL CONNECTION OF SERVICES.

PROPERTY OWNERS WITHIN 200' RADIUS

TOWNSHIP OF TOMS RIVER		TOWN OF MANCHESTER		TOWN OF MANCHESTER		BOROUGH OF BERKELEY	
BLOCK/LOT	PROPERTY OWNER / ADDRESS	BLOCK/LOT	PROPERTY OWNER / ADDRESS	BLOCK/LOT	PROPERTY OWNER / ADDRESS	BLOCK/LOT	PROPERTY OWNER / ADDRESS
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

UTILITIES AND GOVERNING AGENCIES CONTACT LIST

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

APPROVAL BLOCK

COUNTY PLANNING BOARD APPROVAL

APPROVED BY THE PLANNING BOARD OF OCEAN COUNTY, NEW JERSEY.

CHAIRMAN _____ DATE _____

SECRETARY _____ DATE _____

BOARD ENGINEER _____ DATE _____

OWNER / APPLICANT:

JAYLIN HOLDINGS, LLC
C/O GRUNIN PROPERTIES
DOVER ESPLANADE BLDG. #1
1027 HOPPER AVENUE
TOMS RIVER, NJ 08753

APPROVAL BLOCK

TOWNSHIP PLANNING BOARD

PRELIMINARY & FINAL SITE APPROVAL GRANTED ON _____ BY THE TOMS RIVER TOWNSHIP PLANNING BOARD

CHAIRMAN _____ DATE _____

SECRETARY _____ DATE _____

TOWNSHIP ENGINEER

I HEREBY CERTIFY THAT THE ENGINEERING CONDITIONS IMPOSED ON THIS APPLICATION FOR PRELIMINARY & FINAL SITE PLAN APPROVAL HAVE BEEN MET

TOMS RIVER TOWNSHIP ENGINEER _____ DATE _____

TOWNSHIP PLANNING BOARD

PRELIMINARY & FINAL SITE APPROVAL GRANTED ON _____ BY THE MANCHESTER TOWNSHIP PLANNING BOARD

CHAIRMAN _____ DATE _____

SECRETARY _____ DATE _____

TOWNSHIP ENGINEER

I HEREBY CERTIFY THAT THE ENGINEERING CONDITIONS IMPOSED ON THIS APPLICATION FOR PRELIMINARY & FINAL SITE PLAN APPROVAL HAVE BEEN MET

MANCHESTER TOWNSHIP ENGINEER _____ DATE _____

APPROVED
1500 04-0001.3

OWNER CERTIFICATIONS

I CERTIFY THAT I AM THE OWNER OF BLOCK 44 LOTS 2, 3, & 5 (MANCHESTER) AND BLOCK 505 LOTS 14 & 15 (TOMS RIVER) AND CONSENT TO THE FILING OF THIS APPLICATION

NAME _____ DATE 4/15/16

I CERTIFY THAT I AM THE OWNER OF BLOCK 44 LOT 4 (MANCHESTER) AND CONSENT TO THE FILING OF THIS APPLICATION.

NAME _____ DATE _____

I CERTIFY THAT I AM THE OWNER OF BLOCK 44 LOT 9 (MANCHESTER) AND CONSENT TO THE FILING OF THIS APPLICATION.

NAME _____ DATE _____

PREPARED BY
BOHLER ENGINEERING
35 TECHNOLOGY DRIVE
WARREN, NEW JERSEY 07059
PH: (908) 668-8300
FX: (908) 754-4401
www.BohlerEngineering.com

BOHLER ENGINEERING

REVISIONS

REV.	DATE	COMMENT
[illegible]	[illegible]	[illegible]

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT NOTES

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED Walmart

(STORE #1844-05)

BLOCK 44 LOTS 2, 3, 4, 5 & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8 & 9)
BLOCK 505 LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54)
RUSH & FIRST & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

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Fax (908) 754-4401
www.BohlerEngineering.com

G.B. MURRAY
PROFESSIONAL ENGINEER
NEW JERSEY LIC. NO. [illegible]

SHEET TITLE

COVER SHEET

SHEET NUMBER

1 OF 32

REVISION 2 - 09/15/16

GENERAL NOTES:

DEMOLITION NOTES:

GRADING & UTILITY NOTES:

WAL-MART UTILITY NOTES:

OCEAN COUNTY SCD NOTES:

BMP MAINTENANCE EROSION NOTES:

WAL-MART GRADING NOTES:

WAL-MART SITE NOTES:

ABOVE GROUND DETENTION BASIN MAINTENANCE NOTES:

UNDERGROUND DETENTION BASIN MAINTENANCE NOTES:

INFILTRATION BASIN CONSTRUCTION NOTES:

ALL EXISTING ON-SITE FEATURES WITHIN THE LIMIT OF DISTURBANCE ARE TO BE REMOVED UNLESS OTHERWISE NOTED. ALL EXISTING FEATURES OUTSIDE LIMIT OF DISTURBANCE ARE TO REMAIN UNLESS OTHERWISE NOTED.

SEQUENCE OF CONSTRUCTION:

SITE SPECIFIC NOTES

WALMART GENERAL EROSION AND SEDIMENT CONTROL NOTES

MOA INSTRUCTIONS TO CONTRACTOR:

BOHLER ENGINEERING

REVISIONS

NO.	DATE	COMMENT
1	08/14/15	NEW WAL-CURB
2	09/14/15	NEW PCSD CURB
3	09/18/15	ON SITE CONC LET TYP.

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED

Walmart

(STORE #1844-00)

BLOCK 14, LOTS 2, 3, 4, 5, 8, 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7, 32, 46 & 51)
BLOCK 50.1, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54)
NJSH RTNO 1 & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING

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www.BohlerEngineering.com

G.B. MURRAY

THOMAS B. MURRAY
NEW JERSEY LICENSE No. 24007

SHEET TITLE

NOTES

SHEET NUMBER

2 OF 32

REVISION 2 - 09/18/15

GENERAL NOTES:

SIGNAGE TABLE

BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROTECT YOURSELF

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED

Walmart

OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING

G.B. MURRAY

PROFESSIONAL ENGINEER

NOTES

3

OF 32

REFER TO NOTES SHEET FOR ADDITIONAL DEMOLITION NOTES

CONTRACTOR SHALL CONTACT 811 FOR LOCATION OF ALL UTILITIES AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION

T.B.R. = TO BE REMOVED

ALL EXISTING FEATURES ARE TO REMAIN UNLESS OTHERWISE NOTED.

CONTRACTOR NOTES

1. CONTRACTOR SHALL REFER TO "PROPOSED HIGHWAY CONSTRUCTION PLANS" BY ORTH-RODGERS AND ASSOCIATES INC. FOR THE PROPOSED IMPROVEMENTS ASSOCIATED WITH RUSH ROUTE 37 & NORTHAMPTON BLVD
2. CONTRACTOR TO INSTALL THE REQUIRED SOIL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO SITE DISTURBANCE
3. REFER TO SOIL EROSION & SEDIMENT CONTROL PLANS SHEETS 16 & 18

ALERT TO CONTRACTOR:

PRIOR TO THE CONSTRUCTION OF OR CONNECTION TO ANY STORM DRAIN, SANITARY SEWER, WATER MAIN OR ANY OF THE DRY UTILITIES, THE CONTRACTOR SHALL EXCAVATE, VERIFY AND CALCULATE ALL POINTS OF CONNECTION AND ALL UTILITY CROSSINGS AND INFORM ESC AND THE OWNER/DEVELOPER OF ANY CONFLICT OR REQUIRED DEVIATIONS FROM THE PLAN. NOTIFICATION SHALL BE MADE A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION. ESC AND ITS CLIENTS SHALL BE HELD HARMLESS IN THE EVENT THAT THE CONTRACTOR FAILS TO MAKE SUCH NOTIFICATION

NEW JERSEY STATE HIGHWAY ROUTE No. 37 (114' WIDE R.O.W.)

NORTHAMPTON BLVD. (80' WIDE R.O.W.)

MATCH LINE A-B

BLOCK 40 LOT 1 — BLOCK 40 LOT 1 — BLOCK 40 LOT 1 — BLOCK 1 LOT 8 — BLOCK 472 LOT 10 — BLOCK 44 LOT 8 — BLOCK 44 LOT 6 — BLOCK 44 LOT 7 — BLOCK 44 LOT 5 — BLOCK 44 LOT 2 — BLOCK 504 LOT 1 — BLOCK 505 LOT 15

APPROXIMATE LOCATION OF EXISTING PINE SNAKE DEN

P.O.B.

1 TREE PROTECTION DURING SITE CONSTRUCTION DETAIL

GRAPHIC SCALE

BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PRELIMINARY AND FINAL SITE PLAN

FOR PROPOSED Walmart (STORE #1844-05)

BLOCK 44, LOTS 3, 5, 6, 7, 8, 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 1 (2, 8, 9, 9)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54)
RUSH STREET & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

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Fax: (908) 754-4401
www.BohlerEngineering.com

G.B. MURRAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 24666

SHEET TITLE: DEMOLITION PLAN 'A'

SHEET NUMBER: 4 OF 32

REVISION 2 - 08/08/06

CONTRACTOR SHALL CONTACT 811 FOR LOCATION OF ALL UTILITIES AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION

REFER TO NOTES SHEET FOR ADDITIONAL DEMOLITION NOTES

ALERT TO CONTRACTOR:

PRIOR TO THE CONSTRUCTION OF OR CONNECTION TO ANY STORM DRAIN, SANITARY SEWER, WATER MAIN OR ANY OF THE DRY UTILITIES, THE CONTRACTOR SHALL EXCAVATE, VERIFY AND CALCULATE ALL POINTS OF CONNECTION AND ALL UTILITY CROSSINGS AND INFORM CEC AND THE OWNER/DEVELOPER OF ANY CONFLICT OR REQUIRED DEVIATIONS FROM THE PLAN. NOTIFICATION SHALL BE MADE A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION. CEC AND ITS CLIENTS SHALL BE HELD HARMLESS IN THE EVENT THAT THE CONTRACTOR FAILS TO MAKE SUCH NOTIFICATION.

ALL EXISTING FEATURES ARE TO REMAIN UNLESS OTHERWISE NOTED.

MATCH LINE A-B

NORTHAMPTON BLVD. (80' WIDE R.O.W.)

EXECUTIVE DRIVE (80' WIDE R.O.W.)

CONRAIL (A.K.A. CONSOLIDATED RAIL CORP.) (F.K.A. CENTRAL RAILROAD OF NEW JERSEY) (80' WIDE)

GRAPHIC SCALE

CONTRACTOR NOTES:

1. CONTRACTOR SHALL REFER TO "PROPOSED ROADWAY CONSTRUCTION PLANS" BY EKTA ENGINEERS AND ASSOCIATES, INC. FOR THE PROPOSED IMPROVEMENTS ASSOCIATED WITH RUSH ROUTE 37 & NORTHAMPTON BLVD.
2. CONTRACTOR TO INSTALL THE REQUIRED SOIL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO SITE DISTURBANCE.
3. REFER TO SOIL EROSION & SEDIMENT CONTROL PLANS, SHEETS 12 & 13.

BOHLER ENGINEERING

REVISIONS

REV.	DATE	COMMENT	BY
1	08/13/19	REF. FOR CLEARING	JAR
2	09/10/19	ADD REF. FOR CLEARING	JAR

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT: PRELIMINARY AND FINAL SITE PLAN

FOR: PROPOSED Walmart (STORE #9841-05)

BLOCK 44 LOT 2, 3, 4, 5 & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7 & 8 R)
BLOCK 505, LOTS 14 & 16
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 34)
RUSH ROUTE 37 & NORTHAMPTON BLVD.
OCEAN COUNTY, NEW JERSEY

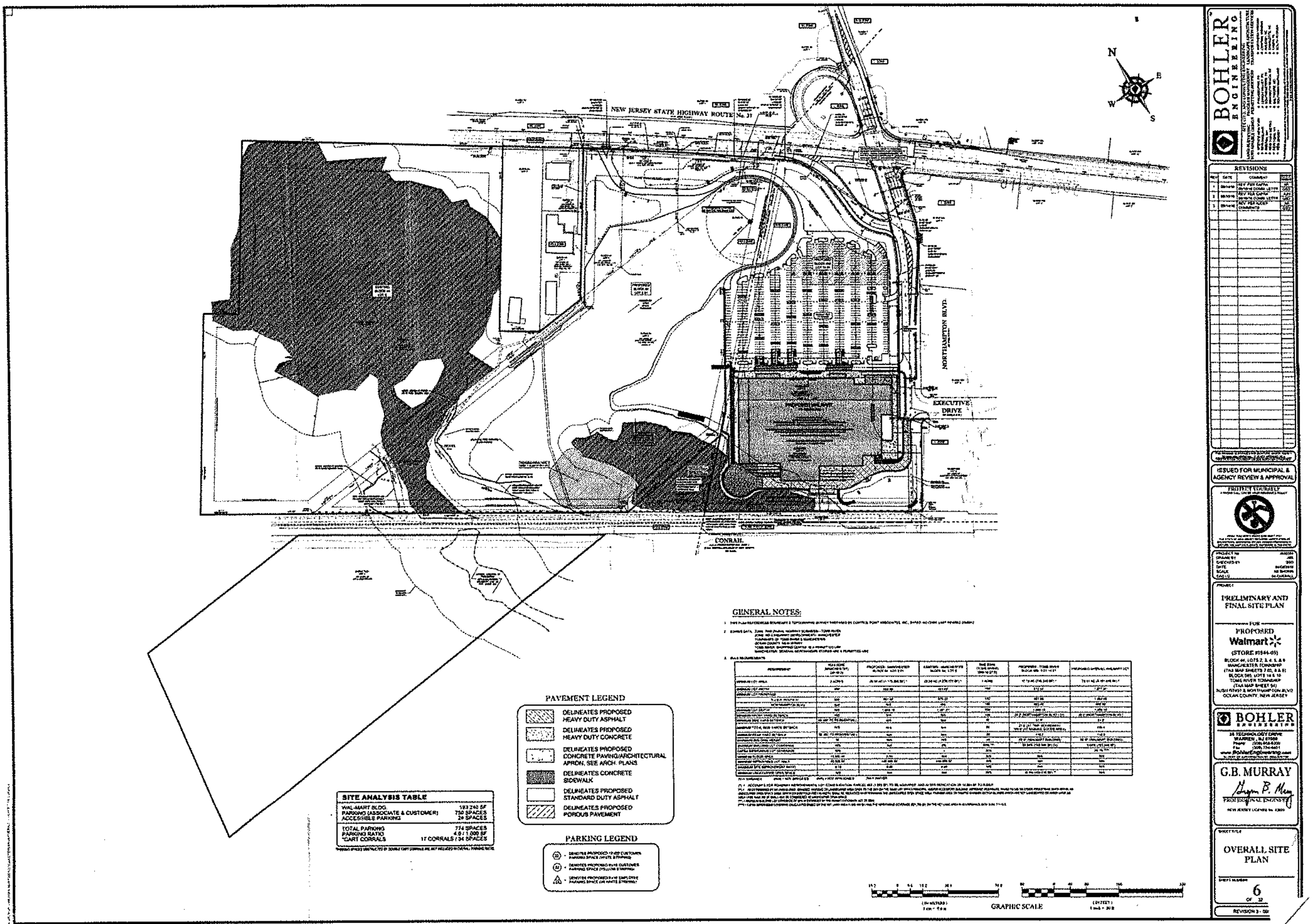
BOHLER ENGINEERING
35 TECHNOLOGY DRIVE
WARREN, NJ 07059
Phone (908) 668-8300
Fax (908) 755-1027
www.BohlerEngineering.com

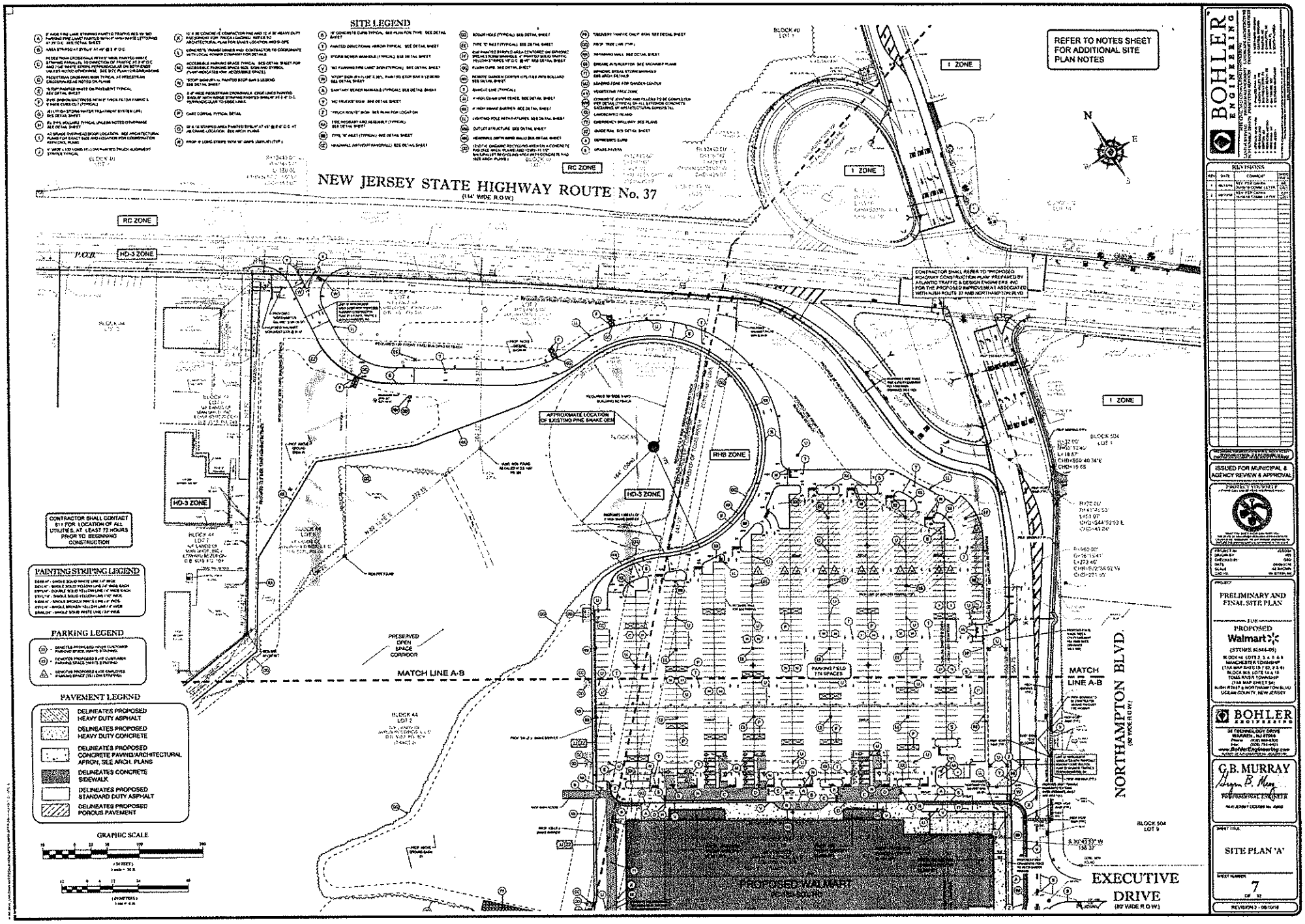
G.B. MURRAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 43600

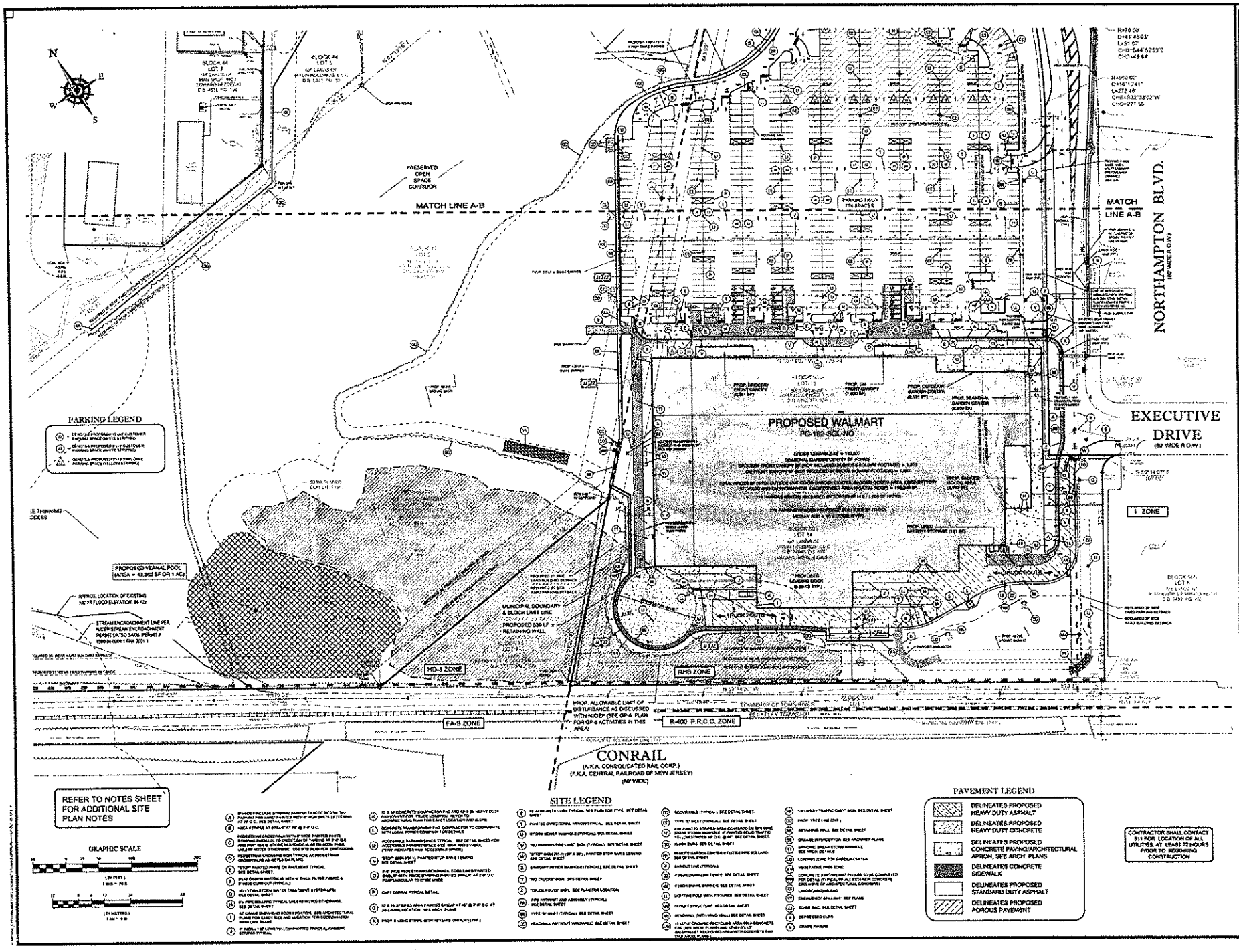
SHEET TITLE: DEMOLITION PLAN 'B'

SHEET NUMBER: 5 OF 30

REVISION 2 - 09/10/19


BOHLER ENGINEERING
REVISIONS
ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL
PROTECT YOURSELF
PRELIMINARY AND FINAL SITE PLAN
FOR
PROPOSED
Walmart
(STORE #1544-05)
NEW JERSEY STATE HIGHWAY ROUTE No. 37
NORTHAMPTON BLVD.
EXECUTIVE DRIVE
CONRAIL
N
E
S
W
GENERAL NOTES:
PAVEMENT LEGEND
DELINEATES PROPOSED HEAVY DUTY ASPHALT
DELINEATES PROPOSED HEAVY DUTY CONCRETE
DELINEATES PROPOSED CONCRETE PAVING/ARCHITECTURAL APRON, SEE ARCH. PLANS
DELINEATES CONCRETE SIDEWALK
DELINEATES PROPOSED STANDARD DUTY ASPHALT
DELINEATES PROPOSED POROUS PAVEMENT
PARKING LEGEND
SITE ANALYSIS TABLE
WAL-MART BLDG. 193 240 SF
PARKING (ASSOCIATE & CUSTOMER) 750 SPACES
ACCESSIBLE PARKING 24 SPACES
TOTAL PARKING 774 SPACES
PARKING RATIO 4.0 / 1,000 SF
*CART CORRALS 17 CORRALS / 34 SPACES
GRAPHIC SCALE
G.B. MURRAY
PROFESSIONAL ENGINEER
OVERALL SITE PLAN
6


SITE LEGEND
REFER TO NOTES SHEET FOR ADDITIONAL SITE PLAN NOTES
NEW JERSEY STATE HIGHWAY ROUTE No. 37
(134' WIDE R.O.W.)
RC ZONE
HD-3 ZONE
I ZONE
RH8 ZONE
P.O.B.
CONTRACTOR SHALL REFER TO "PROPOSED ROADWAY CONSTRUCTION PLAN" PREPARED BY ATLANTIC TRAFFIC & DESIGN ENGINEERS INC FOR THE PROPOSED IMPROVEMENT ASSOCIATED WITH RUSH ROUTE 37 AND NORTHAMPTON BLVD
APPROXIMATE LOCATION OF EXISTING PINE SNAKE DEN
CONTRACTOR SHALL CONTACT 811 FOR LOCATION OF ALL UTILITIES AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION
PAINTING STRIPING LEGEND
PARKING LEGEND
PAVEMENT LEGEND
DELINEATES PROPOSED HEAVY DUTY ASPHALT
DELINEATES PROPOSED HEAVY DUTY CONCRETE
DELINEATES PROPOSED CONCRETE PAVING/ARCHITECTURAL APRON, SEE ARCH. PLANS
DELINEATES CONCRETE SIDEWALK
DELINEATES PROPOSED STANDARD DUTY ASPHALT
DELINEATES PROPOSED POROUS PAVEMENT
GRAPHIC SCALE
PRESERVED OPEN SPACE CORRIDOR
MATCH LINE A-B
PARKING 7 ELD 174 SPACES
PROPOSED WALMART
NORTHAMPTON BLVD.
(80' WIDE R.O.W.)
EXECUTIVE DRIVE
(80' WIDE R.O.W.)
BOHLER ENGINEERING
REVISIONS
ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL
PRELIMINARY AND FINAL SITE PLAN
PROPOSED
Walmart
(STORE #444-05)
BLOCK 44, LOTS 2, 3, 4, 5 & 6
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7 & 7.01 R)
BLOCK 505, LOTS 13 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 34)
RUSH ROUTE 37 & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY
G.B. MURRAY
PROFESSIONAL ENGINEER
SITE PLAN 'A'
SHEET NUMBER
7
OF 32



BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED Walmart

(STORE #1444-05)

BLOCK 44, LOTS 2, 3, 4, 1, 5, 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 1 (2, 4, 5, 9)
BLOCK 506, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 34)
NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

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54 TECHNOLOGY DRIVE
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NEW JERSEY LICENSE NO. 34822

SITE PLAN 'B'

SHEET NUMBER
8
OF 33

REVISION 2 - 08/10/18

FOUNDATION SUBSURFACE PREPARATION

PROPOSED RETAIL DEVELOPMENT (WAL-MART STORE #1844-05)

N.J.S.H. ROUTE 37 AND NORTHAMPTON BOULEVARD
MANCHESTER AND TOMS RIVER, OCEAN COUNTY, NEW JERSEY

AUGUST 31, 2009

UNLESS SPECIFICALLY INDICATED OTHERWISE IN THE DRAWINGS AND/OR SPECIFICATIONS, THE LIMITS OF THIS SUBSURFACE PREPARATION ARE CONSIDERED TO BE THAT PORTION OF THE SITE DIRECTLY BENEATH AND FIVE FEET BEYOND THE BUILDING ADDITION AND APPURTENANCES. APPURTENANCES ARE THOSE ITEMS ATTACHED TO THE BUILDING PROPER (REFER TO DRAWING SHEET SP1), TYPICALLY INCLUDING, BUT NOT LIMITED TO, THE BUILDING BERMHOUSE, GARDEN CENTER, PORCHES, RAMPS, STOOPS, TRUCK WELLS/DOCKS, COMPACTOR PAD, ETC. THE BASE AND THE VAPOR BARRIER, WHERE REQUIRED, DO NOT EXTEND BEYOND THE LIMITS OF THE ACTUAL BUILDING AND THE APPURTENANCES.

ESTABLISH THE FINAL SUBGRADE ELEVATION TO ALLOW FOR THE CONCRETE SLAB AND BASE, REFERENCE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR REQUIRED SLAB THICKNESS. THE MINIMUM 6.0 INCH THICK BASE MATERIAL SHALL CONFORM TO THE WALMART ATTACHED CONCRETE CONSULTANT'S RECOMMENDED N.J.D.O.T. HIGHWAYS. THE BASE SHALL BE PROVIDED BY THE BUILDING CONTRACTOR IN JOINT PROJECTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ACCURATE MEASUREMENTS FOR ALL CUT AND FILL DEPTHS REQUIRED. ANY PROPOSED EQUIVALENT ALTERNATIVE BASE MATERIAL MUST BE SUBMITTED FOR APPROVAL WITHIN 30 DAYS AFTER AWARD OF CONTRACT. ANY EQUIVALENT ALTERNATIVE SHALL ONLY BE USED IF APPROVED IN WRITING BY THE CEG AND AOR.

EXISTING FOUNDATIONS, SLABS, PAVEMENTS AND BELOW-GRADE STRUCTURES SHALL BE REMOVED FROM THE BUILDING AREA. REMOVE SURFACE VEGETATIONS, TOPSOIL, ROOT EXISTING ORGANIC MATERIALS, AND SOFT OR OTHERWISE UNSUITABLE MATERIAL FROM THE BUILDING AREA. PROOFROLL EXPOSED SUBGRADE. REMOVE AND REPLACE UNSUITABLE AREAS (IF ENCOUNTERED) WITH SUITABLE MATERIAL AND/OR PROVIDE MECHANICAL OR CHEMICAL SUBGRADE STABILIZATION AS DIRECTED BY THE GEOTECHNICAL ENGINEER. SUBGRADE MATERIAL SHALL BE FREE OF ORGANIC AND OTHER DELETERIOUS MATERIALS AND SHALL MEET THE FOLLOWING REQUIREMENTS:

LOCATION WITH RESPECT TO FINAL GRADE	PI	LL
BUILDING AREA, BELOW UPPER 4 FEET	20 MAX	30 MAX
BUILDING AREA, UPPER 4 FEET	12 MAX	40 MAX

SUBGRADE MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING EIGHT INCHES IN THICKNESS AND COMPACTED TO AT LEAST 95 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D 1557) AT A MOISTURE CONTENT WITHIN 2 PERCENT BELOW TO 2 PERCENT ABOVE THE OPTIMUM.

THE FOUNDATION AND FLOOR SLAB SUBGRADES MUST BE PROOFROLLED AND COMPACTED, AS NECESSARY, TO IMPROVE THE UPPER TWO FEET TO FOUR FEET OF LOOSE EXISTING SURFICIAL NATURAL SOILS PRIOR TO STRUCTURAL SUPPORT AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THE FOUNDATION AND FLOOR SLAB SUBGRADES MUST ALSO BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO INSTALLATION. IF UNSUITABLE CONDITIONS ARE ENCOUNTERED, ALTERNATIVE RECOMMENDATIONS, SUCH AS ADDITIONAL EXCAVATION AND REPLACEMENT, MECHANICAL SUBGRADE STABILIZATION, AND/OR DEEPER FOUNDATION EMBEDMENT MAY BE REQUIRED AS DIRECTED BY THE OWNER'S GEOTECHNICAL ENGINEER.

THE FOUNDATION SYSTEM SHALL BE ISOLATED SPREAD FOOTINGS AT COLUMNS AND CONTINUOUS SPREAD FOOTINGS AT WALLS.

THIS FOUNDATION SUBSURFACE PREPARATION DOES NOT CONSTITUTE A COMPLETE SITE WORK SPECIFICATION. IN CASE OF CONFLICT, INFORMATION CONTAINED IN THIS PREPARATION SHALL TAKE PRECEDENCE OVER THE WALMART SPECIFICATIONS. REFER TO THE SPECIFICATIONS FOR SITEWORK INFORMATION NOT COVERED IN THIS PREPARATION. THIS INFORMATION WAS TAKEN FROM A REPORT OF GEOTECHNICAL INVESTIGATION AND STORMWATER MANAGEMENT AREA EVALUATION PREPARED BY WHITESTONE ASSOCIATES, INC., DATED AUGUST 31, 2009 (GEOTECHNICAL INVESTIGATION AND STORMWATER MANAGEMENT AREA EVALUATION REPORT IS FOR INFORMATION ONLY AND IS NOT A CONSTRUCTION SPECIFICATION).

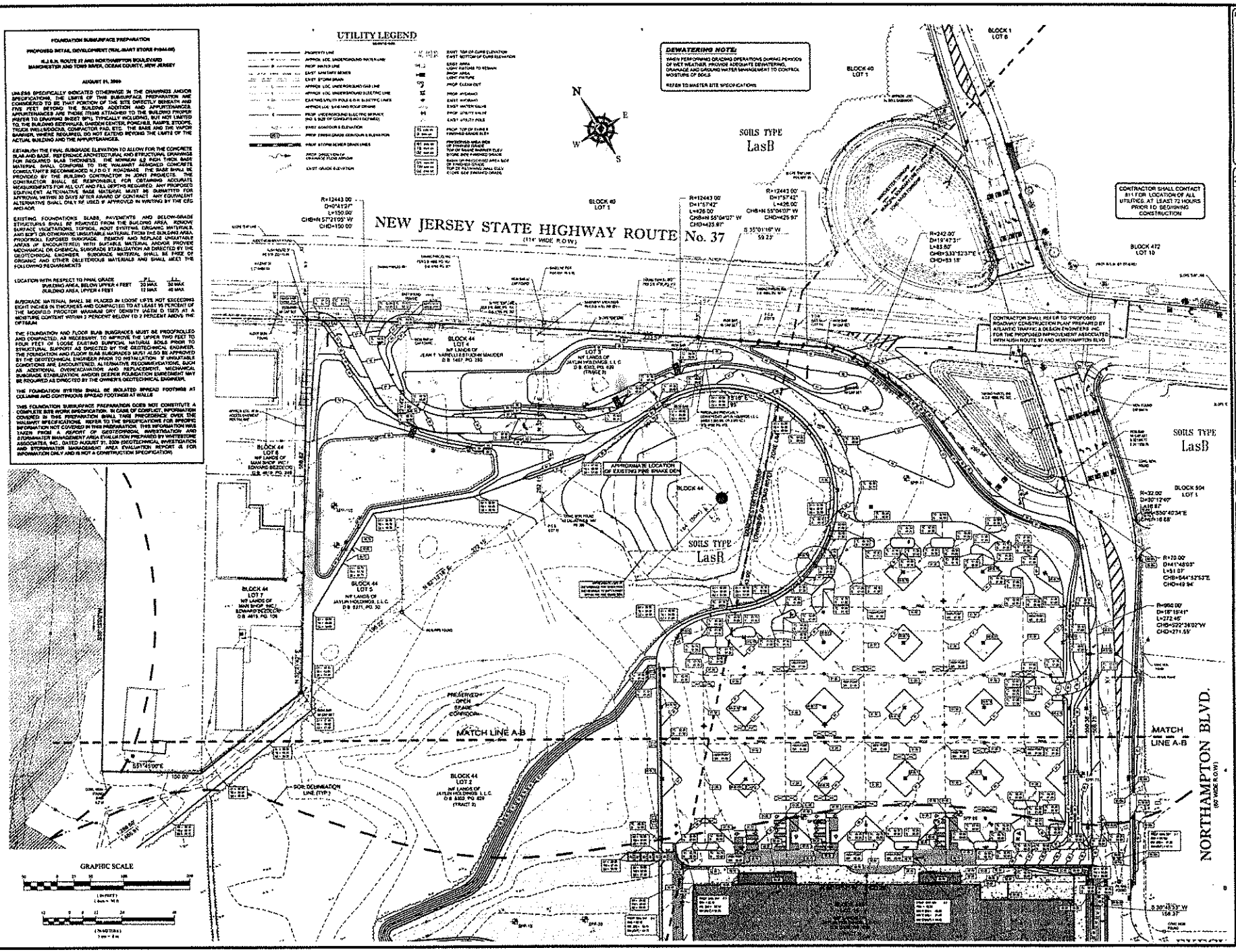
UTILITY LEGEND

PROPERTY LINE	EXIST TOP OF CURB ELEVATION
APPROX LOC UNDERGROUND WATER LINE	EXIST BOTTOM OF CURB ELEVATION
PROP WATER LINE	EXIST AREA
EXIST SANITARY SEWER	LIGHT FIXTURE TO REMAIN
EXIST STORM DRAIN	PROP AREA
APPROX LOC UNDERGROUND GAS LINE	LIGHT FIXTURE
APPROX LOC UNDERGROUND ELECTRIC LINE	PROP CLEAN OUT
EXISTING UTILITY POLE & O.H. ELECTRIC LINES	PROP HYDRANT
APPROX LOC SUBSURFACE DRAINS	EXIST HYDRANT
PROP UNDERGROUND ELECTRIC SERVICE (NO 1 SIZE OF CONDUITS NOT DEFINED)	PROP SINGLE VALVE
EXIST CONTOUR & ELEVATION	EXIST UTILITY POLE
PROP SPOT GRADE CONTOUR & ELEVATION	PROP TOP OF CURB / FINISHED GRADE
PROP STORM SEWER DRAIN LINES	PROPOSED WALK SPOT OF FINISHED GRADE
PROP CONTOUR	TOP OF WALK/BOTTOM WALL ELEV
PROP DIRECTION OF FLOW	STORM DRAIN FINISHED GRADE
EXIST GRADE ELEVATION	BOTTOM OF PROPOSED AREA & BOF FLOOR SLAB FINISHED GRADE
	TOP OF FLOOR/BOTTOM WALL ELEV FLOOR SLAB FINISHED GRADE

DEWATERING NOTE:

WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GRADING WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS.

REFER TO MASTER SITE SPECIFICATIONS.



BOHLER ENGINEERING

REVISIONS

REV	DATE	COMMENT
1	09/04/09	REV PER CONTRACT
2	09/10/09	REV PER CLIENT

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT TYPE/SCALE

PROJECT NO. W0000
DRAWN BY JKO
CHECKED BY BGM
DATE 09/04/2009
SCALE AS SHOWN
CAD ID W0000-PRE

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED Walmart

(STORE #1844-05)

BLOCK 44, LOTES 1, 2, 3, 6 & 7
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7 & 12 & 15)
BLOCK 504 LOTS 1 & 13
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54)
NJSH (R 37) & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
35 TECHNOLOGY DRIVE
WARREN, NJ 07059
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FAX (908) 754-4401
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G.B. MURRAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 33523

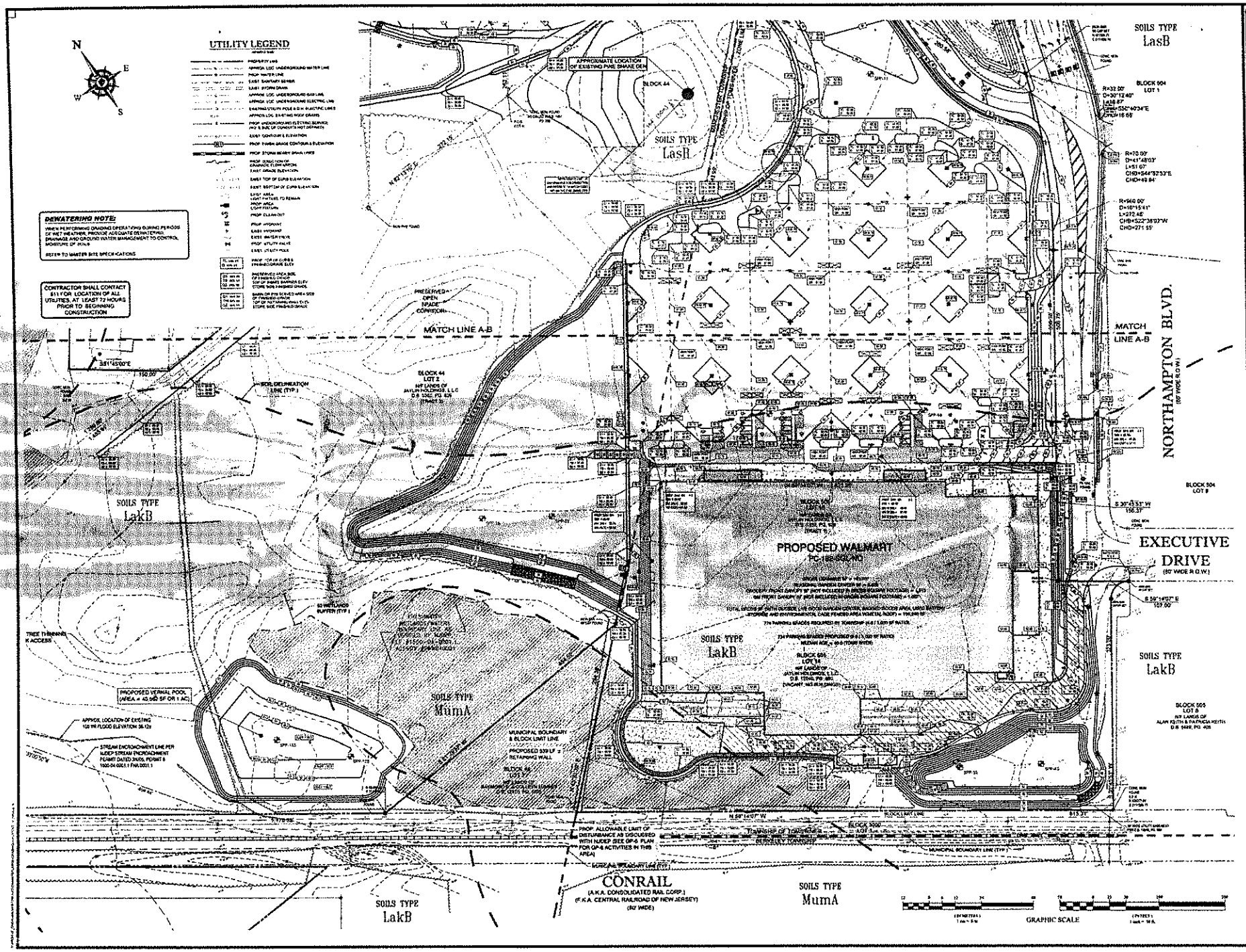
SHEET TITLE

GRADING PLAN 'A'

SHEET NUMBER

9 OF 32

REVISION 2 - 09/10/09



BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED Walmart (STORE #3844-05)

BLOCK 44 LOTS 1, 3, 4, 5, 6
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7, 12, 13, 17)
BLOCK 501, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 16)
NORTHPORT & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
34 TECHNOLOGY DRIVE
WARREN, NJ 07059
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Fax: (908) 754-4001
www.BohlerEngineering.com

G.B. MURRAY
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NEW JERSEY LICENSE No. 34505

SHEET TITLE
GRADING PLAN 'B'

SHEET NUMBER
10 OF 32

REVISION 2 - 08/10/16

UTILITY LEGEND

PROPERTY LINE
APPROX. LOC. UNDERGROUND WATER LINE
PROP. WATER LINE
EXIST. SANITARY SEWER
EXIST. STORM DRAIN
APPROX. LOC. UNDERGROUND GAS LINE
APPROX. LOC. UNDERGROUND ELECTRIC LINE
EXISTING UTILITY POLE & O/H ELECTRIC WIRES
APPROX. LOC. EXISTING ROOF DRAINS
PROP. UNDERGROUND ELECTRIC SERVICE AND E. BOX OF DONOUTS NOT DEPICTED
EXIST. SPOT ELEVATION
PROP. FINISH GRADE CONTOUR & ELEVATION
PROP. STORM SEWER DRAIN LINES
PROP. DIRECTION OF DRAINAGE FLOW ARROW
EXIST. GRADE ELEVATION
EXIST. TOP OF CURB ELEVATION
EXIST. BOTTOM OF CURB ELEVATION
EXIST. AREA LIGHT FIXTURE TO REMAIN
PROP. AREA LIGHT FIXTURE
PROP. CLEAN OUT
PROP. HYDRANT
EXIST. HYDRANT
EXIST. WATER VALVE
PROP. VALVE VALVE
EXIST. UTILITY POLE
PROP. TOP OF SHARK SHRINKS
PROP. SHRINKS SHRINKS ELEV.
EXIST. TOP OF SHARK SHRINKS
& FINISHED SHRINKS ELEV.
BARRIER PROTECTED AREA BOX
PROP. SHRINKS SHRINKS
TOP OF RETAINING WALL ELEV.
STORE BOXES FINISHED SHRINKS

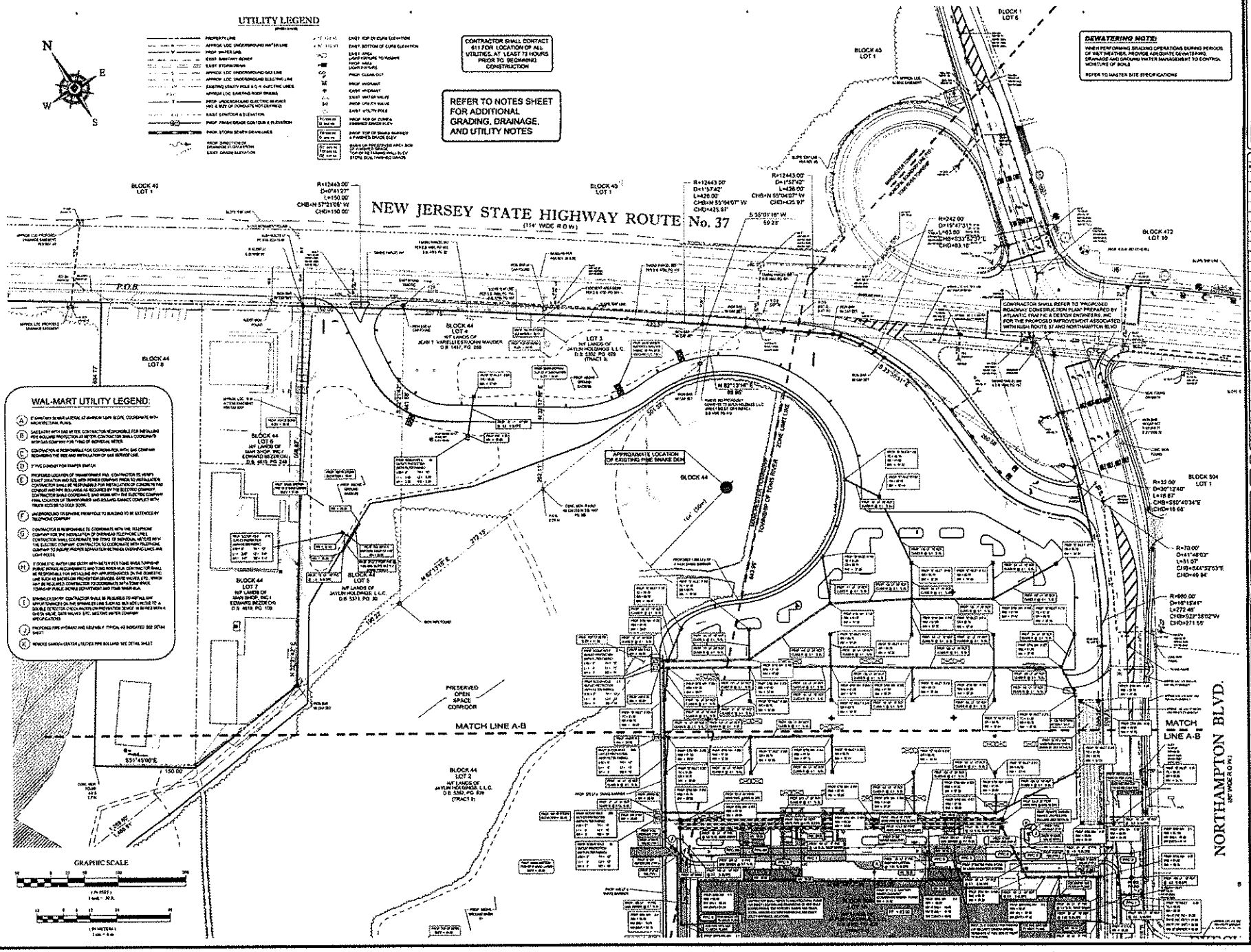
CONTRACTOR SHALL CONTACT 811 FOR LOCATION OF ALL UTILITIES, AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION

REFER TO NOTES SHEET FOR ADDITIONAL GRADING, DRAINAGE, AND UTILITY NOTES

DEWATERING NOTE:

WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS

REFER TO MASTER SITE SPECIFICATIONS



WAL-MART UTILITY LEGEND:

(A) SANITARY SEWER LATERAL 6" SHWN ON UPR BLDG. COORDINATE WITH ARCHITECTURAL PLANS.

(B) GAS SERVICE WITH GAS METER. CONTRACTOR RESPONSIBLE FOR INSTALLING PIPE BOLLARD PROTECTION AT METER. CONTRACTOR SHALL COORDINATE WITH GAS COMPANY FOR FINAL OF INDIVIDUAL METER.

(C) CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH GAS COMPANY REGARDING THE RISE AND INSTALLATION OF GAS SERVICE LINE.

(D) 2" PVC CONDUIT FOR SWITCH SWITCH

(E) PROPOSED LOCATION OF TRANSFORMER PAD. CONTRACTOR TO VERIFY EXACT LOCATION AND SIZE WITH POWER COMPANY PRIOR TO INSTALLATION. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF CONCRETE FOR CONDUIT AND PAD BOLLARDS AS REQUIRED BY THE ELECTRIC COMPANY. CONTRACTOR SHALL COORDINATE AND WORK WITH THE ELECTRIC COMPANY FINAL LOCATION OF TRANSFORMER AND SOLVING GRADE CONFLICT WITH TRUCK ACCESS TO DOCK DOOR.

(F) UNDERGROUND TELEPHONE FROM POLE TO BUILDING TO BE EXTENDED BY TELEPHONE COMPANY.

(G) CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE TELEPHONE COMPANY FOR THE INSTALLATION OF OVERHEAD TELEPHONE LINES. CONTRACTOR SHALL COORDINATE THE TYPE OF INDIVIDUAL METERS WITH THE ELECTRIC COMPANY. CONTRACTOR TO COORDINATE WITH TELEPHONE COMPANY TO INSURE PROPER SEPARATION BETWEEN OVERHEAD LINES AND LIGHT POLES.

(H) IF DOMESTIC WATER LINE ENTRY WITH METER PIT FOUND INSIDE TOWNSHIP PUBLIC ROADWAYS AND TUNNEL INSIDE HUB. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ANY APPURTENANCES ON THE DOMESTIC LINE SUCH AS BACKFLOW PREVENTOR DEVICES, GATE VALVES, ETC. WHICH MAY BE REQUIRED. CONTRACTOR TO COORDINATE WITH TOWNSHIP PUBLIC WORKS DEPARTMENT AND FIRE MARSHAL.

(I) SPRINKLER ENTRY. CONTRACTOR SHALL BE REQUIRED TO INSTALL ANY APPURTENANCES ON THE SPRINKLER LINE SUCH AS BUT NOT LIMITED TO A DOUBLE STRUCTURE CHECK VALVE PREVENTION DEVICE IN PITS WITH A GATE VALVE, GATE VALVES, ETC. MEETING WATER COMPANY SPECIFICATIONS.

(J) PROPOSED FIRE HYDRANT AND ASSEMBLY TYPICAL AS INDICATED. SEE DETAIL SHEET

(K) REMOVE GARDEN CENTER UTILITIES PIPE BOLLARD. SEE DETAIL SHEET

BOHLER ENGINEERING

REVISIONS

REV.	DATE	COMMENT
1	08/16/18	SITE PLAN COMMENTS
2	09/14/18	WATER & SEWER LA STYLE
3	10/18/18	WALK ON COMMENTS
4	10/19/18	WALK ON COMMENTS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROTECT YOURSELF

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED Walmart

(STORE #1844-05)

BLOCK 44, LOTS 2, 3, 4, 5 & 8
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7 OF 8 & 9)
BLOCK 504, LOTS 1 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54)
HIGH STREET & NORTHAMPTON BLVD.
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING

G.B. MURRAY

PROFESSIONAL ENGINEER

NEW JERSEY LICENSE No. 45586

DRAINAGE AND UTILITIES PLAN 'A'

11 OF 32

REVISION 3 - 09/18/18

WAL-MART UTILITY LEGEND:

(A) IF SANITARY SEWER LATERAL IS ABANDONED DIRECTLY BELOW FLOOR, COORDINATE WITH ARCHITECTURAL PLANS

(B) GAS ENTRY WITH GAS METER: CONTRACTOR RESPONSIBLE FOR INSTALLING PIPE BELOW FROST PROTECTION AT METER. CONTRACTOR SHALL COORDINATE WITH GAS COMPANY FOR TYING OF INDIVIDUAL METER.

(C) CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH GAS COMPANY REGARDING THE SIZE AND INSTALLATION OF GAS SERVICE LINE.

(D) 1' PVC CONDUIT FOR TRAFFIC SWITCH.

(E) PROPOSED LOCATION OF TRANSFORMER PAD. CONTRACTOR TO VERIFY EXACT LOCATION AND SIZE WITH POWER COMPANY PRIOR TO INSTALLATION. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF CONCRETE PAD. CONDUIT AND PIPE SCHEDULE AS REQUIRED BY THE ELECTRIC COMPANY. CONTRACTOR SHALL COORDINATE SAME WORK WITH THE ELECTRIC COMPANY FINAL LOCATION OF TRANSFORMER AND BOLLARD. CONDUIT CONFLICT WITH TRUCK ACCESS TO DOCK DOOR.

(F) UNDERGROUND TELEPHONE FROM POLE TO BUILDING TO BE EXTENDED BY TELEPHONE COMPANY.

(G) CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE TELEPHONE COMPANY FOR THE INSTALLATION OF OVERHEAD TELEPHONE LINES. CONTRACTOR SHALL COORDINATE THE TYING OF INDIVIDUAL METERS WITH THE ELECTRIC COMPANY. CONTRACTOR TO COORDINATE WITH TELEPHONE COMPANY 18 INCHES MINIMUM SEPARATION BETWEEN GAS AND COMMUNICATION LIGHT PLATES.

(H) IF DOMESTIC WATER LINE ENTRY WITH A 90 BEND HAS TOWN OWNER-SUPPLIED BOXES REQUIREMENTS AND TOWN WATER MUA CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ANY APPURTENANCES ON THE DOMESTIC LINE SUCH AS BACKFLOW PREVENTION DEVICES, GATE VALVES, ETC. WHICH MAY BE REQUIRED. CONTRACTOR IS COORDINATE WITH TOWN WATER OWNER OF PUBLIC WORKS DEPARTMENT AND TOWN WATER MUA.

(I) SPRINKLER ENTRY: CONTRACTOR SHALL BE REQUIRED TO INSTALL ANY APPURTENANCES ON THE SPRINKLER LINE SUCH AS, BUT NOT LIMITED TO, A DOUBLE DETECTOR CHECK BACKFLOW PREVENTION DEVICE IN SERIES WITH A CHECK VALVE, GATE VALVE, ETC. AS THE WATER COMPANY SPECIFICATIONS.

(J) PROPOSED FIRE HYDRANT AND ANCHORS TYPICAL AS INDICATED. SEE DETAIL SHEET

(K) REMOTE CHECK VALVE UTILITIES PIPE EQUIPPED. SEE DETAIL SHEET

UTILITY LEGEND

PROPERTY LINE
APPROX. LOC. UNDERGROUND WATER LINE
PROP. WATER LINE
EXIST. SANITARY SEWER
EXIST. STORM SEWER
APPROX. LOC. UNDERGROUND GAS LINE
APPROX. LOC. UNDERGROUND ELECTRIC LINE
EXISTING UTILITY POLE & GUY ELECTRIC LINES
APPROX. LOC. EXISTING FLOOD GRADE
PROP. UNDERGROUND ELECTRIC SERVICE NO & SIZE OF CONDUITS NOT DEPICTED
5 FOOT CONTOUR ELEVATION
PROP. FINISH GRADE CONTOURS & ELEVATION
PROP. STORM SEWER DRAIN LINES
PROP. DIRECTION OF DRAINAGE FLOW ARROW
EXIST. GRADE ELEVATION
EXIST. TOP OF CURB ELEVATION
EXIST. BOTTOM OF CURB ELEVATION
EXIST. AREA LIGHT (NOT LINE TO REMAIN)
PROP. AREA LIGHT FIXTURE
PROP. CLEAN-OUT
PROP. HYDRANT
EXIST. HYDRANT
EXIST. WATER VALVE
PROP. UTILITY VALVE
EXIST. UTILITY POLE
PROP. TOP OF CURB & FINISHED GRADE ELEV.
PROP. TOP OF WALL SPOT & FINISHED GRADE ELEV.
WHEN GRADE PROVIDED AREA BOX OF TWO FEET OR LESS TOP OF RETAINING WALL IS 2' BELOW SPOT FINISHED GRADE

CONTRACTOR TO VERIFY ELEVATION OF THE EXISTING WATER LINE AND PROVIDE CONCRETE ENCASEMENT PER N.J.A.C. 7:14A-23.6(b)4 IF LESS THAN 18 INCHES OF SEPARATION CAN NOT BE PROVIDED. CONTRACTOR TO NOTIFY BOHLER ENGINEERING IN WRITING IF CONFLICT ARISES.

CONTRACTOR SHALL CONTACT 811 FOR LOCATION OF ALL UTILITIES AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION

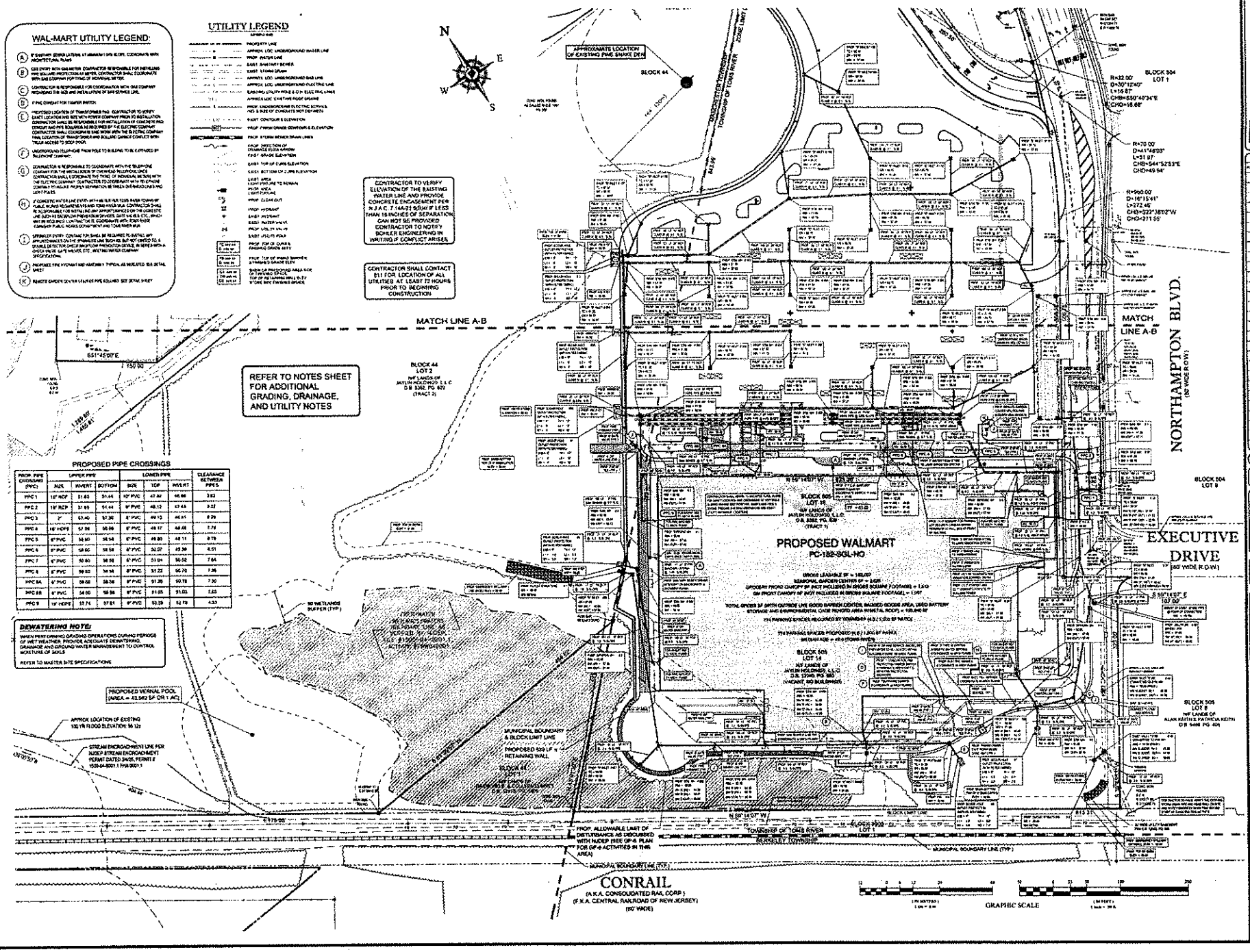
REFER TO NOTES SHEET FOR ADDITIONAL GRADING, DRAINAGE, AND UTILITY NOTES

PROPOSED PIPE CROSSINGS

PROP. PIPE CROSSING (PPC)	UPPER PIPE SIZE	UPPER PIPE INVERT	UPPER PIPE BOTTOM	LOWER PIPE SIZE	LOWER PIPE TOP	LOWER PIPE INVERT	CLEARANCE BETWEEN PIPES
PPC 1	18" RCP	51.83	51.44	10" PVC	47.87	46.88	3.83
PPC 2	18" RCP	51.83	51.44	8" PVC	48.12	47.45	3.37
PPC 3	2"	57.40	57.30	4" PVC	49.15	48.41	8.29
PPC 4	18" HDPE	57.78	56.98	6" PVC	49.17	48.48	7.79
PPC 5	6" PVC	58.60	58.54	6" PVC	49.80	48.11	8.79
PPC 6	6" PVC	58.60	58.54	6" PVC	50.37	49.39	4.31
PPC 7	6" PVC	58.60	58.54	6" PVC	51.04	50.02	7.64
PPC 8	6" PVC	58.60	58.54	6" PVC	51.22	50.70	7.34
PPC 8A	6" PVC	58.60	58.54	6" PVC	51.35	50.78	7.30
PPC 8B	6" PVC	58.60	58.54	6" PVC	51.65	51.03	7.00
PPC 9	18" HDPE	57.74	57.61	6" PVC	53.29	52.79	4.33

DEWATERING NOTE:
WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS

REFER TO MASTER SITE SPECIFICATIONS



BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED Walmart

(STORE #1944-05)

BLOCK 44, LOTS 2, 3 & 1, 5, 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 17.02, 9 & 5)
BLOCK 504 LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 94)
HIGH STREET & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
35 TECHNOLOGY DRIVE
WARREN, NJ 07059
www.BohlerEngineering.com

G.B. MURRAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 41924

SHEET TITLE
DRAINAGE AND UTILITIES PLAN 'B'

SHEET NUMBER
12
OF 30

REVISION 2 - 09/10/19

TOWNSHIP OF TOMS RIVER COMPLIANCE CHART

TOWNSHIP OF MANCHESTER COMPLIANCE CHART

LANDSCAPE SCHEDULE

SODDING NOTE:

REMARKS NOTE:

REFERENCE SHEET #14 FOR LANDSCAPE SPECIFICATIONS & DETAILS

NEW JERSEY STATE HIGHWAY ROUTE No. 37

(114' WIDE R.O.W.)

N

APPROXIMATE LOCATION OF EXISTING PINE SHADE DEN

MATCH LINE A-B

MATCH LINE A-B

GRAPHIC SCALE

THIS PLAN TO BE UTILIZED FOR LANDSCAPE PURPOSES ONLY

BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED

Walmart

(STORE #6644-00)

BLOCK 44, LOTS 2, 3, 4, 5 & 6
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7 C & 9)
BLOCK 506 LOTS 10 & 13
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54)
RUSH STAT & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

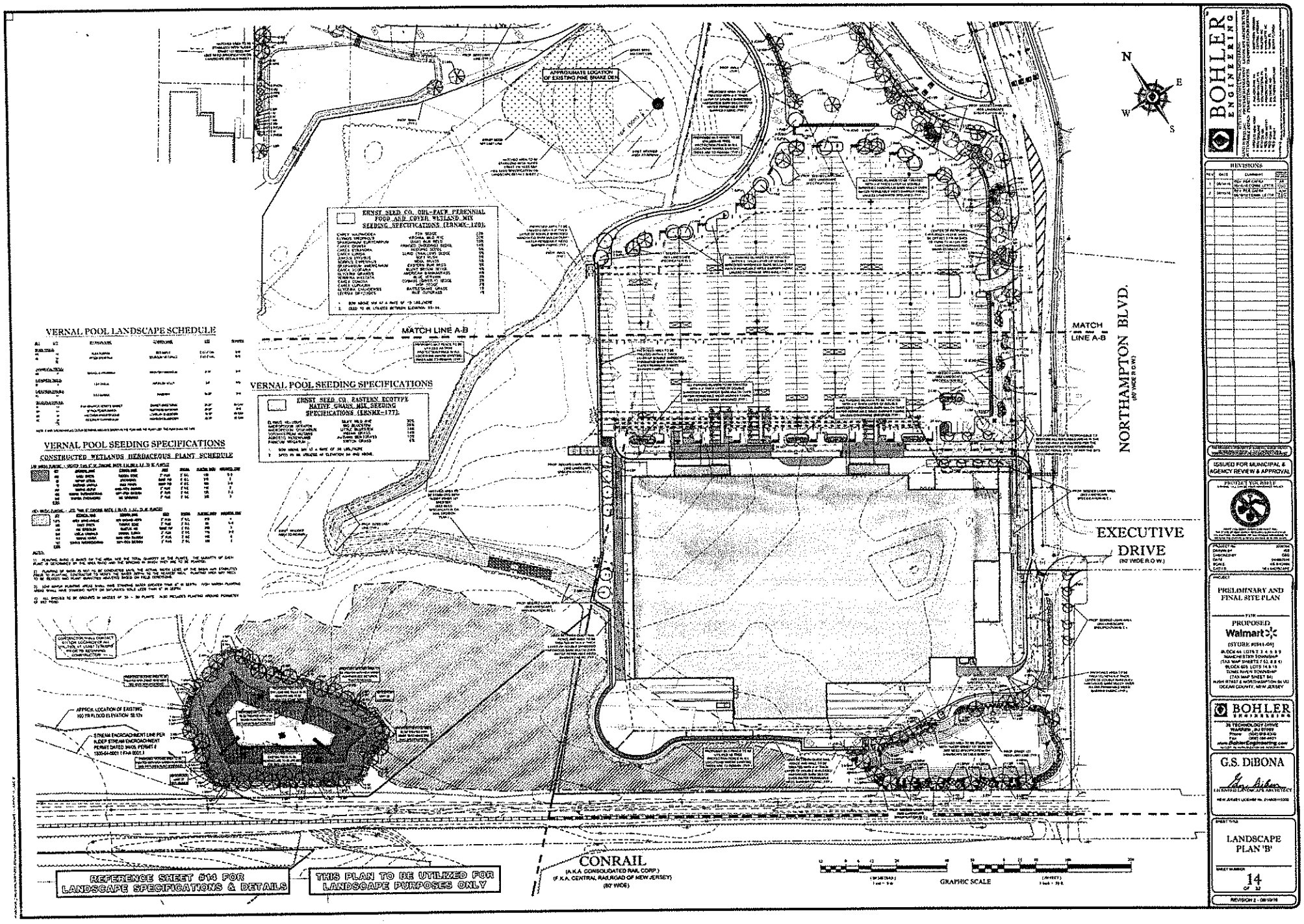
BOHLER ENGINEERING

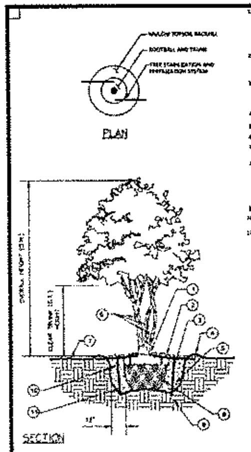
G.S. DiBONA

LANDSCAPE PLAN 'A'

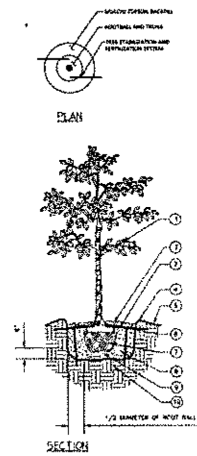
13 OF 32

REVISION 2 - 08/13/16

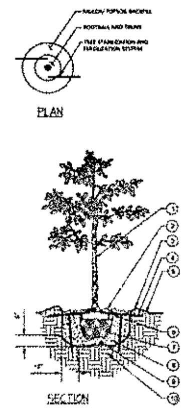

APPROXIMATE LOCATION OF EXISTING PINE SNAKE DEN
ERNST SEED CO. ORL-FACE PERENNIAL FOOD AND COVER WETLAND MIX SEEDING SPECIFICATIONS (ERNMX-120).
VERNAL POOL LANDSCAPE SCHEDULE
VERNAL POOL SEEDING SPECIFICATIONS
ERNST SEED CO. EASTERN ECOTYPE NATIVE GRASS MIX SEEDING SPECIFICATIONS (ERNMX-177).
VERNAL POOL SEEDING SPECIFICATIONS
CONSTRUCTED WETLANDS HERBACEOUS PLANT SCHEDULE
MATCH LINE A-B
MATCH LINE A-B
NORTHAMPTON BLVD.
(80' WIDE R.O.W.)
EXECUTIVE DRIVE
(80' WIDE R.O.W.)
N
E
W
S
APPROX. LOCATION OF EXISTING 100YR FLOOD ELEVATION 35.12±
STREAM ENCROACHMENT LINE PER NJDEP STREAM ENCROACHMENT PERMIT DATED (MOD. PERMIT # 1305-04-0001.1 FHA 050001)
CONRAIL
(A.K.A. CONSOLIDATED RAIL CORP.)
(F.K.A. CENTRAL RAILROAD OF NEW JERSEY)
(80' WIDE)
GRAPHIC SCALE
REFERENCE SHEET #14 FOR LANDSCAPE SPECIFICATIONS & DETAILS
THIS PLAN TO BE UTILIZED FOR LANDSCAPE PURPOSES ONLY
BOHLER ENGINEERING
REVISIONS
ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL
PRELIMINARY AND FINAL SITE PLAN
FOR
PROPOSED
Walmart
(STORE #5411-05)
IN BLOCK 44 LOTS 7 & 8 & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 62 & 63)
BLOCK 60.1 LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 64)
RUTE 37 EAST & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY
BOHLER ENGINEERING
G.S. DiBONA
LANDSCAPE PLAN 'B'
14
REVISION 2 - 08/10/06



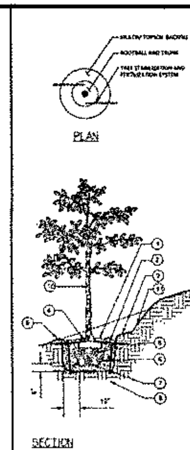
1 MULTI-TRUNK TREE PLANTING
NOT TO SCALE



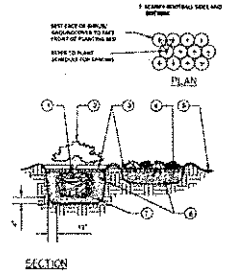
2 LARGE TREE PLANTING
(1" OR MORE)
NOT TO SCALE



3 SMALL TREE PLANTING
(1" OR LESS)
NOT TO SCALE



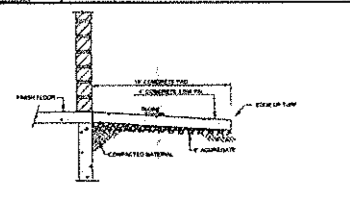
4 TREE PLANTING ON SLOPE
NOT TO SCALE



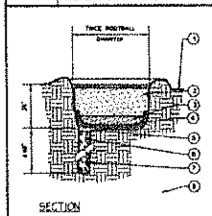
5 SHRUB/GROUNDCOVER PLANTING
NOT TO SCALE

1. ALL LANDSCAPED AREAS ARE TO RECEIVE A MINIMUM OF 4" OF TOPSOIL. SEE [illegible] SPECIFICATION
2. ALL PLANT MATERIAL SHALL BE HEALTHY, VIGOROUS, AND FREE OF PESTS AND DISEASE
3. ALL PLANT MATERIAL SHALL BE CONTAINER GROWN OR BALLED AND BURLAPPED AS INDICATED IN THE PLANT LIST
4. ALL TREES SHALL HAVE A STRAIGHT TRUNK AND FULL HEAD AND MEET ALL REQUIREMENTS SPECIFIED
5. ALL MATERIALS ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT BEFORE, DURING, AND AFTER INSTALLATION
6. ALL TREES MUST BE GUYED OR STAKED AS SHOWN IN THE DETAILS
7. ALL PLANTING AREAS SHALL BE COMPLETELY MULCHED AS SPECIFIED
8. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES AND SHALL AVOID DAMAGE TO ALL UTILITIES DURING THE COURSE OF THE WORK. LOCATIONS OF EXISTING BURIED UTILITY LINES SHOWN ON THE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AND ARE TO BE CONSIDERED APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR
   1) TO VERIFY THE LOCATIONS OF UTILITY LINES AND ADJACENT TO THE WORK AREA
   2) TO PROTECT OF ALL UTILITY LINES DURING THE CONSTRUCTION PERIOD
   3) TO REPAIR ANY AND ALL DAMAGE TO UTILITIES, STRUCTURES, SITE APPURTENANCES, ETC. WHICH OCCURS AS A RESULT OF THE CONSTRUCTION
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON THESE PLANS BEFORE PRICING THE WORK
10. CONTRACTOR SHALL BE RESPONSIBLE FOR DELIVERY SCHEDULE AND PROTECTION BETWEEN DELIVERY AND PLANTING PER SPECIFICATIONS TO MAINTAIN HEALTHY PLANT CONDITIONS
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FULLY MAINTAINING (INCLUDING BUT NOT LIMITED TO: WATERING, SPRAYING, MULCHING, FERTILIZING, ETC.) ALL OF THE PLANT MATERIALS AND LAWN FOR THE PERIOD OF TIME SHOWN IN THE [illegible] SPEC
12. ANY PLANT MATERIAL WHICH IS DISEASED, DISTRESSED, DEAD, OR REJECTED PRIOR TO SUBSTANTIAL COMPLETION SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH MATERIAL OF THE SAME SPECIES, QUANTITY, AND SIZE AND MEETING ALL PLANT LIST SPECIFICATIONS
13. THE CONTRACTOR SHALL COMPLETELY GUARANTEE ALL PLANT MATERIAL FOR A PERIOD DEFINED IN THE [illegible] SPEC. THE CONTRACTOR SHALL PROMPTLY MAKE ALL REPLACEMENTS DURING THE NORMAL PLANTING SEASON
14. AFTER BEING DUG AT THE NURSERY SOURCE, ALL TREES IN LEAF SHALL BE ACCLIMATED FOR TWO (2) WEEKS UNDER A MIST SYSTEM PRIOR TO INSTALLATION
15. STANDARDS SET FORTH IN "AMERICAN STANDARD FOR NURSERY STOCK" REPRESENT GUIDELINE SPECIFICATIONS ONLY AND SHALL CONSTITUTE MINIMUM QUALITY REQUIREMENTS FOR PLANT MATERIAL
16. WHERE SHOWN ON THE PLANS AND DETAILS, PLANTING BEDS ARE TO BE COMPLETELY COVERED WITH A HARDWOOD MULCH FROM A LOCAL SOURCE HARVESTED IN A SUSTAINABLE MANNER TO A MINIMUM DEPTH OF FOUR INCHES
17. REFER TO WALMART SPECIFICATIONS FOR INFORMATION NEEDED FOR IMPLEMENTATION OF PLANTING PLANS
18. WEED MAT IS REQUIRED IN LANDSCAPED ISLANDS AS SPECIFIED
19. ALL PLANT MATERIAL QUANTITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETE COVERAGE OF ALL PLANTING BEDS AT SPACING SHOWN
20. THIS PLAN IS TO BE IMPLEMENTED COOPERATIVELY WITH SWPPP PLAN, AS NEEDED, TO MAXIMIZE THE EFFECTIVENESS OF THE SWPPP PLAN FOR THE SITE
21. THE CONTRACTOR IS ENCOURAGED TO COMPLETE TEMPORARY OR PERMANENT SEEDING OR SODDING IN STAGES FOR SOIL STABILIZATION AS AREAS ARE COMPLETED AFTER GRADING
22. THIS PLAN DOES NOT PRESENT ANY TEMPORARY STABILIZATION REQUIRED AS PART OF SWPPP PLAN

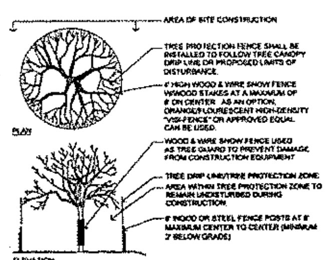
6 LANDSCAPE NOTES
NOT TO SCALE



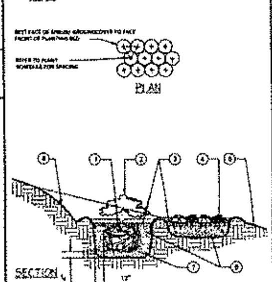
7 VEGETATION FREE ZONE
NOT TO SCALE



8 POOR DRAINAGE CONDITION
NOT TO SCALE



9 TREE PROTECTION DURING SITE CONSTRUCTION
NOT TO SCALE



10 SHRUB/GROUNDCOVER PLANTING ON SLOPE
NOT TO SCALE

11 PERMANENT GRASS CHART
NOT TO SCALE

NOTE: TOWNSHIP/CITY OR COUNTY STANDARD DETAIL SUPERCEDE BOHLER DETAILS

BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED
Walmart
(STORE #1844-05)

BOHLER ENGINEERING
35 TECHNOLOGY DRIVE
WARREN, NJ 07059

G.S. DiBONA
LICENSED LANDSCAPE ARCHITECT

SHEET TITLE
LANDSCAPE SPECIFICATIONS & DETAILS SHEET

SHEET NUMBER
15

LIGHTING NOTES:

[illegible]

TOWNSHIP LIGHTING REQUIREMENTS				
	MANCHESTER TOWNSHIP		TOMS RIVER TOWNSHIP	
	PER SECTION 245-8 E & G		PER SECTIONS 245-5.31 L & 245-5.32 J (4)	
LOCATION	REQUIRED	PROVIDED	REQUIRED	PROVIDED
MAXIMUM FIXTURE HEIGHT	30'	30' (MAXIMUM)	NOT SPECIFIED	NOT APPLICABLE
POLE SPACING	APPROXIMATELY EQUIDISTANT OF FIXTURES (p.s.d. = 10d) (p.s.d. = 4.5d)	223' (MAXIMUM)	NOT SPECIFIED	NOT APPLICABLE
MINIMUM FOOTCANDLES IN PARKING AREAS AND ACCESS WAYS	NOT SPECIFIED	NOT APPLICABLE	1 FC	4.0 FC (COMPLIES)
MAXIMUM FOOTCANDLES AT BEYOND PROPERTY LINE	NOT SPECIFIED	NOT APPLICABLE	0.5 FC	0.1 FC (CLAIMED)
DISCLAIMER AND REQUIREMENTS				

NEW JERSEY STATE HIGHWAY ROUTE No. 37
(114' WIDE R.O.W.)

P.O.B.

NORTHAMPTON BLVD.
(80' WIDE R.O.W.)

MATCH LINE A-B

MATCH LINE A-B

CONTRACTOR SHALL CONTACT #11 FOR LOCATION OF ALL UTILITIES AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION

NOTE: ARCHITECTURAL BUILDING MOUNTED LIGHTS HAVE NOT BEEN MODELED AS PART OF THESE CALCULATIONS

REFER TO LIGHTING PLAN 'B' FOR OVERALL LUMINAIRE SCHEDULE

REFER TO DETAIL SHEETS FOR LIGHTING POLE BASE DETAIL AND FIXTURE SPECIFICATIONS

THIS PLAN TO BE UTILIZED FOR LIGHTING PURPOSES ONLY

EXISTING LIGHTS HAVE NOT BEEN MODELED AS PART OF CALCULATIONS

NOTE TO CONTRACTOR
REFER TO ARCH PLANS FOR SITE LIGHTING ELECTRICAL PLAN

NOTE: HOURS OF OPERATION IS 24 HOURS PER DAY

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

(IN METERS)
1 mm = 9 m

BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED
Walmart
(STORE #1844-05)

BLOCK 44, LOTS 2, 3, 4, 5 & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7 OF 20 & 9)
BLOCK 301, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 34)
NORTHAMPTON & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
26 TECHNOLOGY DRIVE
WARREN, NJ 07059
Phone: (908) 754-5200
Fax: (908) 754-4401
www.BohlerEngineering.com

G.B. MURRAY
PRINCIPAL ENGINEER
NEW JERSEY LICENSE No. 24802

SHEET TITLE

LIGHTING PLAN 'A'

SHEET NUMBER
16
OF 22

REVISION 2 - 09/13/06

LIGHTING NOTES

[illegible]

LUMINAIRE SCHEDULE

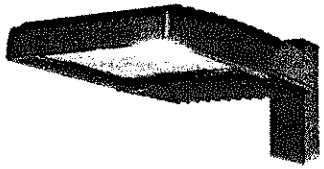
SYMBOL	QTY	LABEL	MTG. HT	DESCRIPTION	ARRANGMNT	LUMENS	LLF	IES FILENAME	CATALOG #	SUG RATING
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NOTE: EXISTING STREET LIGHTS HAVE NOT BEEN MODELED FOR THIS DESIGN.

TOWNSHIP LIGHTING REQUIREMENTS

	MANCHESTER TOWNSHIP		TOMS RIVER TOWNSHIP	
	PER SECTION 244-96 C & D		PER SECTIONS 348-3.31 C & 348-8.32 J (R)	
LOCATION	REQUIRED	PROPOSED	REQUIRED	PROPOSED
MAXIMUM FIXTURE HEIGHT	25'	42' (WAIVER)	NOT SPECIFIED	NOT APPLICABLE
POLE SPACING	APPROX. 42 (HEIGHT OF FIXTURE) (4 X 42 = 168) (4 X 30 = 120)	207' (WAIVER)	NOT SPECIFIED	NOT APPLICABLE
MINIMUM FOOTCANDLE IN PARKING AREAS AND AISLES WAYS	NOT SPECIFIED	NOT APPLICABLE	0.5 FC	0.5 FC (COMPLIES)
MAXIMUM FOOTCANDLE BEYOND PROPERTY LINE	NOT SPECIFIED	NOT APPLICABLE	0.5 FC	1.2 FC (WAIVER)

FIXTURES TO MEET DARK SKIES



GE EVOLVE EASC SERIES LED SCALABLE AREA LIGHT
(SA2_28, SA3_28, SF3_42, DIF4_42, DJF3_42, TI15_42, QI5_42)
NOT TO SCALE

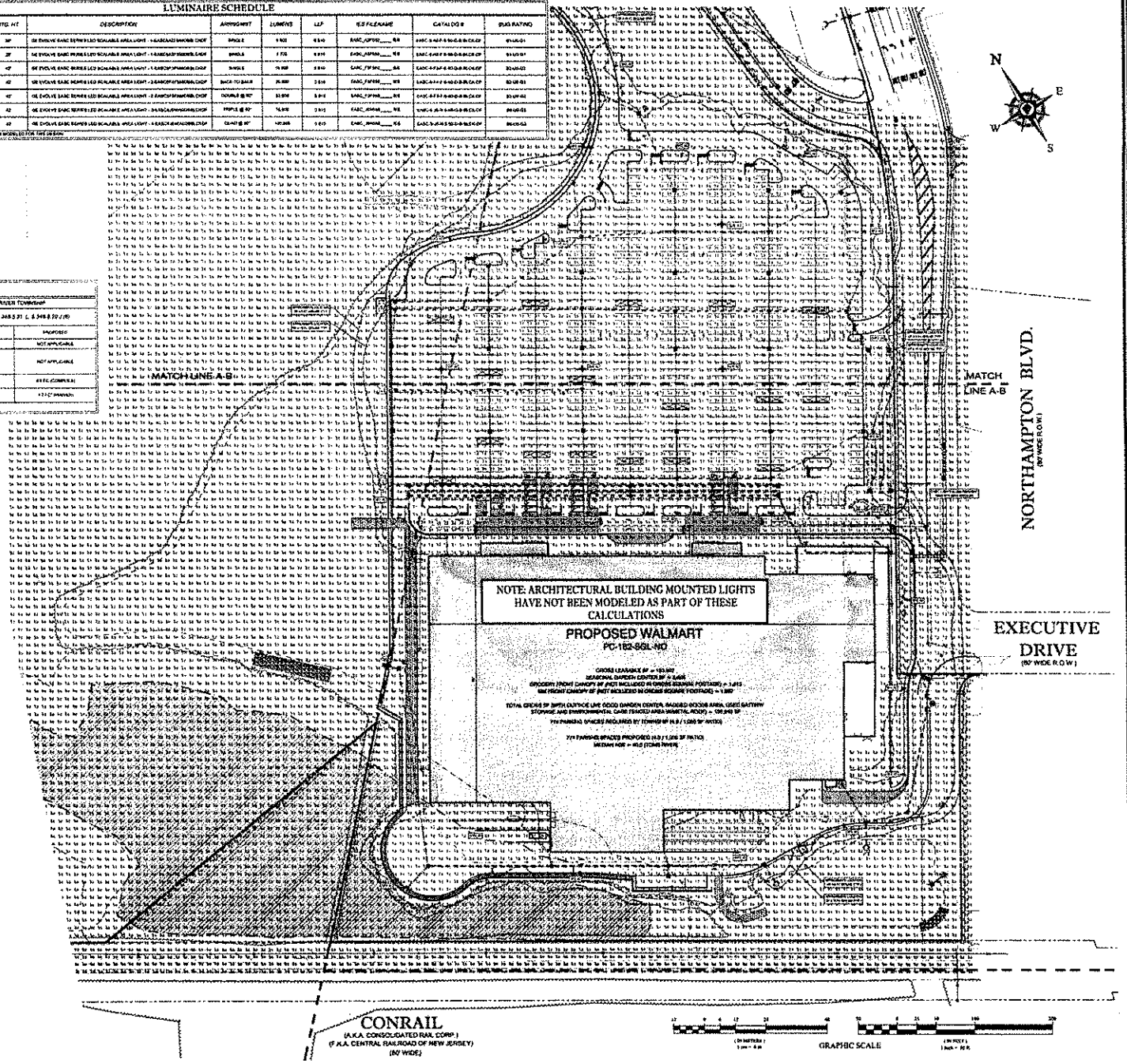
THIS PLAN TO BE UTILIZED FOR LIGHTING PURPOSES ONLY

EXISTING LIGHTS HAVE NOT BEEN MODELED AS PART OF CALCULATIONS

NOTE TO CONTRACTOR
REFER TO ARCH PLANS FOR SITE LIGHTING ELECTRICAL PLAN

NOTE: HOURS OF OPERATION IS 24 HOURS PER DAY

REFER TO DETAIL SHEETS FOR LIGHTING POLE BASE DETAIL AND FIXTURE SPECIFICATIONS



BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT NO. [illegible]
DRAWN BY JSB
CHECKED BY GBM
DATE 04/08/2016
SCALE AS SHOWN
CAD FILE [illegible]

PRELIMINARY AND FINAL SITE PLAN

FOR
PROPOSED
Walmart
(STORE #1944-05)
BLOCK 68, LOTS 2, 3, 4, 5, 8, 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8 & 9)
BLOCK 50.01, LOTS 10 & 18
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 34)
RUSH ROAD & NORTHAMPTON BLVD.
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
35 TECHNOLOGY DRIVE
WARREN, NJ 07059
Phone: (908) 668-8300
Fax: (908) 754-4801
www.BohlerEngineering.com

G.B. MURRAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. [illegible]

SHEET TITLE
LIGHTING PLAN 'B'

SHEET NUMBER
17
OF 32

REVISION 2 - 05/16/16

NOTE TO CONTRACTOR:
GRAPHICAL LOCATION OF SILT FENCE IS APPROXIMATE. INSTALLED LOCATION TO BE ADJUSTED AS NECESSARY TO INSTALL IMPROVEMENTS AND PROVIDE GRADING AS SHOWN IN THE SITE PLAN DRAWINGS.

NOTE: THIS PLAN IS FOR SOIL EROSION AND SEDIMENT CONTROL PURPOSES ONLY. SEE SHEET 2 FOR SEDIMENT CONTROL NOTES & SHEET 27 FOR DETAILS.

CONTRACTOR SHALL CONTACT 811 FOR LOCATION OF ALL UTILITIES, AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION

NOTE: ALL SEED MUST BE RAKED OR DRILLED

LEGEND

SOIL EROSION CONSTRUCTION MEASURES

	LIMIT OF DISTURBANCE
	SILT FENCE
	HAYBALE
	INLET FILTER
	STABILIZED CONSTRUCTION ENTRANCE

SOIL TYPE		

WAL-MART BMP MAINTENANCE EROSION NOTES:

ALL MEASURES STATED IN THIS SITE PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS ON THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY BRAKE DURING OPERATIONS OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE REFERTILIZED, WATERED, AND RESEEDED AS NEEDED.
3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCE WHEN IT REACHES ONE HALF THE HEIGHT OF THE SILT FENCE.
4. THE CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC AREAS OR WAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION EXITS, AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION TO SUITABLE FOR PARKING AND STORAGE. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AREA AS CONDITIONS DEMAND.
6. OUTLET STRUCTURES IN THE DETENTION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE BASIN CAPACITY HAS BEEN REDUCED BY 50%.
7. PRIOR TO LEAVING THE SITE, ALL VEHICLES SHALL CLEAN OF DEBRIS. ANY DEBRIS AND/OR SEDIMENT REACHING THE PUBLIC STREET SHALL BE CLEANED IMMEDIATELY BY A METHOD OTHER THAN FLUSHING.

NEW JERSEY STATE HIGHWAY ROUTE No. 37
(114' WIDE R.O.W.)

NORTHAMPTON BLVD.
(80' WIDE R.O.W.)

EXECUTIVE DRIVE
(80' WIDE R.O.W.)

SOILS TYPE LasB

SOILS TYPE LaKB

PROPOSED STRAW BALE & DIKE (TYP.)

PROPOSED SILT FENCE (TYP.)

CONTRACTOR SHALL REFER TO "PROPOSED ROADWAY CONSTRUCTION PLAN" PREPARED BY ATLANTIC TRAFFIC & DESIGN ENGINEERS, INC. FOR THE PROPOSED IMPROVEMENT ASSOCIATED WITH NJSH ROUTE 37 AND NORTHAMPTON BLVD.

APPROXIMATE LOCATION OF EXISTING PIPE SHAPE DATA

PROPOSED INLET FILTER (TYP.)

PROPOSED TOTAL LIMIT OF DISTURBANCE (31 AC)

PRESERVED OPEN SPACE CORRIDOR

MATCH LINE A-B

PROPOSED CONTRACTOR STORAGE AND STAGING AREA

PROP TEMPORARY STOCKPILE (TYP.)

PROPOSED TEMPORARY FENCE

PROP TEMPORARY SEDIMENT BASIN #1 BOTTOM ELEV =92.00

PROP TEMPORARY BASIN DRAIN PIPE 22 LF 15" CMP @ 1.0%

PROP TEMPORARY SEDIMENT RISER #1 SEE DETAIL

PROPOSED STABILIZED CONSTRUCTION ENTRANCE

ACCESS FOR VERNAL POOL EXCAVATION

PROPOSED WALMART

GRAPHIC SCALE

BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PRELIMINARY AND FINAL SITE PLAN

FOR PROPOSED Walmart

(STORE #3444-05)
BLOCK 44, LOTS 1, 2, 3 & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7, 22 & 31)
BLOCK 60, LOTS 11 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 34)
NJSH ROUTE 37 & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

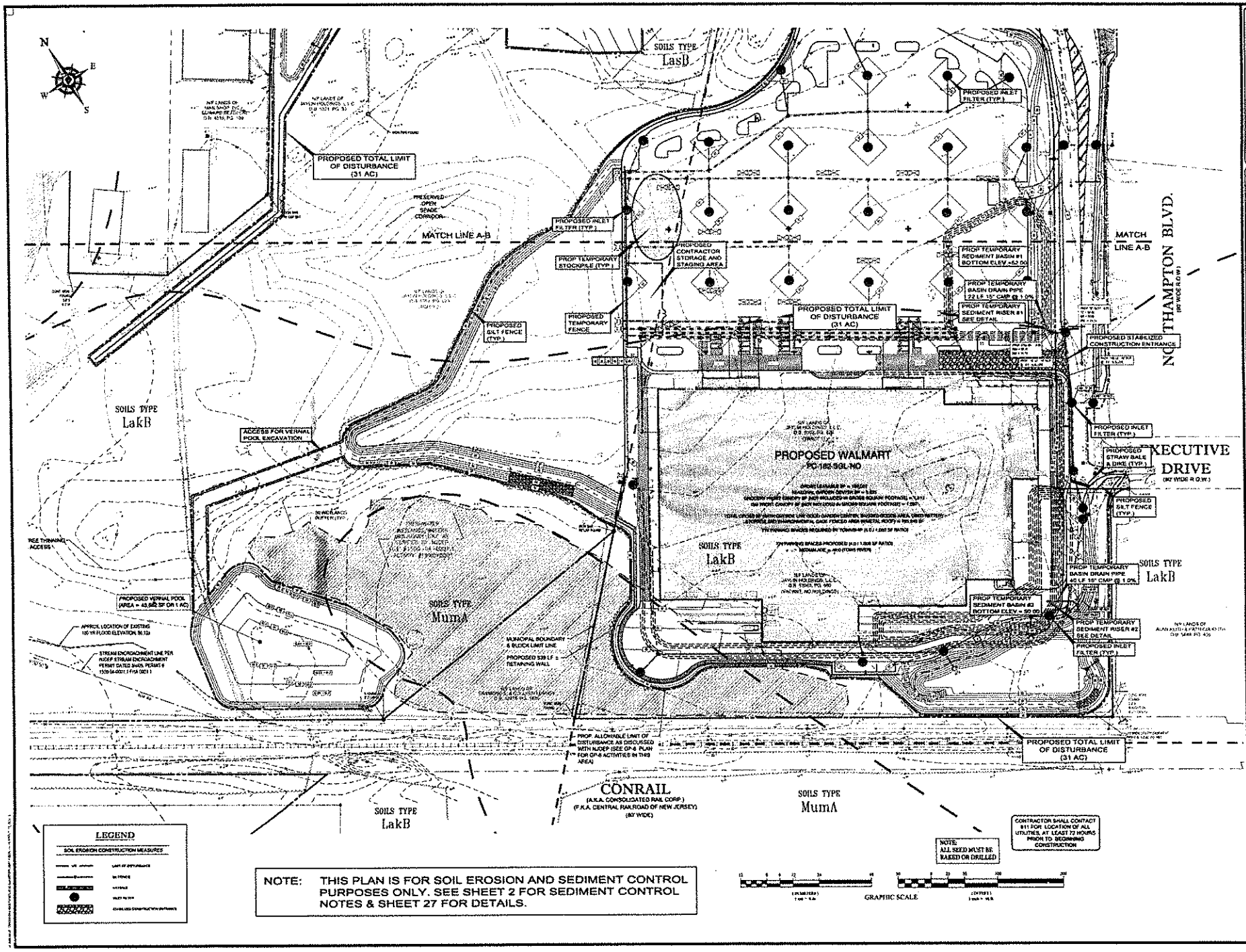
BOHLER ENGINEERING
36 TECHNOLOGY DRIVE
WARREN, NJ 07059
Phone: (908) 754-5555
Fax: (908) 754-1401
www.BohlerEngineering.com

G.B. MURRAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 43525

SOIL EROSION & SEDIMENT CONTROL PLAN 'A'

SHEET NUMBER 18 OF 32

REVISION 2 - 09/10/10



NOTE: THIS PLAN IS FOR SOIL EROSION AND SEDIMENT CONTROL PURPOSES ONLY. SEE SHEET 2 FOR SEDIMENT CONTROL NOTES & SHEET 27 FOR DETAILS.

BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROTECT YOURSELF

PRELIMINARY AND FINAL SITE PLAN

PROPOSED Walmart (STORE #1944-01)

BLOCK 44, LOTS 2, 3, 4, 5, 6 & 9 MANCHESTER TOWNSHIP (TAX MAP SHEET 8 TO 2, 5 & 6) BLOCK 505, LOTS 14 & 15 TOMS RIVER TOWNSHIP (TAX MAP SHEET 54) RUSH STATE & NORTHAMPTON BLVD OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
53 TECHNOLOGY DRIVE WARREN, NJ 07059
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Fax (908) 754-1401
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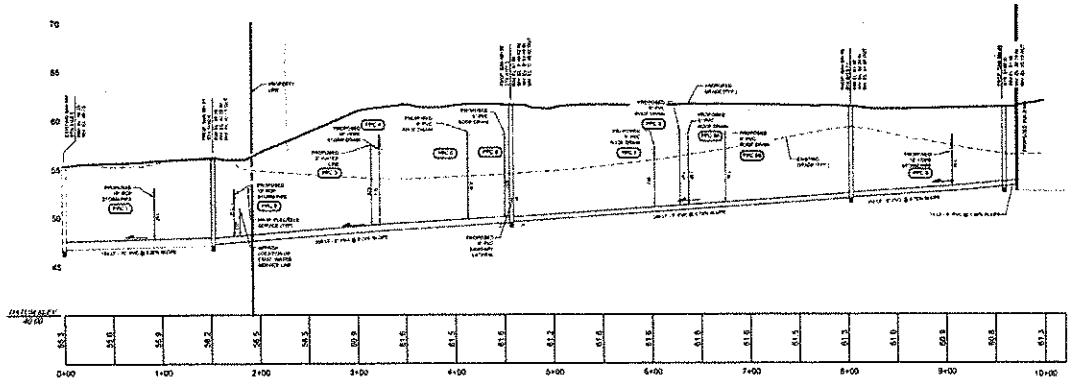
G.B. MURRAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 24GE02

SOIL EROSION & SEDIMENT CONTROL PLAN 'B'

SHEET NUMBER
19
OF 33

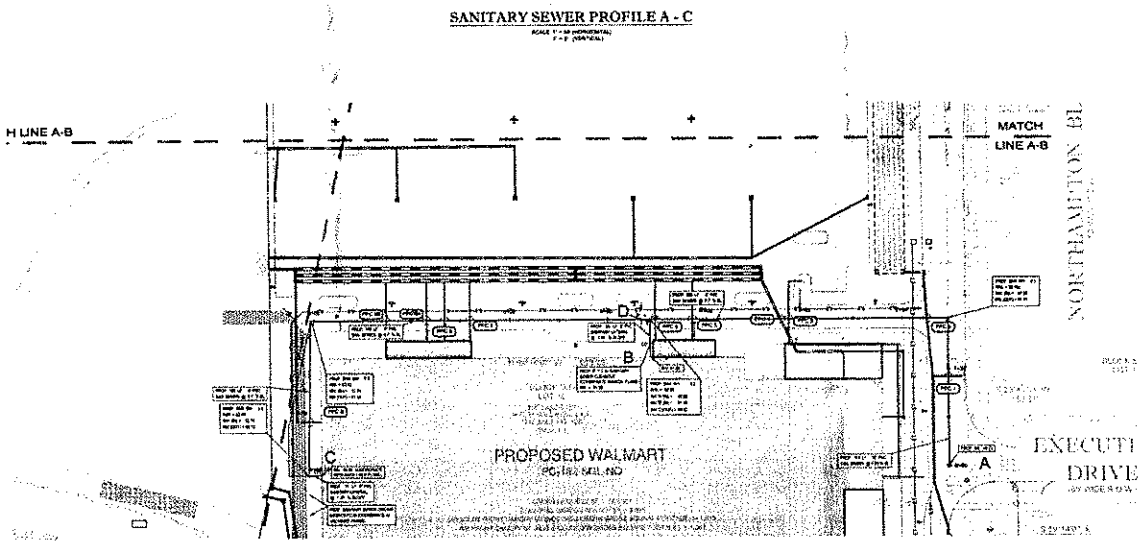
REVISION 2 - 09/10/18

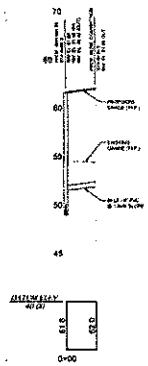


SANITARY SEWER PROFILE A - C

PROPOSED PIPE CROSSINGS

PROP. PIPE CROSSING (PPC)	UPPER PIPE			LOWER PIPE			CLEARANCE BETWEEN PIPES
	SIZE	INVERT	BOTTOM	SIZE	TOP	INVERT	
PPC 1	18" RCP	51.43	51.44	18" PVC	47.40	46.66	3.90
PPC 2	18" RCP	51.46	51.44	8" PVC	48.12	47.43	3.30
PPC 3	2"	57.80	57.79	8" PVC	49.10	48.41	8.28
PPC 4	18" HDPE	57.00	56.95	8" PVC	49.17	48.48	7.79
PPC 5	8" PVC	58.60	58.54	8" PVC	49.80	49.11	8.72
PPC 6	8" PVC	58.50	58.54	8" PVC	50.07	49.38	8.51
PPC 7	8" PVC	58.80	58.58	8" PVC	51.04	50.32	7.54
PPC 8	8" PVC	58.80	58.58	8" PVC	51.22	50.73	7.36
PPC 9A	8" PVC	58.95	58.54	8" PVC	51.28	50.78	7.30
PPC 9B	8" PVC	58.80	58.54	8" PVC	51.95	51.03	7.03
PPC 9	18" HDPE	57.64	57.61	8" PVC	53.26	52.76	4.33





SANITARY SEWER PROFILE B - D

GRAPHIC SCALE (HORIZONTAL)

GRAPHIC SCALE (VERTICAL)

BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT: PRELIMINARY AND FINAL SITE PLAN

FOR: PROPOSED Walmart (STORE #841-05)

BLOCK 44 LOTS 2, 3, 4, 5, 6, 9
MANCHESTER TOWNSHIP
(TAX MAP SHEET 67 D, E & F)
BLOCK 50L LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54)
HIGH STREET & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

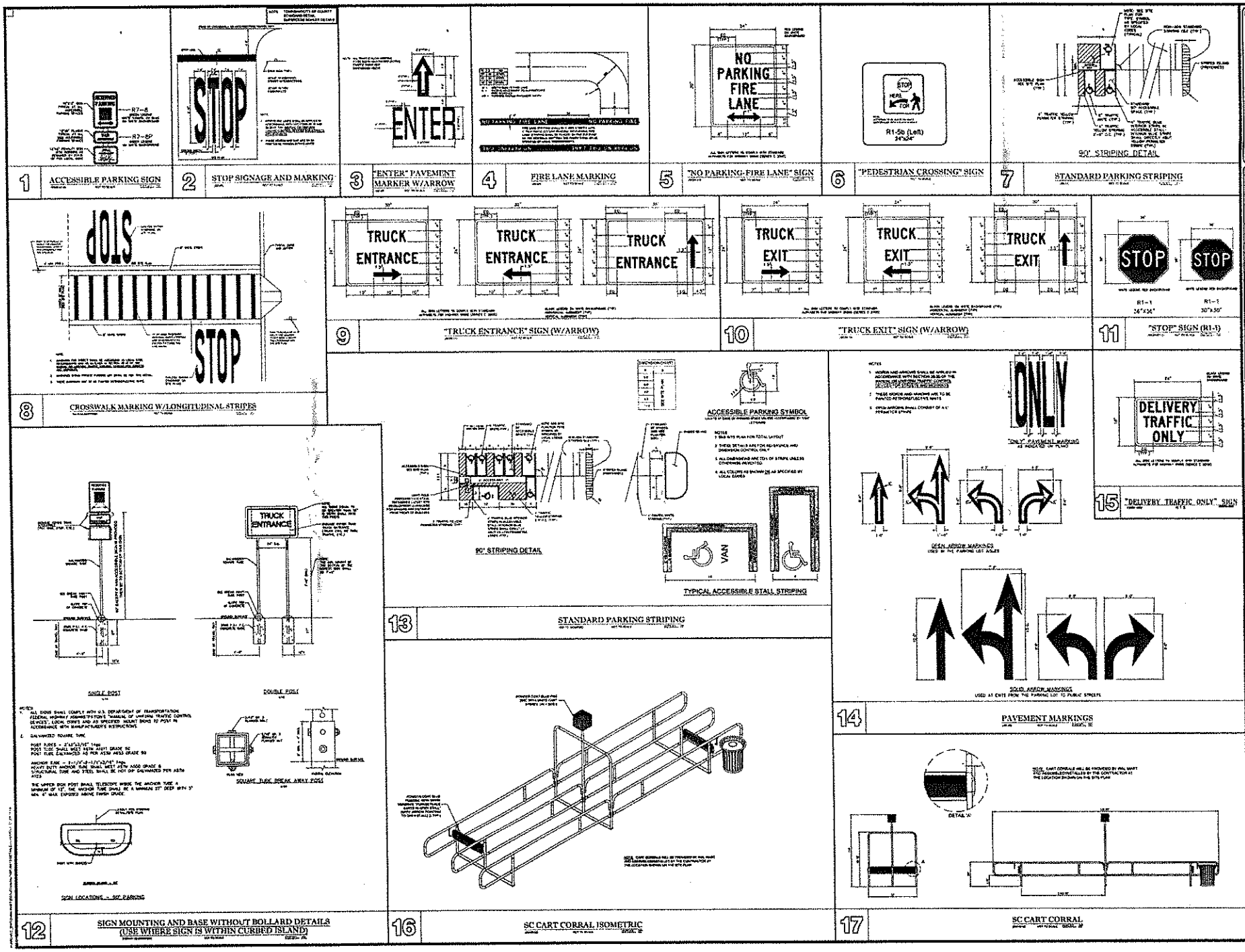
BOHLER ENGINEERING
34 TECHNOLOGY DRIVE
WARREN, NJ 07059
Phone: (908) 668-8300
Fax: (908) 754-9001
www.BohlerEngineering.com

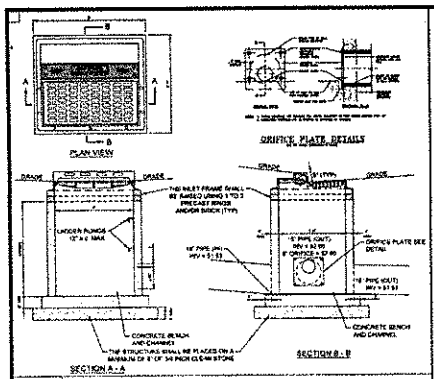
G.B. MURRAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 24603

SHEET TITLE: PROPOSED SANITARY SEWER PROFILES

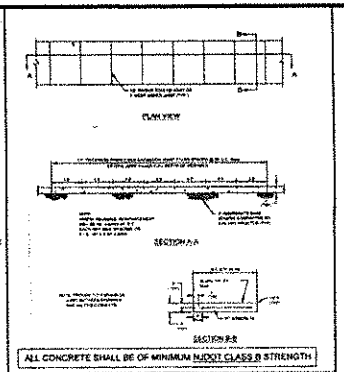
SHEET NUMBER: 20 of 32

REVISION 3 - 08/12/08

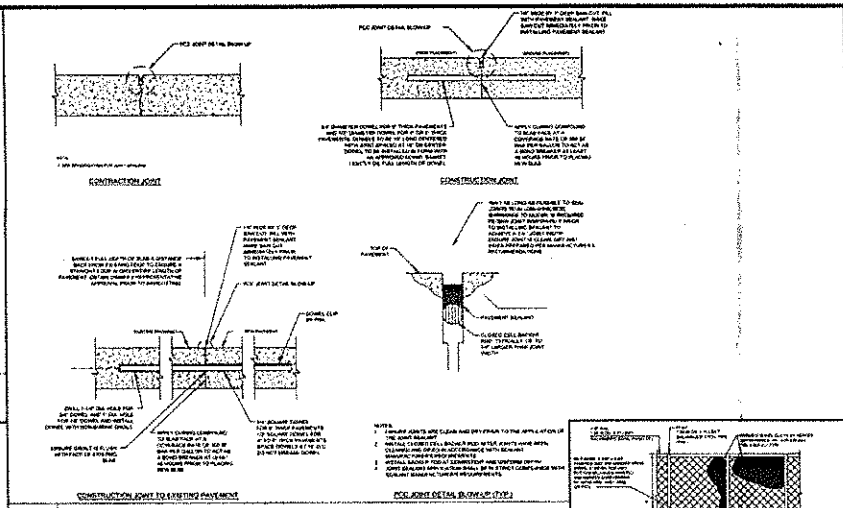

1 ACCESSIBLE PARKING SIGN
2 STOP SIGNAGE AND MARKING
3 "ENTER" PAVEMENT MARKER W/ARROW
4 FIRE LANE MARKING
5 "NO PARKING-FIRE LANE" SIGN
6 "PEDESTRIAN CROSSING" SIGN
7 STANDARD PARKING STRIPING
8 CROSSWALK MARKING W/LONGITUDINAL STRIPES
9 "TRUCK ENTRANCE" SIGN (W/ARROW)
10 "TRUCK EXIT" SIGN (W/ARROW)
11 "STOP" SIGN (R1-1)
12 SIGN MOUNTING AND BASE WITHOUT BOLLARD DETAILS (USE WHERE SIGN IS WITHIN CURBED ISLAND)
13 STANDARD PARKING STRIPING
14 PAVEMENT MARKINGS
15 "DELIVERY TRAFFIC ONLY" SIGN
16 SC CART CORRAL ISOMETRIC
17 SC CART CORRAL
NO PARKING FIRE LANE
TRUCK ENTRANCE
TRUCK EXIT
STOP
ONLY
DELIVERY TRAFFIC ONLY
VAN
90° STRIPING DETAIL
ACCESSIBLE PARKING SYMBOL
TYPICAL ACCESSIBLE STALL STRIPING
SINGLE POST
DOUBLE POST
SQUARE TUBE BREAK AWAY POST
SIGN LOCATIONS - 90° PARKING
BOHLER ENGINEERING
REVISIONS
ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL
PRELIMINARY AND FINAL SITE PLAN
PROPOSED
Walmart
G.B. MURRAY
DETAIL SHEET
21



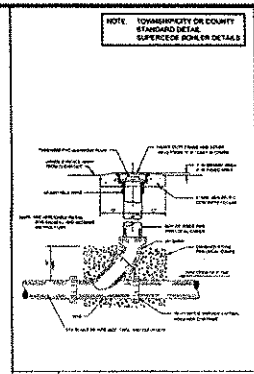
1 'B' INLET #33 WITH ORIFICE



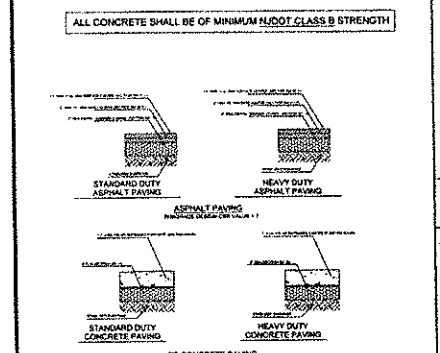
2 CONCRETE SIDEWALK



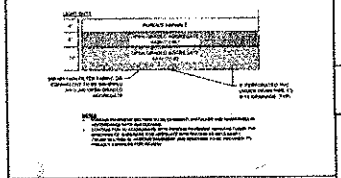
3 CONCRETE JOINT DETAILS



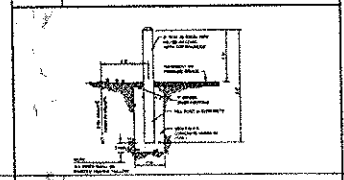
4 SANITARY SEWER CLEAN-OUT



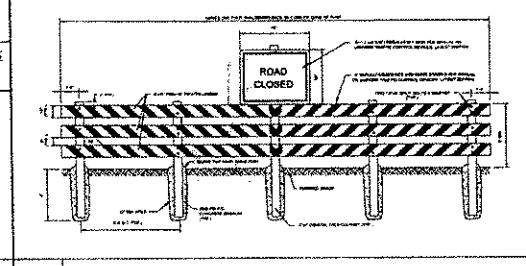
6 PAVING DETAILS



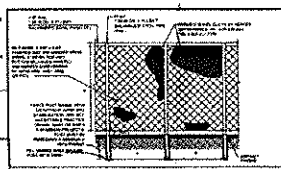
5 POROUS ASPHALT PAVEMENT W/UNDER DRAIN SECTION (AS SHOW ON SITE PLAN)



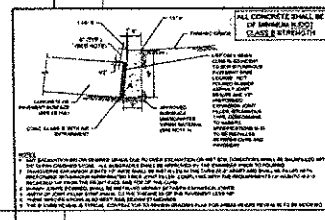
7 PIPE BOLLARD



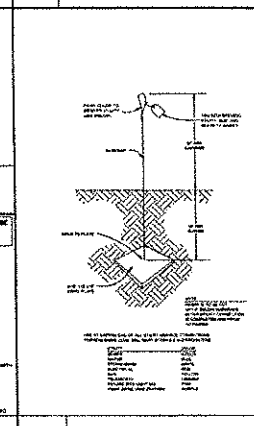
8 TRAFFIC BARRIER



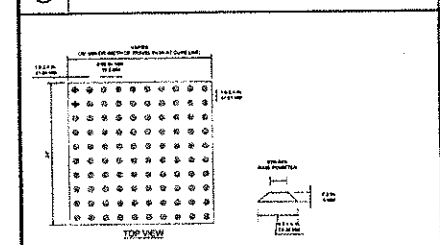
9 TEMPORARY FENCE



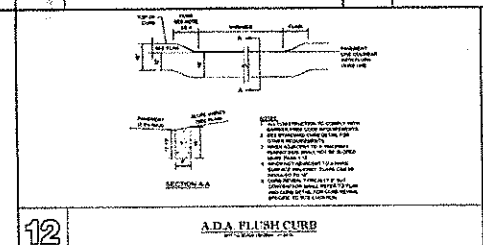
10 CONCRETE 6" REVEAL CURB



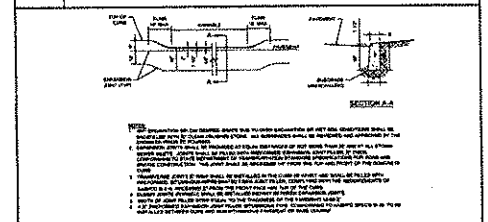
11 DETAIL: P.O.C. LOCATION



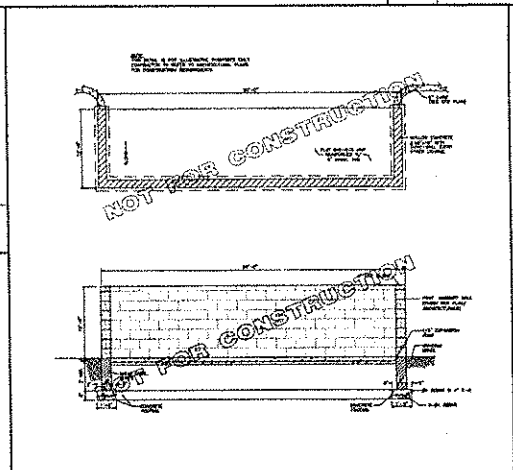
13 TRUNCATED DOME PATTERN



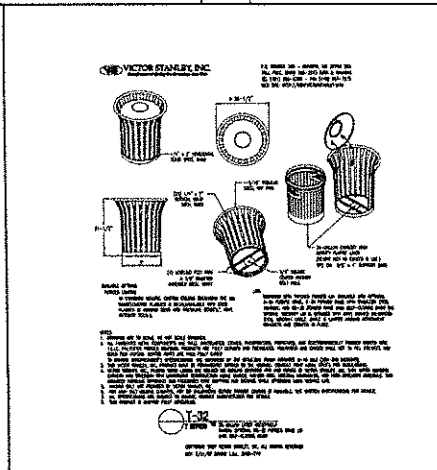
12 A.D.A. FLUSH CURB



14 DEPRESSED CONRETE CURB AT DRIVEWAY



15 12'x01'-11-1/2" BALE/PALLET RECYCLING W/CMU ENCLOSURE AND CONC. PAD
(SEE ARCH PLANS FOR DETAILS)



16 TRASH RECEPTACLE DETAIL

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PROJECT TOUCHSTONE

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED

Walmart

(STORE #3944-05)

BLOCK 44, LOTS 2, 3, 4, 5, 8
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7 02, 8 & 9)
BLOCK 50, LOTS 10 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54)
HUGH ESTES & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

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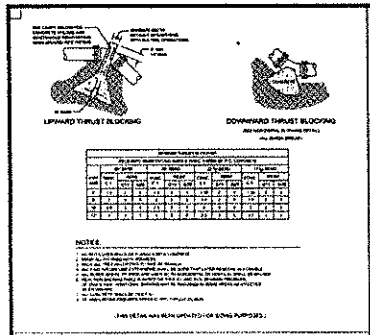
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 40322

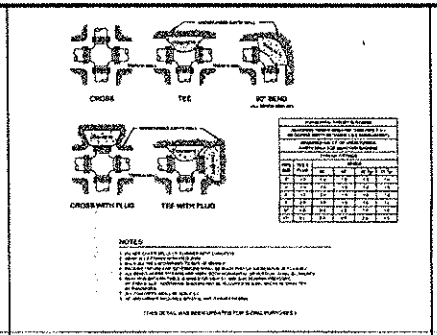
SHEET TITLE
DETAIL SHEET

SHEET NUMBER
22
OF 30

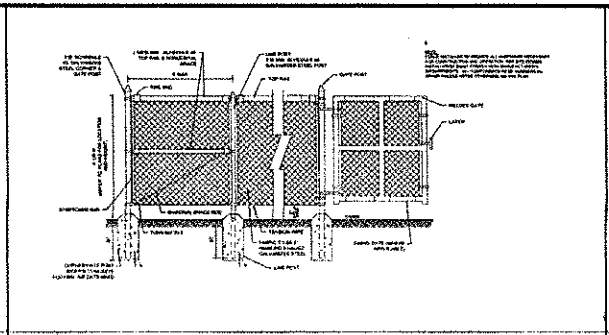
REVISION 2 - 08/10/016



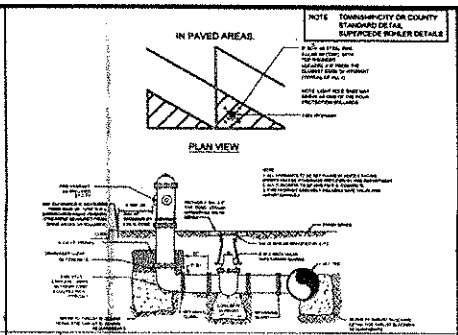
1 VERTICAL THRUST BLOCKING



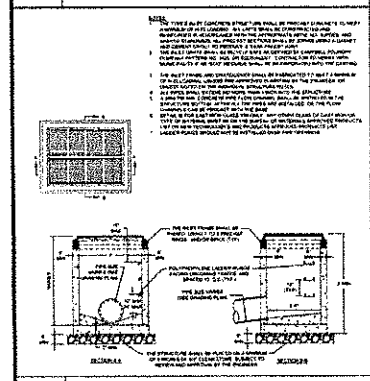
2 HORIZONTAL THRUST BLOCKING



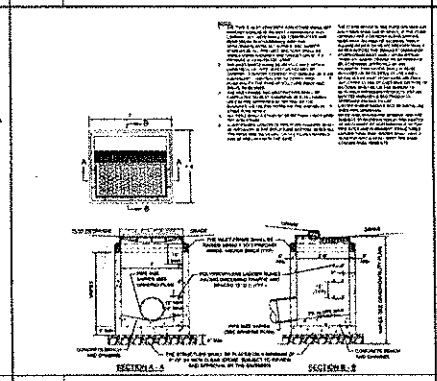
3 CHAIN LINK FENCE WITH GATE



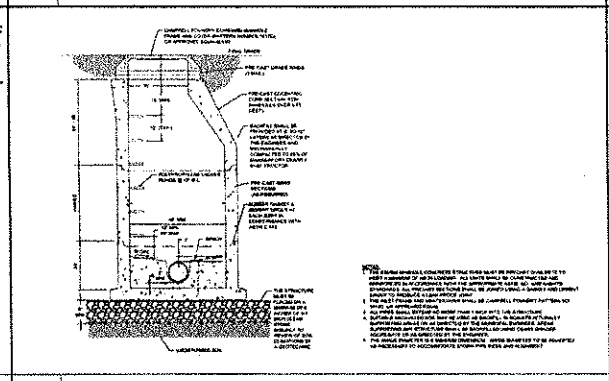
4 FIRE HYDRANT ASSEMBLY



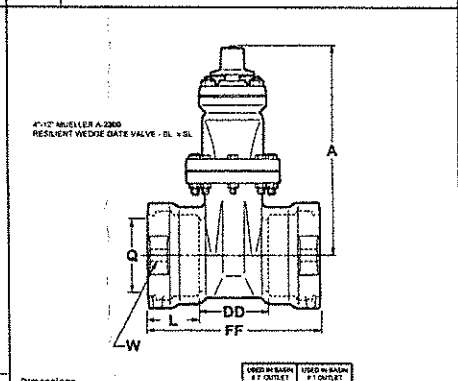
5 TYPE 'E' INLET



6 TYPE 'B' INLET WITH ECO CURB PIECE



7 STORM MANHOLE DETAIL



Dimensions

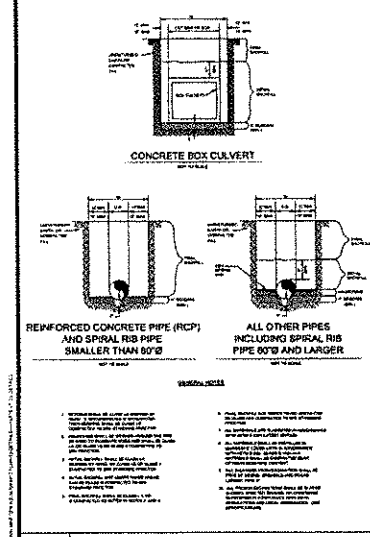
Dimension*	Nominal size 4"	6"	8"	10"	12"
A	14.19	16.65	21.30	25.12	28.35
W (Max)	4.19	4.94	6.31	12.25	14.50
L (Mueller Mech Joint)	3.42	4.24	5.12	6.44	7.12
M	13.93	16.41	21.06	24.50	28.00
Q	6.16	6.75	7.41	7.62	7.41
DD	5.71	6.24	6.94	7.19	7.94
FF (Mech Joint)	7.50	8.50	10.5	13	15.1
Weight*	90	145	280	404	561

USED IN BASIN # 2 OUTLET STRUCTURE

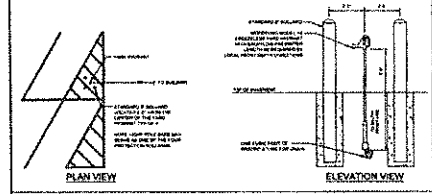
USED IN BASIN # 1 OUTLET STRUCTURE

*All dimensions are in inches. All weights are in pounds and are approximate.

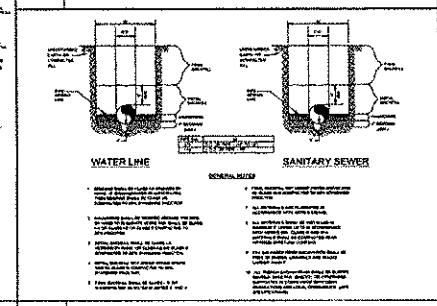
8 VALVE DETAIL



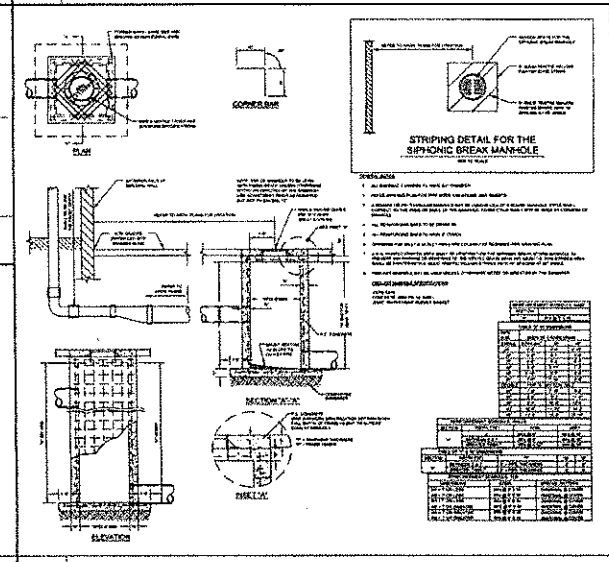
9 STORM SEWER TRENCH & BEDDING



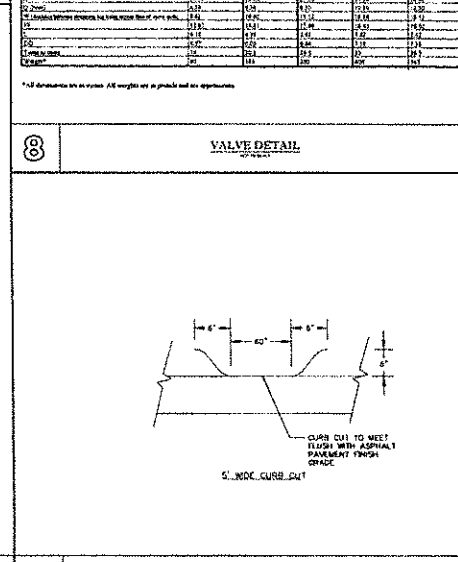
10 REMOTE GARDEN CENTER UTILITY BOLLARD WITHOUT ELECTRICAL AND DATA CONNECTION



11 UTILITY TRENCH AND BEDDING



12 SIPHONIC BREAK CONCRETE STORM MANHOLE DETAIL



13 CURB CUT DETAIL

BOHLER ENGINEERING

REVISIONS

NO.	DATE	COMMENT
1	06/14/17	REV PER CLIENT COMMENTS
2	09/15/17	REV PER CLIENT COMMENTS
3	09/18/18	REV PER CLIENT COMMENTS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROTECT YOU SELF & MANKIND

PROJECT NO. 3000
DRAWN BY JKA
CHECKED BY DRS
DATE 04/02/2014
SCALE AS SHOWN
CAD I.D. 14-06-1-1-1

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED
Walmart
(STORE #5561-00)

BLOCK 66 LOTS 1, 2, 4, 5, & 9
BARNEGAT TOWNSHIP
(TAX MAP SHEET 57.02, 8 & 9)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 34)
NJSH RT.37 & NORTHAMPTON BLVD.
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
35 VEGA DRIVE
WARREN, NJ 07059
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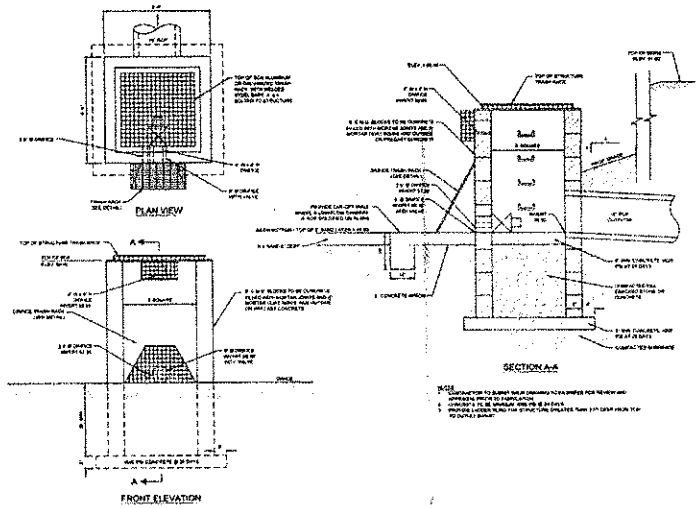
G.B. MURRAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 24611

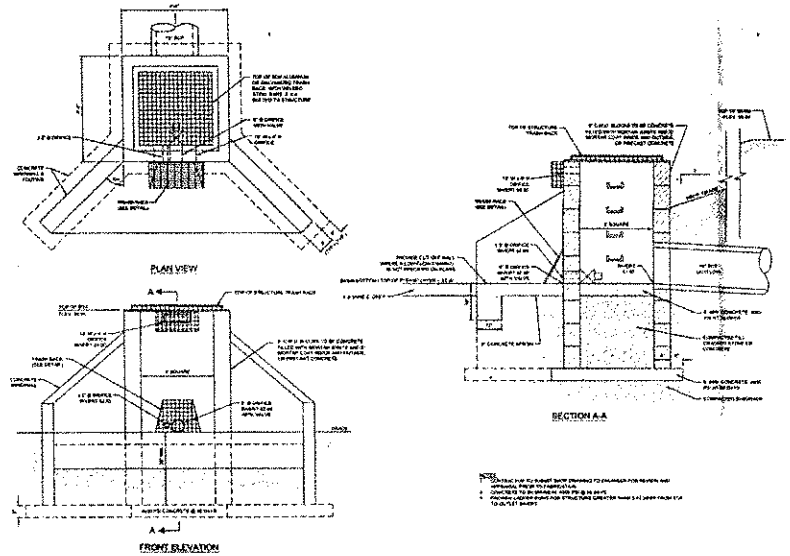
SHEET TITLE
DETAIL SHEET

SHEET NUMBER
23
OF 32

REVISION 3 - 09/15/18

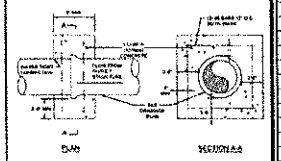


1 OUTLET STRUCTURE (FOR BASIN #1)

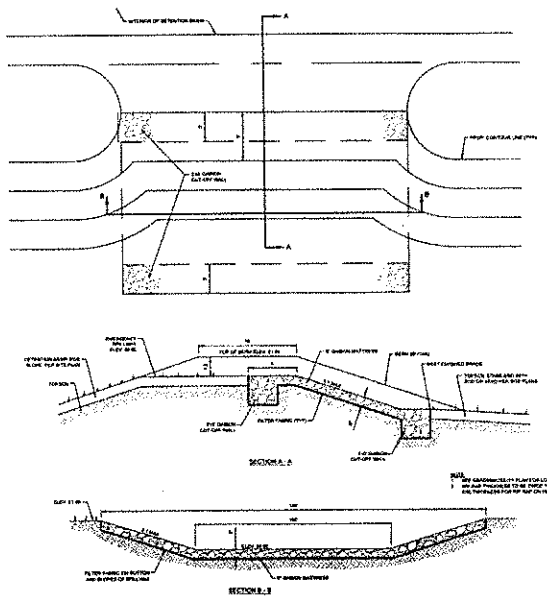


2 OUTLET STRUCTURE WITH WINGWALLS (FOR BASIN #2)

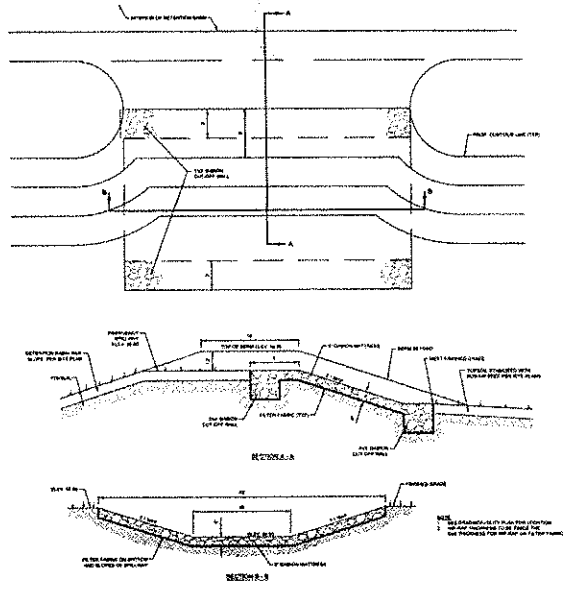
3 TRASH RACK



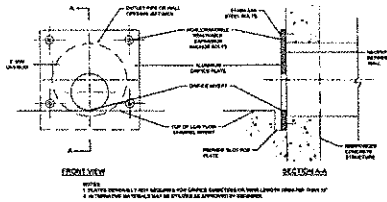
4 ANTI-SEEP COLLAR DETAIL



5 EMERGENCY SPILLWAY (FOR BASIN # 1)



6 EMERGENCY SPILLWAY (FOR BASIN #2)



7 ORIFICE PLATE DETAILS

BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT NO. JL5/04
DRAWN BY JJS
CHECKED BY GBD
DATE 04/26/2016
SCALE AS SHOWN
CAD FILE 1-DETAILS

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED Walmart

(STORE #1544-05)

BLOCK 64, LOTS 2, 3, 4, 5 & 6
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7 TO 9 & 6)
BLOCK 605, LOTS 11 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 5A)
NORTH STREET & NORTH HAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

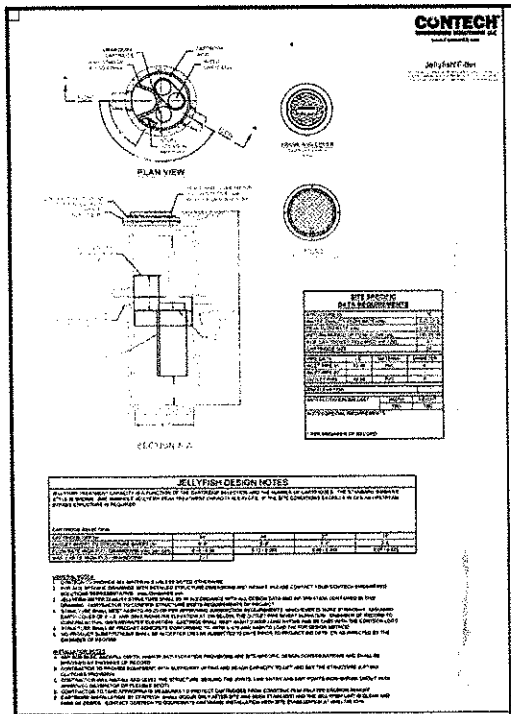
BOHLER ENGINEERING
34 TECHNOLOGY DRIVE
WARREN, NJ 07059
Phone (908) 668-8300
Fax (908) 754-4401
www.BohlerEngineering.com

G.B. MURRAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 24551

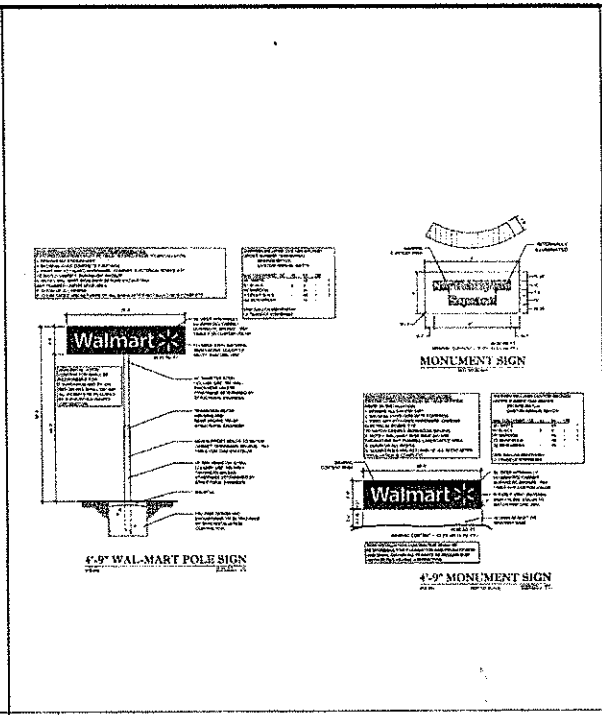
SHEET TITLE
DETAIL SHEET

SHEET NUMBER
24
OF 32

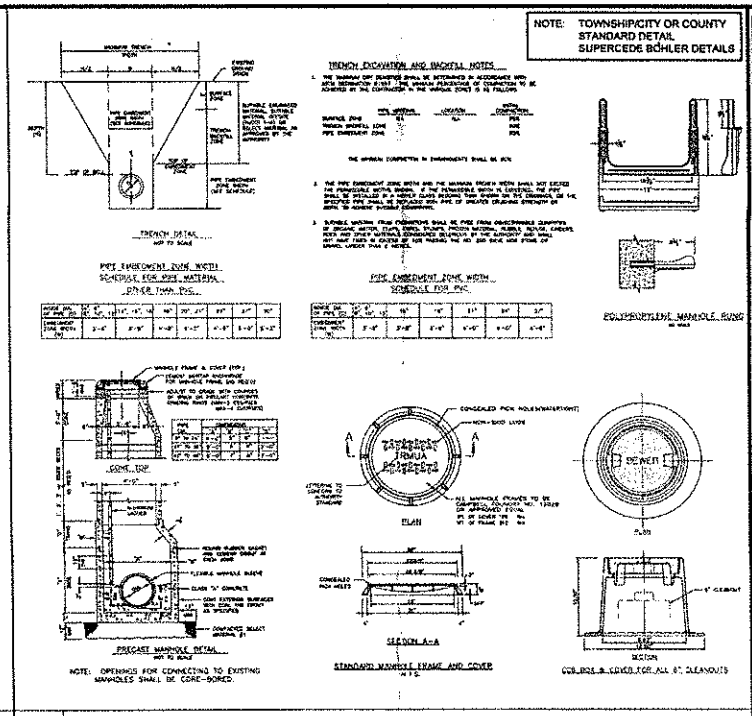
REVISION 2 - 05/10/16



1 JELLYFISH DETAIL

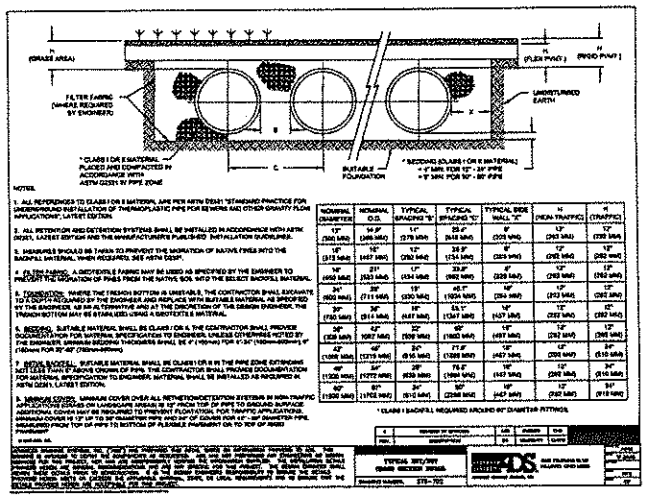


2 FREESTANDING SIGNS

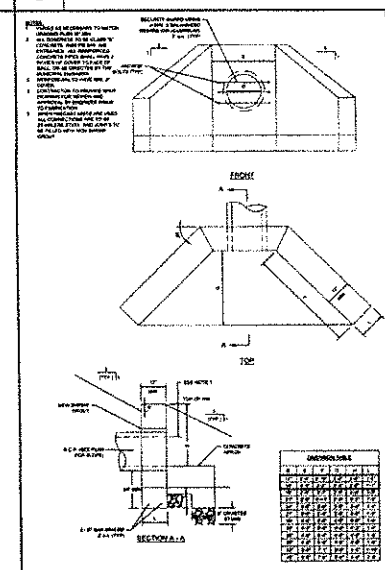


3 TOWNSHIP OF TOMS RIVER MUA DETAILS

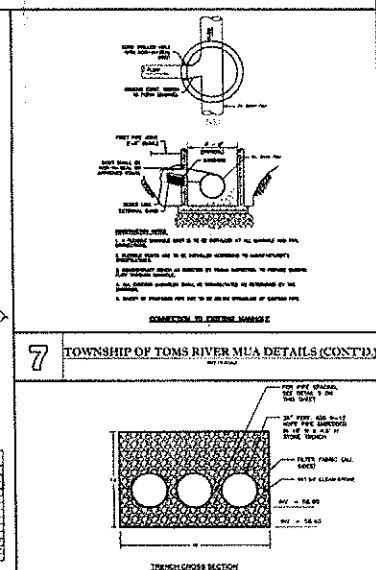
4 BUILDING MOUNTED SIGNS



5 UNDERGROUND BASIN DETAIL (FOR BASIN #3)



6 PRECAST HEADWALL DETAIL



7 TOWNSHIP OF TOMS RIVER MUA DETAILS (CONT'D.)

8 36" PERF. HDPE IN STONE TRENCH DETAIL

BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT NAME: PRELIMINARY AND FINAL SITE PLAN

FOR PROPOSED Walmart (STORE #2414-05)

WARREN, NJ 07059

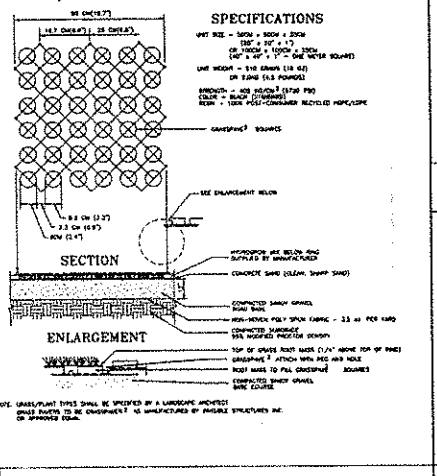
G.B. MURRAY

PROFESSIONAL ENGINEER

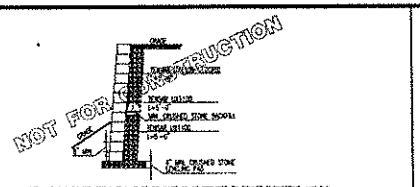
DETAIL SHEET

SHEET NUMBER 25 OF 31

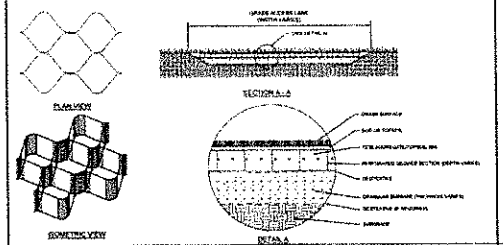
REVISION 2 - 08/10/10



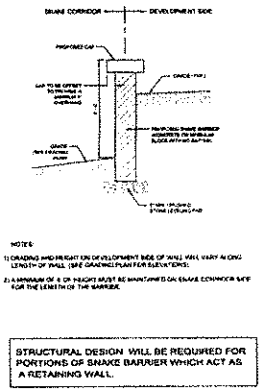
1 GRASS PAVER DETAIL
TO BE USED IN EMERGENCY VEHICLE ACCESS WAY



2 RETAINING WALL DETAIL

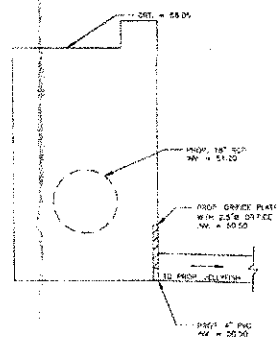


3 TYPICAL "GEOWEB" GRASS PAVER DETAILS
TO BE USED FOR BASIN ACCESS WAY



4 SNAKE BARRIER DETAIL
SCALE: 1" = 2'

NOTE TOWNSHIP/CITY OR COUNTY STANDARD DETAIL SUPERCEDE BOHLER DETAILS



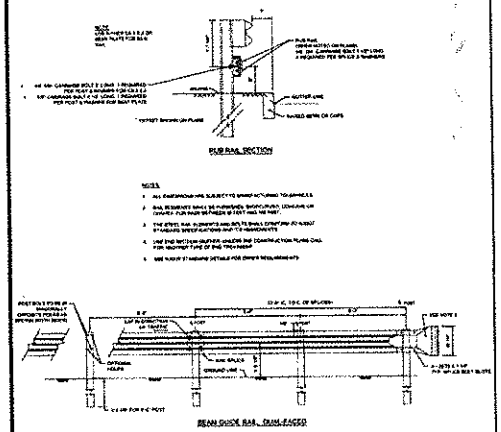
PROP. 18" RCP INV. = 51.20

PROP. ORIFICE PLATE WITH 2.5" ORIFICE INV. = 50.50

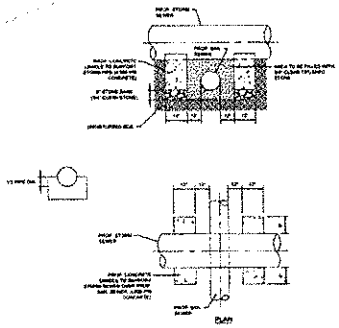
TO PROP. COLUMN

PROP. 4" PVC INV. = 50.50

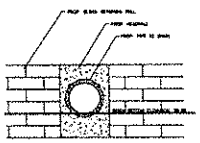
PROP. 18" INLET #01



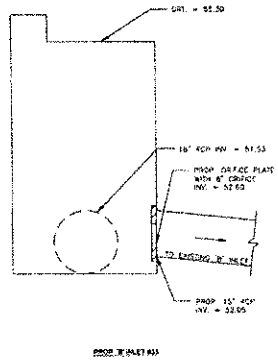
5 GUIDE RAIL



6 PROPOSED CONCRETE HAUNCH DETAIL



7 HEADWALL THROUGH BASIN WALL DETAIL



8 OUTLET STRUCTURE DETAIL
UNDERGROUND BASIN #3

BOHLER ENGINEERING

REVISIONS

REV.	DATE	COMMENT	BY
1	10/14/16	REVISED CAPAC.	JAF
2	08/18/18	REVISED STORM DETA	JAF
3	08/18/18	SUBMITTED COMM. DETA	JAF

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT NO. JER0003
DRAWN BY JAF
CHECKED BY GBM
DATE 04/08/16
SCALE AS SHOWN
CADD 13-06-1-A-1

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED Walmart

(STORE #1944-00)

BLOCK 66, LOTS 2, 3, 4, 5 & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7 OF 8 & 9)
BLOCK 69, LOT 5, 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54)
NORTH EAST & NORTHWEST CORN. BLVD
OCEAN COUNTY NEW JERSEY

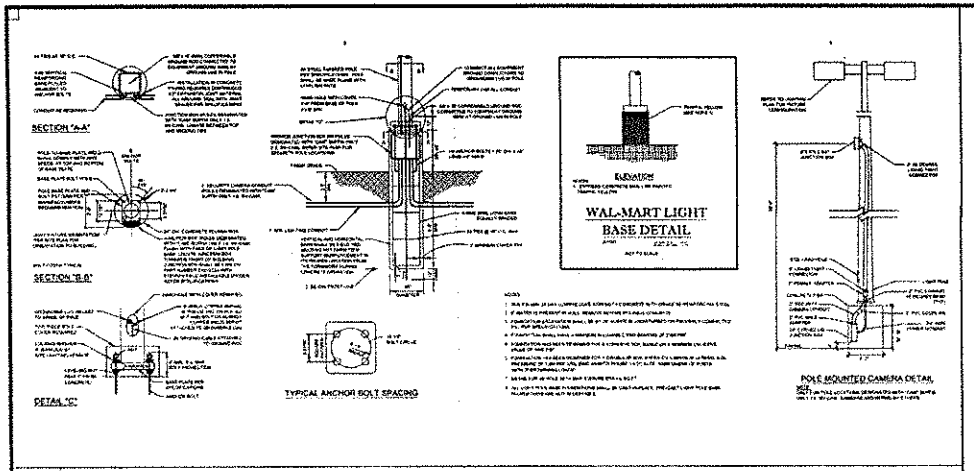
BOHLER ENGINEERING
25 TECHNOLOGY DRIVE
SCARBORO, NJ 07405
Phone (908) 852-8300
Fax (908) 754-0452
www.BohlerEngineering.com

G.B. MURRAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 41605

SHEET TITLE: DETAIL SHEET

SHEET NUMBER 26 OF 32

REVISION 2 - 08/18/18



1 TYPICAL LIGHTING POLE BASE DETAIL

NOTE: TOWNSHIP/CITY OR COUNTY STANDARD DETAIL SUPERCEDE BOHLER DETAILS

BOHLER ENGINEERING

REVISIONS

REV.	DATE	COMMENT	BY
1	06/18/09	REV PER CAFRA / REV PER COMM. LETTER	TJ / MJ
2	08/18/09	REV PER CAFRA / REV PER COMM. LETTER	TJ / MJ

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT MANAGER: JS
DRAWN BY: JS
CHECKED BY: GBM
DATE: 04/06/09
SCALE: AS SHOWN
CADD ID: 13-267-M1.5

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED Walmart

(STORE #2344-05)

BLOCK 44, LOTS 2, 3 & 5 & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEET 18 7 10, 8 & 9)
BLOCK 501, LOTS 14 & 16
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54)
NJSH #1527 & NONE NAMED ON RV 10
OCEAN COUNTY, NEW JERSEY

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24 TECHNOLOGY DRIVE
WARREN, NJ 07059
Phone: (908) 668-8300
Fax: (908) 754-4401
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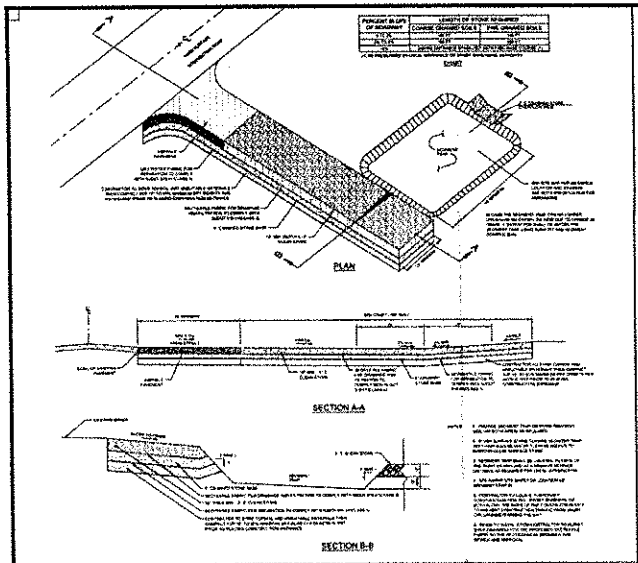
G.B. MURRAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 33503

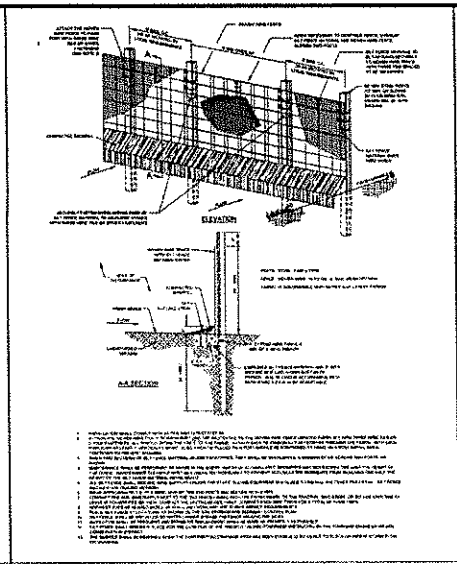
SHEET TITLE
DETAIL SHEET

SHEET NUMBER
27 OF 32

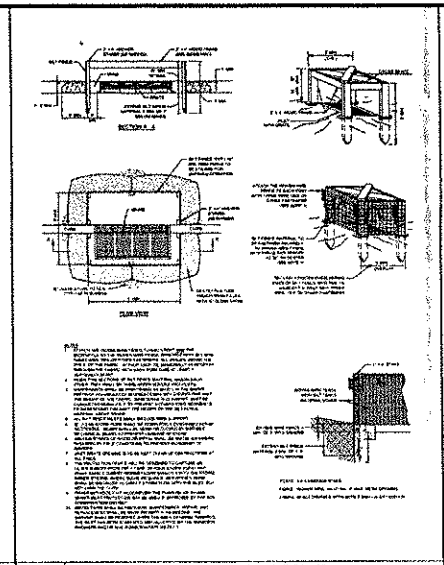
REVISION 2 - 08/18/09



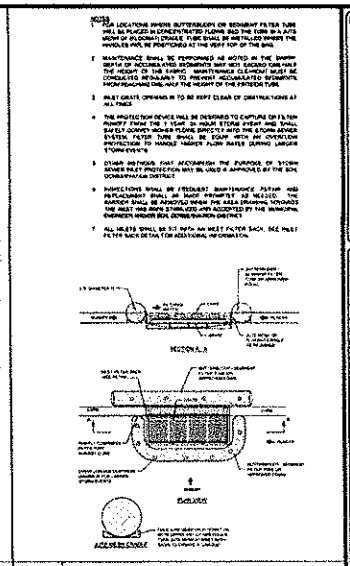
1 CONSTRUCTION EXIT (CE)



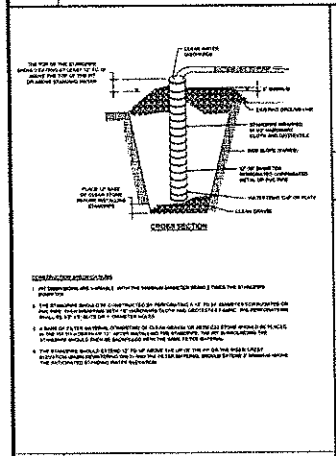
2 SEDIMENTATION/SILT FENCE WITH WIRE SUPPORT (SF)



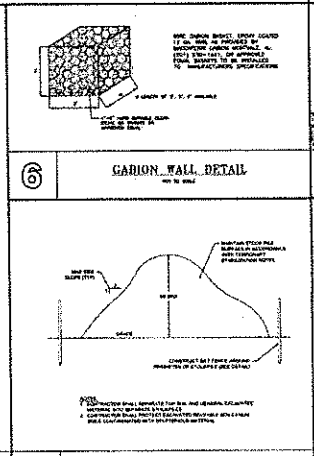
3 N.J. INLET FILTER DETAIL (TO BE UTILIZED IN UNPAVED CONDITIONS) (IF)



4 N.J. INLET FILTER DETAIL (TO BE UTILIZED IN PAVED CONDITIONS) (IF)

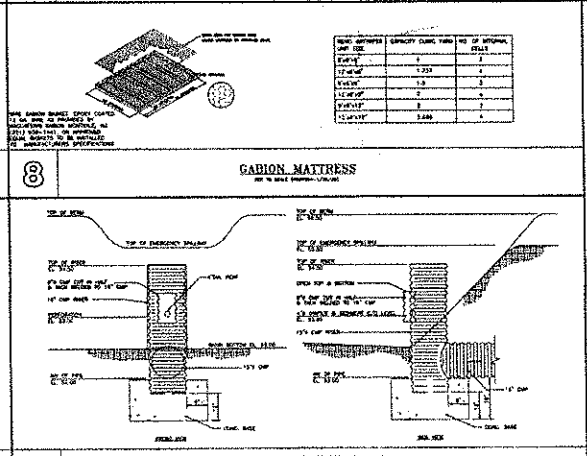


5 SUMP PIT DETAIL



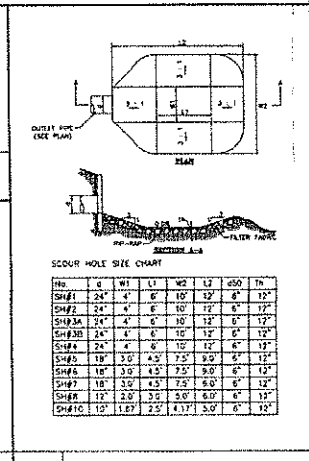
6 GABION WALL DETAIL

7 TEMPORARY SOIL STOCKPILE



8 GABION MATTRESS

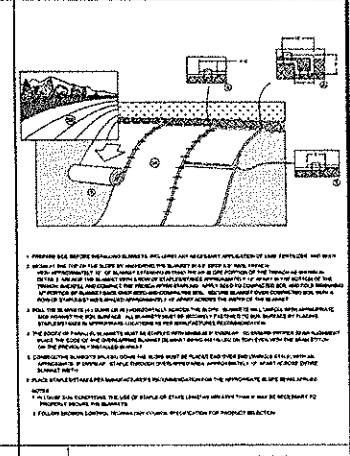
9 TEMPORARY SEDIMENT CONTROL RISER DETAIL (FOR SEDIMENT BASIN #1)



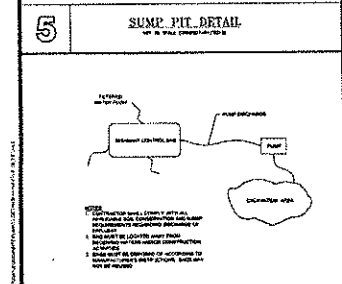
SCOUR HOLE SIZE CHART

No.	d	W1	L1	W2	L2	d50	Tn
SH#1	24"	4'	6'	10'	12'	6"	12"
SH#2	24"	4'	6'	10'	12'	6"	12"
SH#3A	24"	4'	6'	10'	12'	6"	12"
SH#3B	24"	4'	6'	10'	12'	6"	12"
SH#4	24"	4'	6'	10'	12'	6"	12"
SH#5	18"	3.0'	4.5'	7.5'	9.0'	6"	12"
SH#6	18"	3.0'	4.5'	7.5'	9.0'	6"	12"
SH#7	18"	3.0'	4.5'	7.5'	9.0'	6"	12"
SH#8	12"	2.0'	3.0'	5.0'	6.0'	6"	12"
SH#10	10"	1.67'	2.5'	4.17'	5.0'	6"	12"

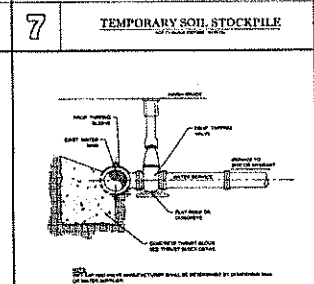
10 SCOUR HOLE DETAIL



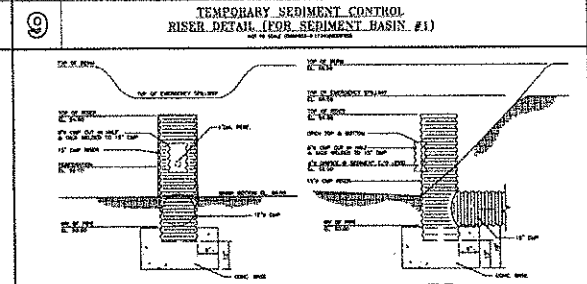
11 EROSION CONTROL BLANKET (SLOPE INSTALLATION)



12 N.J. S.C.D. SEDIMENT CONTROL BAG FOR DEWATERING

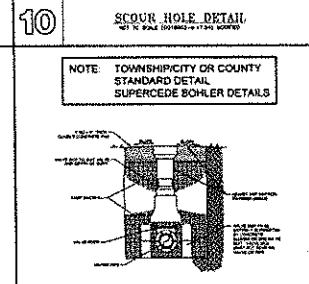


13 TYPICAL WET TAP

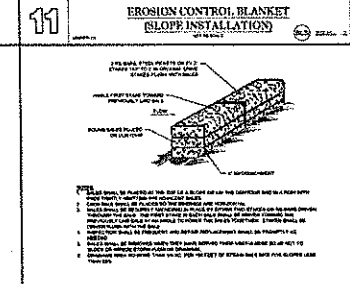


14 TEMPORARY SEDIMENT CONTROL RISER DETAIL (FOR SEDIMENT BASIN #2)

NOTE: TOWNSHIP/CITY OR COUNTY STANDARD DETAIL SUPERCEDE BOHLER DETAILS



15 GATE VALVE



16 STRAW BALE & DIKE

BOHLER ENGINEERING

REVISIONS

REV	DATE	COMMENT	BY
1	08/14/15	RPV FOR COUNTY SR-1A/CS-1 COMMENTS	JJ
2	09/14/15	RPV FOR COUNTY SR-1A/CS-1	JJ

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT PLANNER

PRELIMINARY AND FINAL SITE PLAN

PROPOSED Walmart (STORE #3141-05)

IN BLOCK 44, LOTS 2, 3, 4, 5, & 8 MANCHESTER TOWNSHIP (TAX MAP SHEETS 1-12, 6 & 9) BLOCK 905, LOTS 1 & 5.10 TOMS RIVER TOWNSHIP (TAX MAP SHEET 9) NORTH BRIDGE & NORTHAMPTON BLVD OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
16 TECHNOLOGY DRIVE
WARREN, NJ 07059
Phone (908) 668-1200
Fax (908) 754-4147
www.BohlerEngineering.com

G.B. MURRAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 44823

SHEET TITLE
DETAIL SHEET

SHEET NUMBER
28 OF 52

REVISION 2 - 09/14/15

NEW JERSEY STATE HIGHWAY ROUTE No. 37

(116' WIDE ROW)

BASIN #4

BASIN #5

BASIN #1

BASIN #2

PROPOSED WALMART

EXE

GRAPHIC SCALE

BOHLER ENGINEERING

REVISIONS

REV	DATE	COMMENT	BY
1	08/14/14	REV PER MARTCHAN	
2	08/14/14	REV PER OCEAN CO. LETTER	DGC
3	08/14/14	REV PER OCEAN CO.	
4	08/14/14	REV PER OCEAN CO. LETTER	DGC

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED

Walmart

(STORE #1941-05)

BLOCK 44, LOTS 2, 3 & 4.6
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7 (D, E & F))
BLOCK 60, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 44)
HIGH STREET & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING

38 TECHNOLOGY DRIVE
WARREN, NJ 07059
Phone (908) 668-8300
Fax (908) 754-4101
www.BohlerEngineering.com

G.B. MURRAY

PROFESSIONAL ENGINEER

NEW JERSEY LICENSE No. 43503

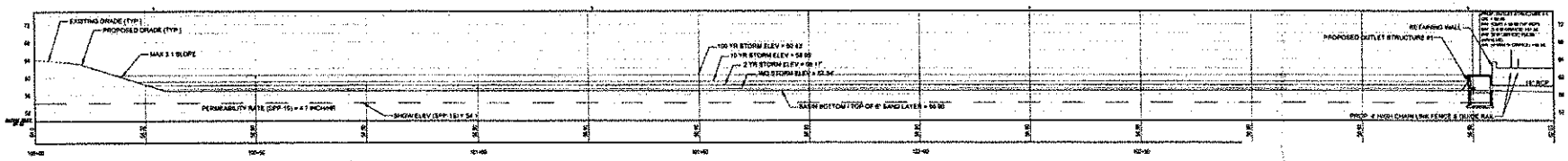
BASIN CROSS SECTION MAP

SHEET NUMBER

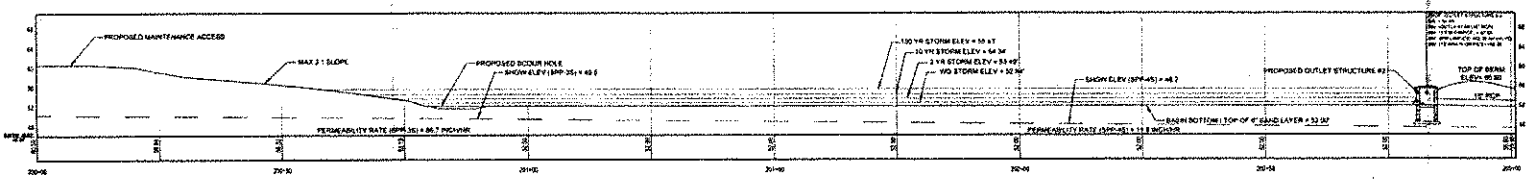
29

OF 31

REVISION 3 - 08/15/14



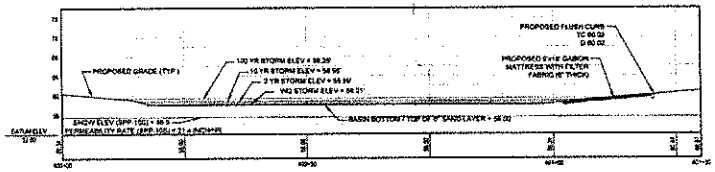
BASIN #1



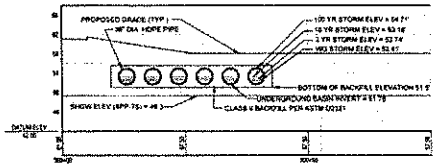
BASIN #2

1 BASIN #1 AND #2 CROSS SECTION WITH OUTLET STRUCTURE

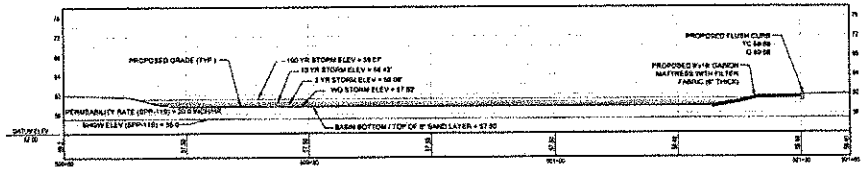
SCALE: 1"=10'



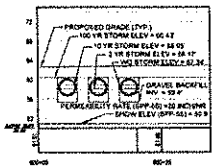
BASIN #4



BASIN #3



BASIN #5



ROOF RECHARGE SYSTEM

2 BASIN #3, #4, #5 AND ROOF RECHARCH SYSTEM CROSS SECTIONS

SCALE: 1"=10'

BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROTECT YOU SELF

PROJECT

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED Walmart

(STORE #5544-05)

BLOCK 44, LOTS 2, 3, 4, 5, 8, 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8 & 9)
BLOCK 809, LOTS 18 & 19
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 34)
RUSH ETHOS & NEW HAMPTON PLAZA
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
54 TECHNOLOGY DRIVE
WARREN, NJ 07059
Phone: (908) 754-6000
Fax: (908) 754-4001
www.BohlerEngineering.com

G.B. MURRAY

PROFESSIONAL ENGINEER

NEW JERSEY LICENSE No. 24002

SHEET TITLE

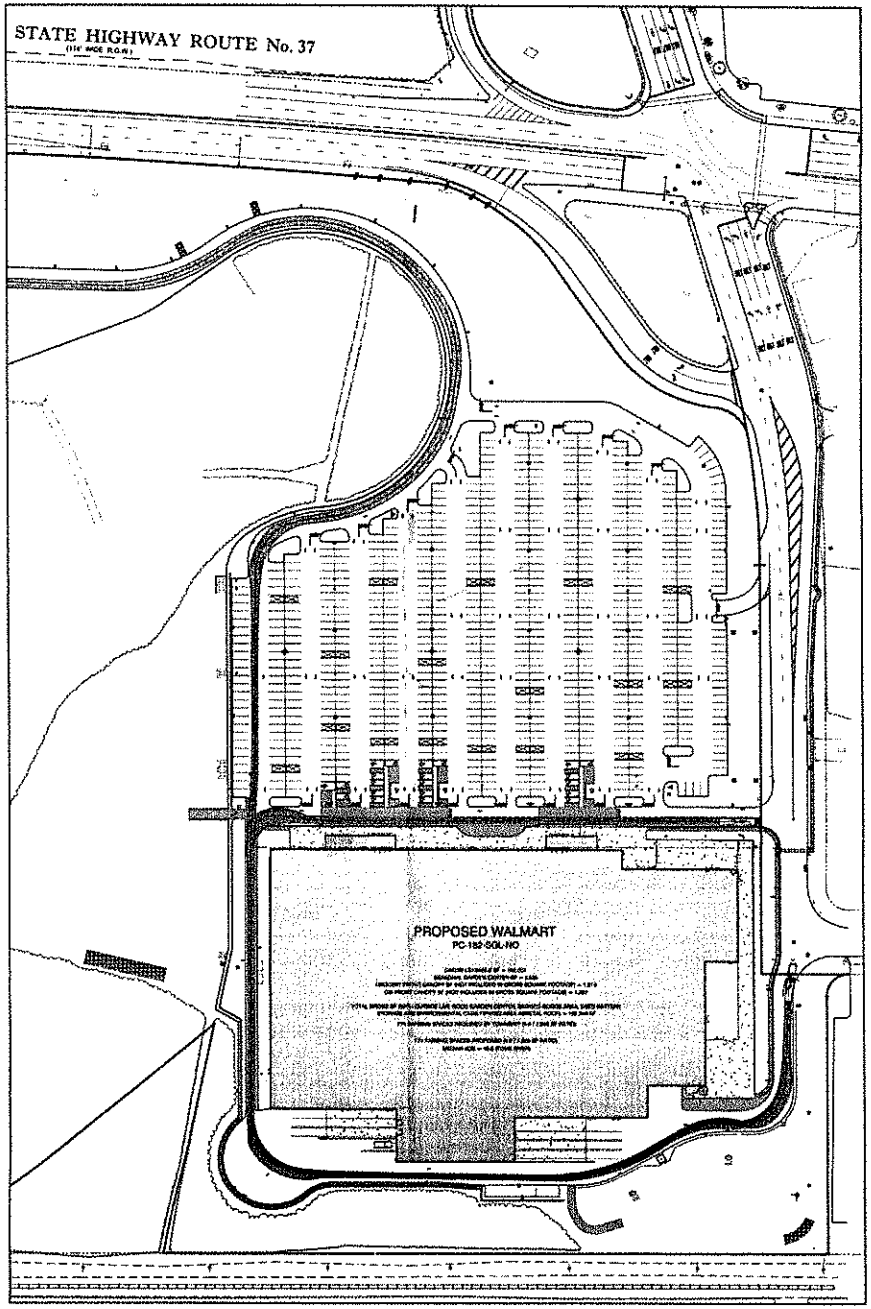
BASIN CROSS SECTIONS

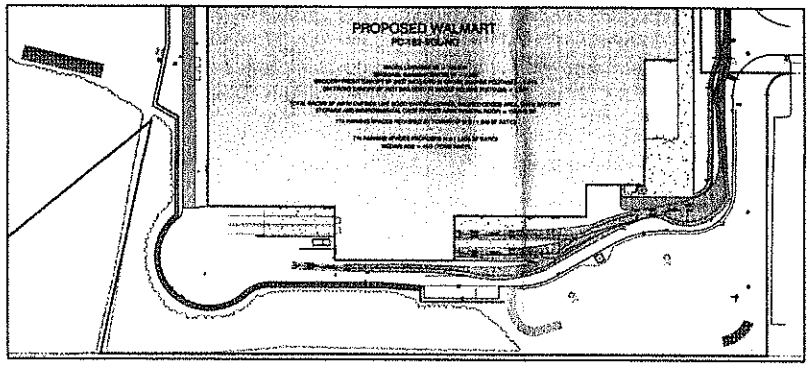
SHEET NUMBER

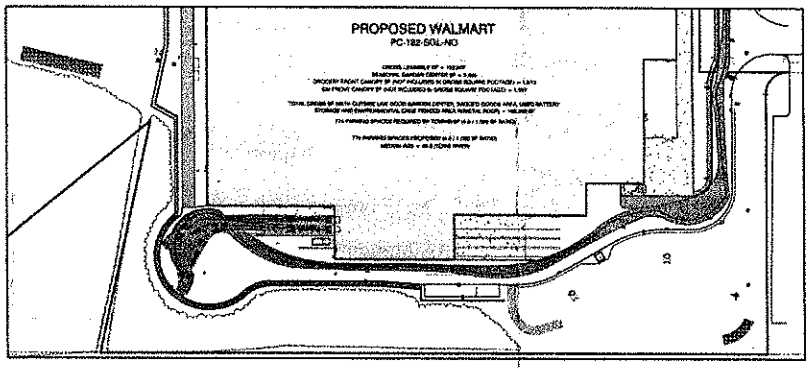
30

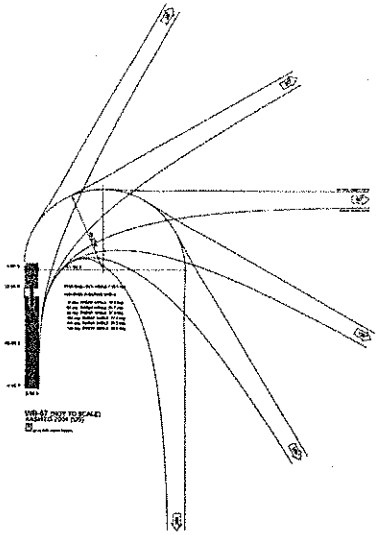
OF 32

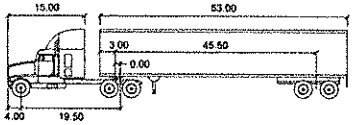
REVISION 2 - 08/13/18





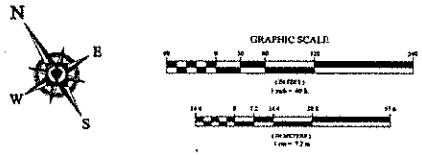






WB-67 (NOT TO SCALE)

	feet		
Tractor Width	: 8.00	Lock to Lock Time	: 6.00
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		



BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED Walmart

(STORE #3944-05)

BLOCK 44 LOTS 2, 3, 4, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7 & 8 R)
BLOCK 501 LOTS 13 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 6A)
NJSH STRUT & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

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14 TECHNOLOGY DRIVE
WARREN, NJ 07059
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Fax: (908) 754-9401
www.BohlerEngineering.com

G.B. MURRAY
PROFESSIONAL ENGINEER
New Jersey License No. 41525

SHEET TITLE

TRUCK TURNING PLAN

SHEET NUMBER

31
OF 32

REVISION 2 - 09/10/18

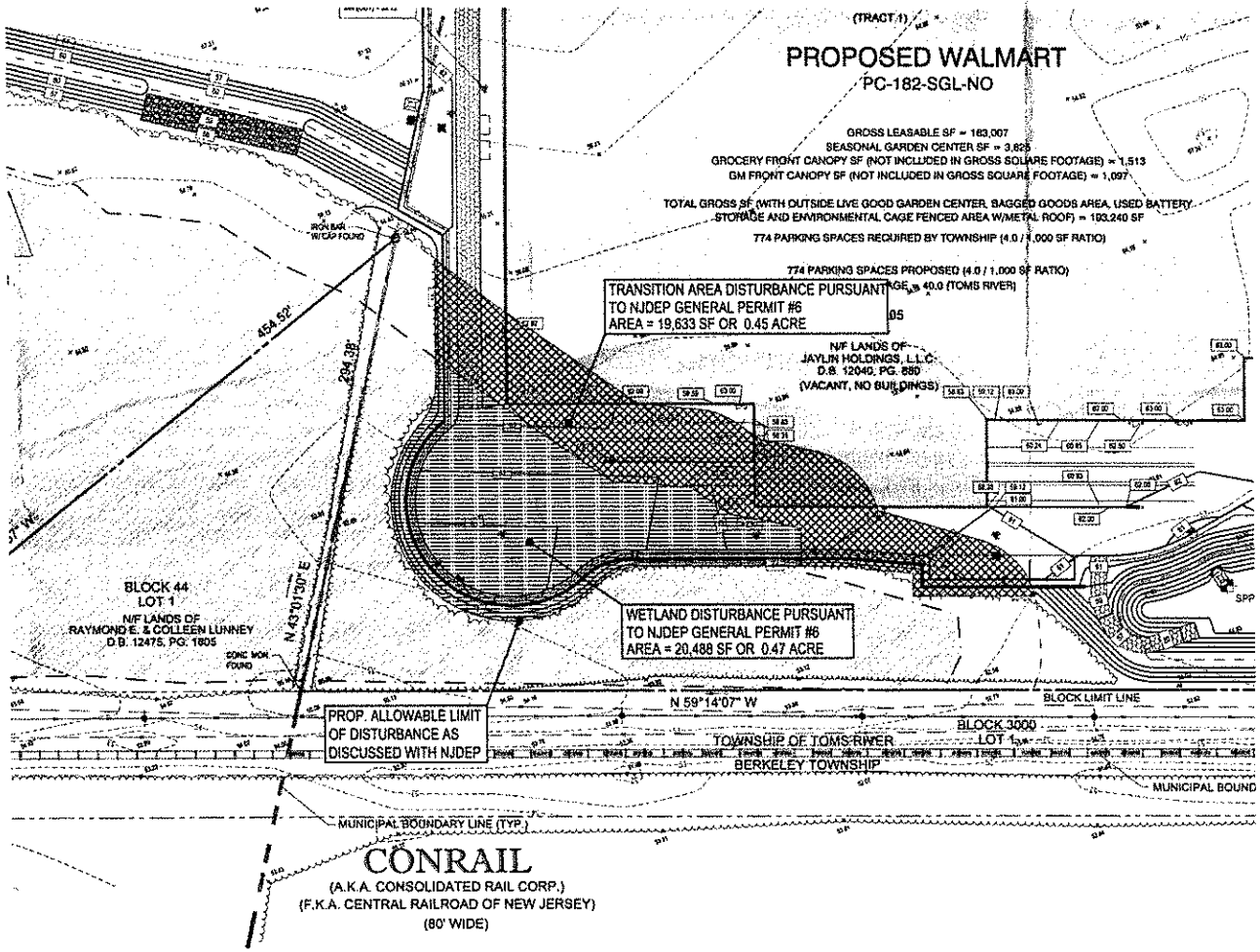
CONTRACTOR SHALL CONTACT 811 FOR LOCATION OF ALL UTILITIES, AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION

UTILITY LEGEND

DEWATERING NOTE:
WHILE PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE, AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS

REFER TO MASTER SITE SPECIFICATIONS

GRAPHIC SCALE



BOHLER ENGINEERING

REVISIONS

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT NO. 170088
DRAWN BY JBR
CHECKED BY DBS
DATE 06/12/18
SCALE AS SHOWN
DATE 06/12/18

PRELIMINARY AND FINAL SITE PLAN

FOR

PROPOSED Walmart
(STORE #5816-00)
BLOCK 44, LOTS 1, 4, 4.01 & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEET 2, 22 & 91)
BLOCK 805, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 64)
HWY RT#37 & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

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38 TECHNOLOGY DRIVE
WARREN, NJ 07059
Phone (908) 668-8300
Fax (908) 754-4401
www.bohlerengineering.com

G.B. MURRAY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 43525

SHEET TITLE
GP-6 PLAN

SHEET NUMBER
32
OF 32

REVISION 2 - 06/12/18

TREE PLOT INVENTORY

A	TOTAL TREES: 5 2 POSITIONS: 30-8" 3 PROXIMAL: 8", 10" 4 SHORTLIVE PROX.: 24-8", 10"
B	TOTAL TREES: 5 1 POSITION: 8-8" 1 PROXIMAL: 8" 3 PROXIMAL: 8-24", 7", 10"
C	TOTAL TREES: 1 1 PROXIMAL: 30-8", 8", 7"
D	TOTAL TREES: 5 3 POSITIONS: 24-8", 8", 7" 2 PROXIMAL: 7", 10"
E	TOTAL TREES: 7 1 POSITION: 24-8" 4 PROXIMAL: 8", 8", 7", 12" 1 SHORTLIVE PROX.: 7"
F	TOTAL TREES: 5 1 POSITION: 7" 3 PROXIMAL: 24-8", 8", 8", 10" 1 SHORTLIVE PROX.: 10"
G	TOTAL TREES: 1 1 PROXIMAL: 24-8", 8", 7"
H	TOTAL TREES: 1 1 POSITION: 8"
I	TOTAL TREES: 3 2 POSITIONS: 24-8", 10" 1 PROXIMAL: 8", 8", 7", 8", 10"
J	TOTAL TREES: 12 1 SEMI-VIS.: 7" 8 POSITIONS: 7", 8", 7", 24-8", 10" 1 PROXIMAL: 7" 2 SHORTLIVE: 8", 8"

STATISTICAL INVENTORY OF ALL TREES 4-16"

TOTAL WOODED ACREAGE OF SITE WITHIN TOWN RANGE: 17.12 AC. (746,016 SF)
TOTAL FORESTED ACREAGE WITHIN TOWN RANGE TO BE REMOVED: 10.1 AC. (441,022 SF)

WHOLE SITE TREE INVENTORY (ALL ACREAGE: 30.40 AC.(1,324,382 SF))
TOTAL SAMPLE PLOT ACREAGE (SITE PLOTS: 2.46 AC.(107,157 SF))

TOTAL TREE CALCULATIONS FOR 1 ACRE

DIAMETER (IN)	LIN. QUANTITY		LIN. QUANTITY
4-8"	42 PER 2 AC	OR	1 PER 1 AC
8-12"	24 PER 2 AC	OR	1 PER 1 AC
12-16"	12 PER 2 AC	OR	1 PER 1 AC
16"-18"	6 PER 2 AC	OR	1 PER 1 AC

TOTAL TREE CALCULATIONS FOR 10.1 ACRE

DIAMETER (IN)	LIN. QUANTITY		TOTAL QUANTITY
4-8"	10 PER 1 AC	OR	2 (ENTIRE AREA TO BE REMOVED)
8-12"	10 PER 1 AC	OR	1 (ENTIRE AREA TO BE REMOVED)
12-16"	10 PER 1 AC	OR	1 (ENTIRE AREA TO BE REMOVED)
16"-18"	5 PER 1 AC	OR	2 (ENTIRE AREA TO BE REMOVED)

TREE REPLACEMENT CALCULATIONS

TOTAL TREES REMOVED
4-8" = 0
8-12" = 0
12-16" = 0
TOTAL TREES = 0

TOTAL ACRES = 0 AC

REMAINING ACRES = 11 AC. (INCLUDES BASIN, PARKING, PLANTING AREA AND LANDSCAPE ISLANDS)

DEVELOPED AREA = TOTAL PLOT ACREAGE - REMAINING ACRES = 0 AC - 11 AC

REQUIRED TREE REPLACEMENT = 11 AC X 100 TREES / AC TREES

TOTAL TREES REPLACEMENT TO BE MADE = 0 X 100 TREES = 0 = TOTAL REPLACEMENT TREES

NOTE: SEE LANDSCAPE PLAN FOR LOCATIONS OF PROPOSED TREES

THE REPLACEMENT TREES SHOWN ON THIS PLAN ARE PROPOSED TREES. THEY WERE INCLUDED IN THE SITE PLAN TOTAL TREE COUNT TO ASSISTS THE PLANNING BOARD IN ASSESSING THE TOTAL REPLACEMENT REQUIREMENT.

LANDMARK TREE INVENTORY

PER TREE SPECIES INVENTORY

TOTAL TREES OF SPECIES LISTED TO BE REMOVED: 24

1 BLACK OAK - 42", 10"

2 BLACK OAK - 42", 10"

10 POPLAR TREE - (10, 10", 11", 11", 12", 12", 12", 12", 12", 12")

7 POPLAR TREE - (8", 8", 8", 11", 12", 12", 12")

TOTAL TREES OF SPECIES LISTED TO BE REMOVED: 3

3 POPLAR TREE - (11", 12", 12")

TALL TREES LOCATED ON SITE YOUNG IN GOOD CONDITION

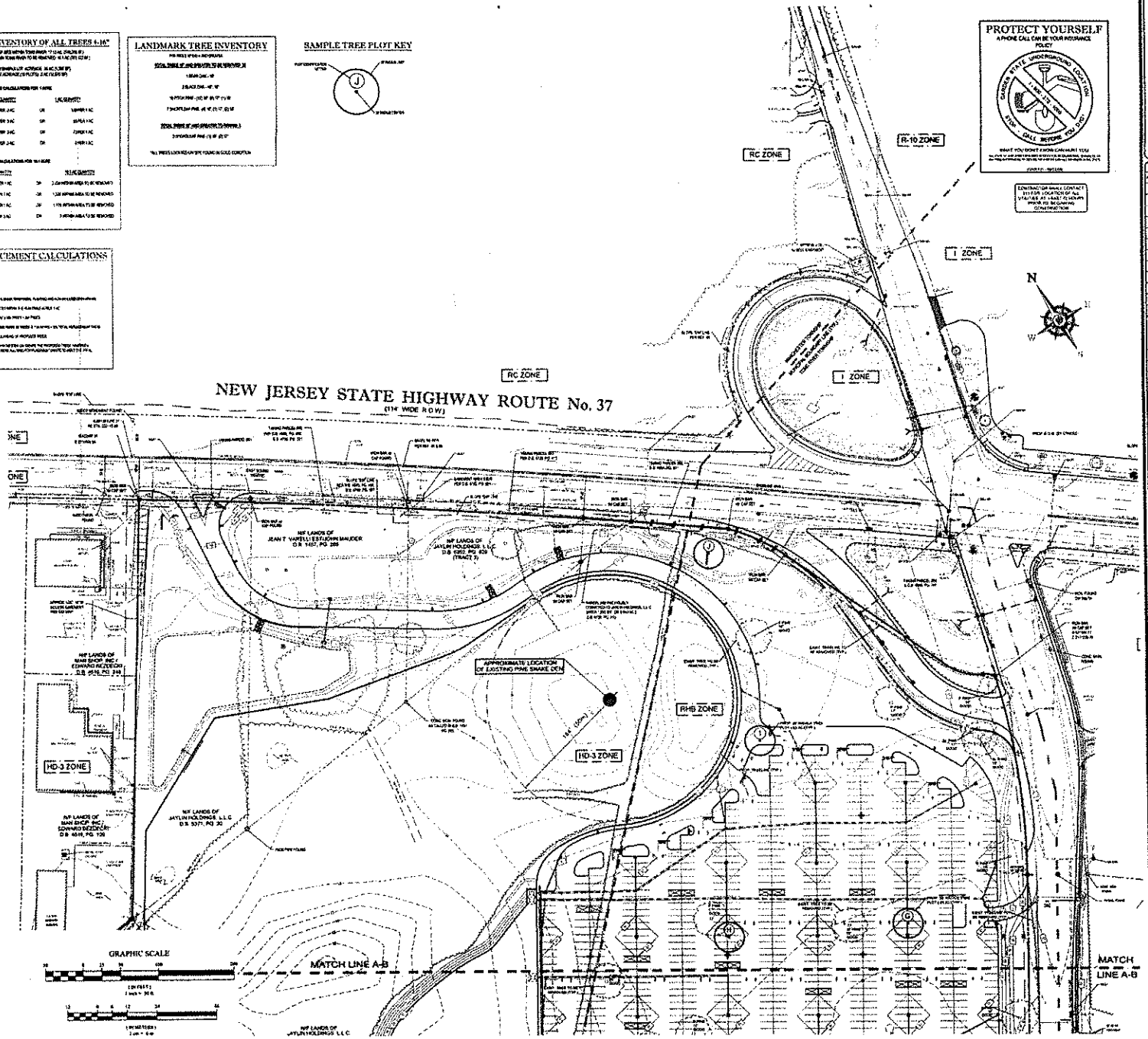
SAMPLE TREE PLOT KEY

PROTECT YOURSELF

A PHONE CALL CAN BE YOUR INSURANCE POLICY

WHAT YOU DON'T KNOW CAN HURT YOU

CONTRACTOR SHALL CONTACT 311 FOR LOCATION OF ALL UTILITIES AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION



EXISTING TREE LEGEND

FTC = PROPOSE
S PRE = SHORTLIVE PRE

NOTES

THIS MAP WAS DRAWN WITH AUTOCAD SOFTWARE AND CONTAINS DATA FROM VARIOUS SOURCES. THE INFORMATION SHOWN ON THIS MAP IS INTENDED FOR VISUAL REPRESENTATION ONLY.

THIS PLAN IS NOT INTENDED FOR SITE SPECIFIC PLANNING OR ANY PURPOSES OTHER THAN VISUAL REPRESENTATION.

ON SITE CONDITIONS MAY BE DIFFERENT FROM THE INFORMATION SHOWN ON THIS MAP.

PROPOSED SILT FENCE TO BE UTILIZED AS TREE PROTECTION FENCE IN ALL LOCATIONS WHERE EXISTING TREES ARE TO REMAIN

TREE PLOTS AND INVENTORY ARE GPS LOCATED BASED ON A SITE VISIT PERFORMED ON 10/29/09

BOHLER ENGINEERING

NOTICE: THIS DOCUMENT IS PROPRIETARY AND INTENDED FOR THE USE OF THE PERSON OR ENTITY FOR WHOM IT WAS PREPARED. REPRODUCTION OR REUSE BY ANY OTHER PERSON OR ENTITY IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF BOHLER ENGINEERING.

REVISIONS

REV.	DATE	COMMENT	TRACKING

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROTECT YOUR WORTH

PROJECT NO. [illegible]
DRAWN BY [illegible]
CHECKED BY [illegible]
DATE [illegible]
SCALE 1" = 20'-0"
SHEET 1 of 1 TREES

PRELIMINARY AND FINAL SITE PLAN AND MINOR SUBDIVISION

FOR PROPOSED Walmart (STORE #3444-05)

BLOCK 44 LOTS 2, 3, 4 & 5 PART OF 6
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 1 & 2 & 3)
BLOCK 605, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 14)
RUSH STREET & NORTH MARTIN BLVD
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
35 TECHNOLOGY DRIVE
WARREN, NJ 07059
PHONE (908) 757-8400
FAX (908) 754-8401
www.BohlerEngineering.com

G.S. DiBONA
LICENSED LANDSCAPE ARCHITECT
NEW JERSEY LICENSE No. 21AS00012200

SHEET TITLE
TREE MANAGEMENT PLAN 'A'

SHEET NUMBER
1 OF 1

REVISION 0 - 12/11/2010

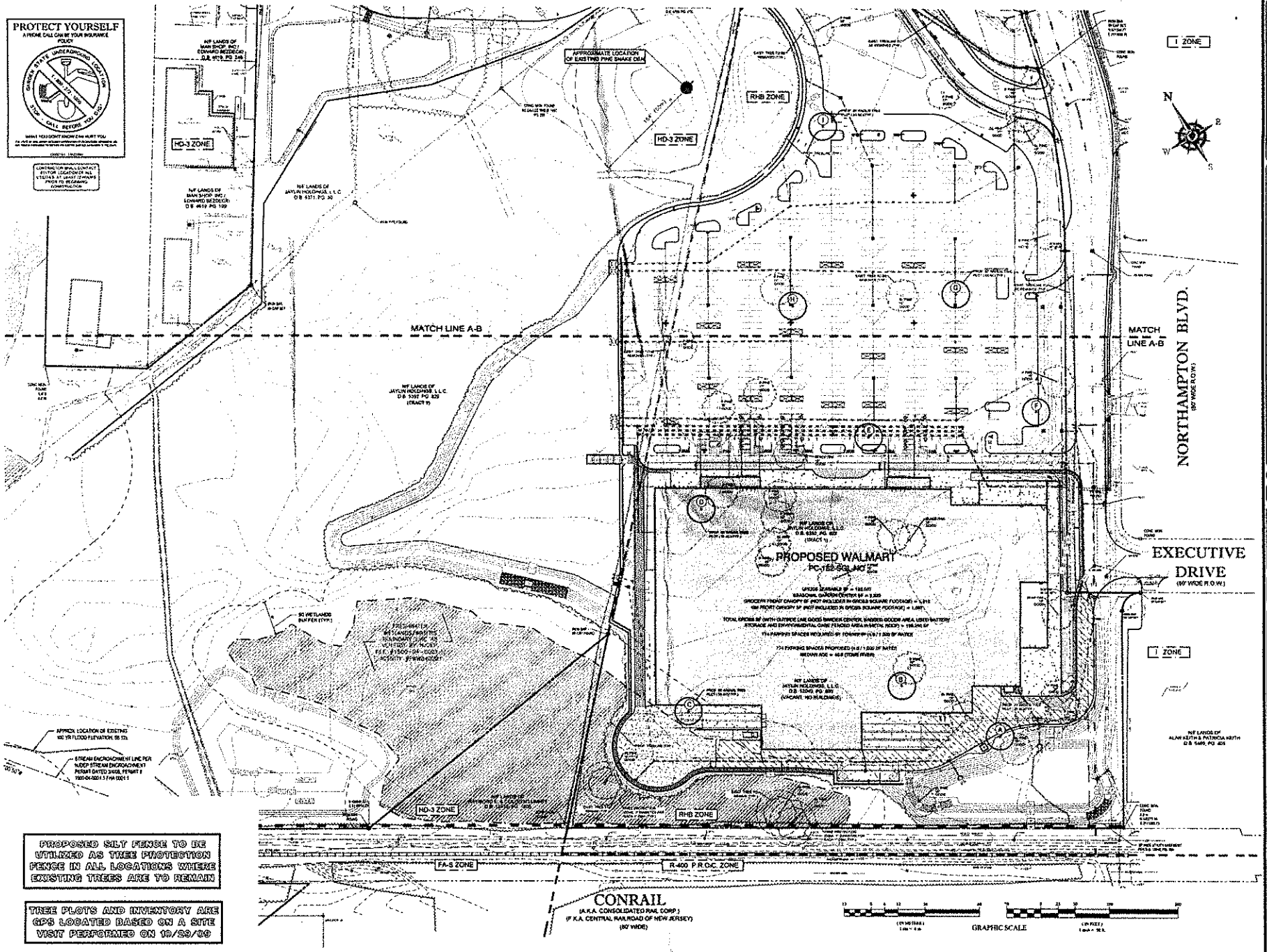
PROTECT YOURSELF
A PHONE CALL CAN BE YOUR INSURANCE POLICY
NEW JERSEY STATE UNDERGROUND LOCATION SERVICE
1-800-272-1000
STOP - CALL BEFORE YOU DIG!
WHAT YOU DON'T KNOW CAN HURT YOU

CONTRACTOR SHALL CONTACT UTILITY LOCATION SERVICE AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION

NOTE: THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED ON THE BEST INFORMATION AVAILABLE TO US. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

PROPOSED SILT FENCE TO BE UTILIZED AS TREE PROTECTION FENCE IN ALL LOCATIONS WHERE EXISTING TREES ARE TO REMAIN

TREE PLOTS AND INVENTORY ARE GPS LOCATED BASED ON A SITE VISIT PERFORMED ON 10/23/09



BOHLER ENGINEERING

REVISIONS

REV	DATE	COMMENT

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT: JOB NO.
DRAWN BY: JES
CHECKED BY: GSD
DATE: 12/11/2013
SCALE: AS SHOWN
LINE DWG: 11-0-0-0

PRELIMINARY AND FINAL SITE PLAN AND MINOR SUBDIVISION

FOR

PROPOSED
Walmart
(STORE #1814-05)

BLOCK 44, LOTS 1, 3, 5 & 8 PART OF 4
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7 OF, 8 & 9)
BLOCK 905, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54)
HIGH STREET & NORTHAMPTON BLVD
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
35 TECHNOLOGY DRIVE
WARREN, NJ 07059
Phone (908) 668-8310
Fax (908) 754-4551
www.BohlerEngineering.com

G.S. DiBONA
LICENSED LANDSCAPE ARCHITECT
NEW JERSEY LICENSE No. 21AS00112000

SHEET TITLE
TREE MANAGEMENT PLAN 'B'

SHEET NUMBER
2 of 7

REVISION 5 - 12/11/2013

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Land Use Regulation
Mail Code 501-02A, P. O. Box 420
Trenton, New Jersey 08625-0420
www.state.nj.us/dep/landuse

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

APR 13 2016

Jay A. Grunin
Jaylin Holdings LLC
Dover Esplande, Building 1
1027 Hooper Ave
Toms River, NJ 08753

RE: Freshwater Wetlands Letter of Interpretation: Line Verification
File No.: 1500-04-0001.3
Activity Number: FWW150001
Applicant: JAYLIN HOLDINGS, LLC
Block(s) and Lot(s): [44, 9]
Manchester Twp., Ocean County

Dear Mr. Grunin :

This letter is in response to your request for a Letter of Interpretation to have Division of Land Use Regulation (Division) staff verify the boundary of the freshwater wetlands and/or State open waters on the referenced property.

In accordance with agreements between the State of New Jersey Department of Environmental Protection, the U.S. Army Corps of Engineers Philadelphia and New York Districts, and the U.S. Environmental Protection Agency, the NJDEP, the Division is the lead agency for establishing the extent of State and Federally regulated wetlands and waters. The USEPA and/or USACOE retain the right to reevaluate and modify the jurisdictional determination at any time should the information prove to be incomplete or inaccurate.

Based upon the information submitted, and upon site inspections conducted by Division staff on October 14, 2015 and February 10, 2016, the Division has determined that the wetlands and waters boundary line(s) as shown on the plan map entitled: "BOUNDARY & WETLAND LOCATION SURVEY, LOT 9, BLOCK 44, 1801 NJSH ROUTE 37, TOWNSHIP OF MANCHESTER, OCEAN COUNTY, NEW JERSEY", consisting of one sheet, dated 8-6-15, last revised 3-17-16, and prepared by Control Point Associates, Inc., is accurate as shown.

Wetlands Resource Value Classification ("RVC")

In addition, the Division has determined that the resource value and the standard transition area or buffer required adjacent to the delineated wetlands are as follows:

Exceptional: A16 directly across to A-19; A-19 through A-31; B1 through B-9; D-1 through D-5. [150 foot wetland buffer]

received after 30 days of publication notice may be denied. The DEP Bulletin is available on the Department's website at www.state.nj.us/dep/bulletin. In addition to your hearing request, you may file a request with the Office of Dispute Resolution to engage in alternative dispute resolution. Please see the website www.nj.gov/dep/odr for more information on this process.

Please contact Ryan Anderson of our staff by e-mail at ryan.anderson@dep.nj.gov or by phone at (609) 633-2289 should you have any questions regarding this letter. Be sure to indicate the Department's file number in all communication.

Sincerely,

Colleen Keller, Manager
Bureau of Coastal Regulation
Division of Land Use Regulation

c: Municipal Clerk
Agent (original)

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

(See Issuing Division below)

PERMIT*

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to the further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit.

Permit No.	Application No.
1500-04-0001.1 APL080001, FWW090001	1500-04-0001.1 APL080001, FWW090001

Issuance Date	Effective Date	Expiration Date
APR 18 2012	APR 18 2012	APR 17 2017

Name and Address of Applicant	Name and Address of Owner	Name and Address of Operator
Jaylin Holdings, LLC Dover Esplanade, Building 1 1027 Hooper Avenue Toms River, NJ 08753	Applicant	Applicant
Location of Activity/Facility *(Street Address)*	**Issuing Division**	**Statute(s)**
Route 37 & Northampton Boulevard Toms River Township, Ocean County Lots: 14 & 15 Block: 505 Manchester Township, Ocean County Lots: 2, 3, 4(part) & 5 Block: 44	Land Use Regulation	NJSA 13:19-1 NJSA 13:9B-1

Type of Permit: CAFRA, Freshwater Wetlands GP #6	Maximum Approved Capacity, if applicable

This permit authorizes the construction of a 189,797 square foot (SF) Walmart retail store with a water tower, a 5,703 square foot (SF) seasonal garden center, parking for 833 vehicles, retaining walls, 5 above ground and 2 underground stormwater basins, and access from Route 37 and Northampton Boulevard (the "Project") within an approximate 22.4 acre development area. This permit also authorizes the filling of 0.47 acres of an isolated wetland. The Project is shown on the approved plans referenced on page 3 of this permit.

This permit is authorized under and in compliance with applicable Rules on Coastal Zone Management (N.J.A.C. 7:7E-1.1 et seq.) and the Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A-1.1 et seq.) provided the conditions listed are met. The Division of Land Use Regulation ("DLUR") hereby determines that the applicable findings as required by Sections 10 & 11 of the CAFRA statute (N.J.S.A. 13:19-1 et seq.) and the Rules on Coastal Zone Management and Freshwater Wetlands have been met. The issuance of this permit is contingent upon compliance with the listed conditions and failure to comply with any or all conditions may result in appropriate enforcement action and revocation of this permit.

Revised Date	Approved by the Department of Environmental Protection
	Name (Print or Type) _____DRAFT_____ Title _____ Signature _____DRAFT_____ Date _____

**The word permit means "approval, certification, registration, etc." (General Conditions are on Page Two)*

STANDARD PERMIT CONDITIONS

1. This permit is revocable, or subject to modification or change at any time, pursuant to the applicable regulations, when in the judgement of the Department of Environmental Protection of the State of New Jersey such revocation, modification or change shall be necessary.

2. The issuance of the permit shall not be deemed to affect in any way action by the Department of Environmental Protection of the State of New Jersey on any future application.

3. The works, facilities, and/or activities shown by plans and/or other engineering data, which are this day approved, subject to the conditions herewith established, shall be constructed and/or executed in conformity with such plans and/or engineering data and the said conditions.

4. No change in plans or specifications shall be made except with the prior written permission of the Department of Environmental Protection of the State of New Jersey.

5. The granting of this permit shall not be construed to in any way affect the title or ownership of property, and shall not make the Department of Environmental Protection or the State a party in any suit or question of ownership.

6. This permit does not waive the obtaining of Federal or other State or local government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained.

7. A copy of this permit shall be kept at the work site, and shall be exhibited upon request of any person.

8. In cases of conflict, the conditions of this permit shall supersede the plans and/or engineering data.

9. The permittee shall allow an authorized representative of the Department of Environmental Protection the right to inspect construction pursuant to N.J.A.C. 7:7-1.5(b)4.

10. In accordance with N.J.A.C. 7:7A-1.7, any person who is aggrieved by this decision may request a hearing within 30 days after notice of the decision is published in the DEP Bulletin by writing to: New Jersey Department of Environmental Protection, Office of Legal Affairs, Attention: Adjudicatory Hearing Requests, 401 East State Street, PO Box 402, Trenton, NJ 08625-0402. This request must include a completed copy of the Administrative Hearing Request Checklist. If a person submits the hearing request after this time, the Department shall deny the request. The DEP bulletin and checklist are available through the Department's website at www.state.nj.us/dep.

ADMINISTRATIVE PERMIT CONDITIONS

1. This permit shall be RECORDED in the office of the Ocean County Clerk within ten (10) days after receipt of the permit by the applicant and the Applicant shall immediately send documentation of its recordation to the DLUR.

2. Acceptance of permit: If you begin any Project activity approved by this permit, you thereby accept this document in its entirety, and the responsibility to comply with the terms and conditions. If you do not accept or agree with this document in its entirety, do not begin any site disturbance, pre-construction earth movement or construction of or for the Project.

3. Additional development or other related construction unauthorized by this permit shall require either a modification to CAFRA and/or Freshwater Wetlands Permit #1500-04-0001.2 APL080001, FWW090001, or most likely a new CAFRA and/or Freshwater Wetlands permit depending on the size and scope of the proposed development as well as the activity status of the existing CAFRA and/or Freshwater Wetlands permit.

4. The following approved plans were prepared by Bohler Engineering and are hereafter referred to as the "Revised Plans":

   - "PRELIMINARY AND FINAL SITE PLAN & MINOR SUBDIVISION FOR WAL-MART REAL ESTATE BUSINESS TRUST, PROPOSED WALMART STORE (#1844-05), NEW JERSEY STATE HIGHWAY ROUTE #37 & NORTHAMPTON BOULEVARD, BLOCK 44, LOTS 2, 3, 5 AND PART OF LOT 4, MANCHESTER TOWNSHIP, TAX MAP SHEETS 7.02, 8 & 9 (DATED APRIL, 1973); BLOCK 505, LOTS 14 & 15, TOMS RIVER TOWNSHIP, TAX MAP SHEET 54 (DATED SEPTEMBER, 1996), OCEAN COUNTY, NEW JERSEY", all sheets (1-29) are dated June 26, 2009, unrevised, except for sheet #5, which was last revised on June 3, 2010.

   - "DEVELOPMENT / CONSERVATION AREA PLAN" originally dated October 7, 2009, revised/redated October 6, 2011.

   - "WETLANDS MITIGATION PLAN" originally dated June 26, 2009, revised through November 2, 2011.

   - "OVERALL SITE PLAN", sheet 5 of 29, depicting wire exclusion fencing revised through November 9, 2011. This plan is approved for the installation of the exclusion fence during the construction phase only.

PROJECT SPECIFIC PERMIT CONDITIONS

1. Within (30) days of permit issuance, and prior to the start of any site disturbance, pre-construction earth movement or construction for the Project, and as more fully set forth in the December 20, 2011 Settlement Agreement which is incorporated herein and made a part hereof ("Settlement Agreement"), the owner of the property shall grant to the Department a conservation restriction approved in advance in writing by the DLUR. The lands subjected to the conservation restriction shall be free of all buildings, dwellings, tenants, billboards and easements, including access easements, covenants, mortgages, liens, encumberances, judgements, tax liens, outstanding taxes and any other instruments except for a cable easement granted to AT&T recorded May 21, 2009 in Deed Book 14300, page 1267 and following, and utility easements granted to Jersey Central Power and Light Company recorded in Book 2676, page 343; Book 2898, page 152; and Book1277, page 305; and all of said lands shall be insurable at regular rates by a licensed and reputable New Jersey title company on the Department's Green Acres list. The lands subjected to the conservation restrictions shall include:

   a. Block 77, Lot 27 (approximately 11.3 acres); Block 73, Lots 31 & 32 (approximately 42.9 acres; Block 73, Lot 21 (approximately 15.8 acres); and Block 73, Lot 3 & 4 (approximately 11.6 acres), located in the Township of Manchester, Ocean County.

   b. Block 77, Lots 2, 4, 5 and 6 (approximately 89.29 acres) located in the Township of Manchester, Ocean County.

   c. Block 75.01, Lot 3 (approximately 21 acres) located in the Township of Manchester, Ocean County.
      * Hereafter, subparagraphs 1a-c shall be referred to as the "Protected Lands".

   d. Those portions of lots 14 and 15 of block 505 of the official 2011 Toms River tax map and lots 2, 3, 4 (part) and 5 of block 44 of the official Manchester Township tax map where no development is proposed, as depicted in the Development/Conservation Area Plan revised through October 6, 2011 which total approximately 20.9 acres shall be maintained as a permanent conservation restriction pine snake corridor area (hereafter, the Paragraph 1d Lots).

e. All lands with conservation restrictions shall include a reverter clause which provides for reversion of such conservation restriction to the Permittee or record owner (If not Permittee), if the issuance of the permit by the Department is overturned on appeal or if the Department otherwise precludes development of the Project pursuant to Paragraph 7 of the Stipulation of Settlement. However, if any person has commenced any site disturbance, pre-construction earth movement or any construction for the Project, or if any of the Protected Lands have been disturbed, except for the removal of waste, pollutants and contaminants or for habitat enhancement, all such reverter clauses shall lapse and expire.

f. Within (30) days of issuance of the Permit, the Owner or Permittee shall provide proof to DLUR of recordation of the conservation restrictions for the Protected Lands and the Paragraph 1d Lots, respectively. Within (10) days of its receipt, the Owner or Permittee shall deliver to the DLUR complete copies of the recorded conservation restrictions.

2. The Permittee shall remove all waste, pollutants and contaminant materials identified by Whitestone Associates and the Department on, above, below and throughout the Protected Lands and the Paragraph 1d Lots to be conveyed to the Department and conserved for pine snake protection and/or enhancement, respectively. Upon the Department's review and approval that all waste, pollutants and contaminants have been satisfactorily removed, the Department shall issue to the Permittee a letter to said effect.

a. The Permittee shall ensure that all soils shall be at or below the numeric concentrations needed to meet Residential Cleanup standards, N.J.A.C. 7:26E-1 et seq., that is Remediation Standards, N.J.A.C. 7:26D-1 et seq., including, but not limited to, Residential Cleanup Standards for waste, contaminants and pollutants throughout the Protected Lands and the Paragraph 1d Lots, respectively. Further, all groundwater shall be at or below the numeric concentrations for all applicable standards for waste, pollutant and contaminant requirements as defined in N.J.A.C. 7:26E-1.8 and the Groundwater Quality Standards, N.J.A.C. 7:9C-1 et seq.

b. Adequate removal of waste, pollutants and contaminant materials identified on, above, below and throughout the Protected Lands and the Paragraph 1d Lots shall be completed, so that once the pine snake habitat enhancement is completed, there is no need to subsequently disturb the pine snake habitat enhancements.

c. In addition, prior to commencing the construction of the Project as defined in paragraph 4 below, Permittee shall either complete the required remediation or establish and maintain a remediation funding source in an amount acceptable to the Department through the use of one of the instruments defined in N.J.A.C. 7:26C-5.2(f)1, 2, 3 or 4.

3. Any and all clearing of trees and vegetation shall only occur from August 1st through March 31st, except for clearing associated with the pine snake enhancements.

4. Prior to site disturbance, pre-construction earth movement or construction, and in accordance with the Settlement Agreement, the Permittee shall undertake and complete all pine snake habitat enhancement as follows:

a. Permittee shall first complete all pine snake enhancements for the Protected Lands, except for the planting of saplings which shall be undertaken and completed in the next spring planting season;

b. Upon completion of the pine snake enhancements for the Protected Lands, Permittee shall then complete all pine snake enhancements on the Paragraph 1d Lots;

c. Pursuant to the deadlines set forth in the Settlement Agreement, the Permittee shall seek notice from the Endangered and Nongame Species Program (ENSP) and DLUR whether the pine snake enhancements have been satisfactorily completed.

5. Subject to the timing restriction referenced in Project Specific Condition #3 above, Permittee shall next install and complete the Herpetofauna Fence (as defined in the Settlement Agreement) on the Paragraph 1d Lots and then install and complete the linear barrier wall as shown on the Revised Plans, including the Development/Conservation Area Plan, dated October 6, 2011:

   a. The clearance width for the Herpetofauna Fence shall be no more than twenty feet, that is, no more than ten feet on either side of the center line of the fence.

   b. Upon the start of the installation of the Herpetofauna Fence, Permittee shall retain a qualified herpetologist who shall conduct daily site inspections of the Herpetofauna Fence, linear barrier wall and stormwater basin and their associated clearing on the construction side and monitor, protect and remove to the habitat side all reptiles found on the construction side of the Herpetofauna Fence and on both sides of the linear barrier wall.

   c. Upon completion of the linear barrier wall, but no later than the issuance of a temporary certificate of occupancy for the Project, the Permittee shall remove the Herpetofauna Fence.

   d. The Permittee's herpetologist shall continue to conduct the daily site inspections until clearing has been completed on the construction side of the linear barrier wall.

   e. No more than ten days before clearing, preconstruction earth movement, site disturbance or construction of the Project, a qualified herpetologist shall conduct a thorough survey of the entire Development Area on the construction side of the linear barrier wall and shall remove all reptiles to the habitat side of the linear barrier wall.

   The Department reserves the right to immediately revoke or suspend all regulated activities onsite should the Department determine that the Permittee has not taken proper precautions to ensure continuous compliance with this condition.

6. Subject to the timing restriction referenced in Project Specific Condition #3 above, upon the completion of all pine snake enhancements throughout the Protected Lands and the Paragraph 1d Lots except for the planting of saplings, the completion of the Herpetofauna Fence and linear barrier wall, and subject to the Settlement Agreement's requirements regarding notice of satisfactory completion thereof, the Permittee may then start pre-construction earth movement, site disturbance, and construction of the Project, in the development area, as authorized by this permit.

7. Upon completion of the Herpetofauna Fence and subject to the timing restriction referenced at Project Specific Condition #3 above, the Permittee is authorized to: construct the 1-acre freshwater wetlands mitigation area; create the stormwater basin #1 on the construction side of the Herpetofauna Fence; and place excavated material from stormwater basin #1 or the wetlands mitigation area in the Development Area adjacent to the proposed location of the linear barrier wall.

   a. Prior to any site disturbance, pre-construction earth movement, or filling of the isolated freshwater wetlands and associated transition areas in the Development Area, the Permittee shall construct and vegetate the vernal pool as shown on the "WETLANDS MITIGATION PLAN" revised through November 2, 2011.

   b. The Permittee may only start site disturbance, pre-construction earth movement, or construction of the vernal pool after the Permittee has submitted and the Department has approved all of the documentation and plans required pursuant to the issuance of this permit.

8. In accordance with the Settlement Agreement, if ENSP or DLUR identifies deficiencies in the pine snake habitat enhancements, linear barrier wall, herpetofauna fence, or vernal pond mitigation and the Permittee either does not dispute the deficiencies or disputes the deficiencies and a determination is made by the Commissioner, and the Permittee fails either to correct any undisputed deficiency or to start to physically comply with any determination of the Commissioner concerning a disputed deficiency within ten (10) business days of receipt of the Commissioner's determination, then said failure to correct or to start to comply shall be considered a material breach and shall void this permit.

9. Prior to site disturbance, pre-construction earth movement, or construction of the Project, the Permittee shall deposit in an escrow account the full sum of $70,911 which shall be used by the Department to ensure successful project completion and ongoing monitoring and maintenance of the enhanced pine snake habitat, and in a second escrow account, a refundable sum of $15,344 for the completion of the sapling planting costs, respectively.

10. Upon the commencement of site disturbance, pre-construction earth movement and construction of the Project, the Owner shall simultaneously convey to the Department via affidavits of title with the appropriate corporate or partnership authorizing resolutions and via Bargain and Sale Deeds with Covenants Against Grantor's Acts for any or all of the Protected Lands, which the Department in its sole discretion, may determine to acquire. The Department may defer conveyance of any portion of the Protected Lands, if it determines that adequate site remediation and clean-up has not been concluded for that portion of the Protected Lands. Upon the Department's issuance of a notice to the Owner of the Protected Lands requesting fee simple conveyance, said Owner shall convey said lands within thirty (30) days if said lands were not conveyed at the commencement of site disturbance, pre-construction earth movement or construction of the Project.

11. In accordance with the Settlement Agreement and prior to site disturbance, pre-construction earth movement, or construction of the Project, the Wetland Mitigation Plan, for the vernal pool, last revised on November 2, 2011, must be constructed. No filling of any wetlands is permitted until such time that the mitigation project has satisfactorily been constructed in its entirety and the Department has issued its letter pursuant to the procedures and deadlines set forth in the Settlement Agreement that the pond has been satisfactorily constructed pursuant to the November 2, 2011 Wetlands Mitigation Plan.

    a. At least ten (10) business days in advance of the start of construction of the approved wetland mitigation project, the Permittee shall notify the DLUR, in writing, to request an on-site pre-construction meeting between the Permittee, the contractor, the consultant and the DLUR;

    b. Following the final grading of the mitigation project, the Permittee shall notify the DLUR for a post-grading construction meeting between the Permittee, contractor, consultant and the DLUR. The Permittee must give the DLUR at least ten (10) business days notice prior to the date of this meeting;

    c. The Permittee shall assume all liability for accomplishing corrective work should the DLUR determine that the constructed mitigation project was not constructed in accordance with the approved November 2, 2011 Wetlands Mitigation Plan. Remedial work may include re-grading, replanting and/or alteration of hydrology of the mitigation site. Pursuant to the procedures and deadlines set forth in the Settlement Agreement, the Permittee shall seek approval from the Department that the vernal pond has been constructed in accordance with the approved plans.

12. Within 30 days following the post-grading construction meeting, the Permittee shall submit a "Mitigation Plan Construction Completion Report" to the DLUR detailing as-built conditions (see below) and any changes to the approved mitigation plan that were made during construction. The report shall contain, at a minimum, the following information:

    a. A completed "Wetland Mitigation Project Completion of Construction Form" (located at http://www.nj.gov/dep/landuse/forms/index.html) to certify that the mitigation project has been constructed as designed and that the proposed vernal habitat has been successfully constructed;

    b. A copy of the approved plan if the mitigation project was built in strict accordance with said plan, or an as-built plan(s) if revisions or alterations were required or occurred, which in either case depicts final grade elevations at one foot contours, includes a table of the species and quantities of vegetation that were planted including any grasses that may have been used for soil stabilization purposes, and depicts the locations of structural components intended to serve critical life functions of the target species of herpetofauna;

    c. Photos of the constructed wetland mitigation project with a photo location map as well as the GPS waypoints in NJ state plane coordinates NAD 1983.

    d. Pursuant to the deadlines set forth in the Settlement Agreement, the Permittee may seek notice from DLUR that the vernal pond construction has been satisfactorily constructed in accordance with the approved plans.

13. Subject to complete construction of the vernal pond and pursuant to the Settlement Agreement, the Permittee may start site disturbance, pre-construction earth movement and construction of the Project. However, the Permittee shall monitor the wetland mitigation project for 5 full growing seasons beginning the year after the mitigation project has been completed. The Permittee shall submit monitoring reports to the Director of the DLUR no later than December 31st of each full monitoring year.

    All monitoring reports must include the standard items identified in the checklists entitled Mitigation Project Monitoring Reports: Checklist for Completeness, located at http://www.nj.gov/dep/landuse/forms/index.html.

14. Once the required monitoring period for the mitigation project has expired and the Permittee has submitted the final monitoring report, the DLUR shall determine whether the mitigation project is either a success or a failure. This mitigation project will be considered successful if the Permittee demonstrates all of the following:

    a. That the goals of the wetland mitigation project, including creation of desired hydroperiod, demonstrated use and evidence of reproductive activity by target species of herpetofauna, required acreage of wetlands, transition areas, and critical terrestrial habitat, as stated in the approved wetland mitigation proposal and the permit, have been satisfied;

    b. The site has an 85 percent survival and 85 percent area coverage of the mitigation plantings or hydrophytes which are species native to the area and similar to ones identified on the mitigation planting plan;

c. The final monitoring report must include documentation demonstrating the site is less than 5 percent occupied by invasive or noxious species such as but not limited to (Source: Snyder, David and Sylvan R. Kaufman. 2004. An overview of nonindigenous plant species in New Jersey. New Jersey Department of Environmental Protection, Division of Parks and Forestry, Office of Natural Lands Management, Natural Heritage Program, Trenton, New Jersey. 107 pages.): Acer platanoides (Norway Maple), Ailanthus altissima, (Tree of Heaven), Allaria petiole (Garlic mustard), Ampelopsis brevipedunculata (Porecelain berry), Artemisia biennis (Biennial wormwood) Artemisia vulgaris (Mugwort or Common wormwood), Berberis thunbergii (Japanese barberry), Berberis vulgaris (Common barberry), Carex kobomugi (Japanese sedge), Celastrus orbiculatus (Asian Bittersweet), Centaurea biebersteiniior maculosa (Spotted knapweed), Cirsium arvense (Canadian thistle), Dipsacus fillonum (Wild teasel), Dipsacus laciniatus (Cut-leaf teasel), Elaegnus angustifolia (Russian olive), Elaegnus umbellata (Autumn olive), Euonymus alata (Winged spindletree), Lespedeza cuneata (Chinese bush-clover), Ligustrum obtusifolium (Japanese privet), Ligustrum vulgare (Common privet), Lonicera japonica (Japanese honeysuckle), Lonicera morrowii (Morrow's bush honeysuckle), Lonicera tartarica (Tartarian honeysuckle), Lythrum salicaria (Purple loosestrife), Meliotus officinalis (Yellow sweetclover), Microstegium vimineum (Japanese stiltgrass), Myriophyllum spicatum (Eurasian water-milfoil), Phalaris arundinacea (Reed canary grass), Phragmites australis (Common reed grass), Polygonum cuspidatum (Japanese knotweed), Polygonum perfoliatum (Mile-a-minute), Potamogeton crispus (Curly leaf pondweed), Pueraria montana (Kudzu), Ranunculus ficaria (Lesser celandine), Rhamnus cathartica (Common buckthorn), Robinia pseudoacacia (Black locust), Rosa multiflora (Multiflora rose), Rubus phoeniocolasius (Wineberry), Typha latifloia (Broad-leaved cattail), Typha angustifolia (Narrowed leaved cattail);

d. The Permittee's mitigation requirement shall not be deemed to have been satisfied unless or until the DLUR confirms in writing via a Mitigation Completion Letter that the vernal habitat creation project satisfied the permit's vernal habitat mitigation requirement;

e. If the mitigation project is considered a failure, the Permittee is required to submit a revised mitigation plan. That plan will describe the steps that will be taken to rectify the failed aspects of the Project. The revised mitigation plan shall be submitted within 30 days of receipt of the letter from the DLUR indicating the wetland mitigation project was a failure.

15. No additional impervious coverage shall be added to the Project without a written modification to this permit.

16. The Department reserves the right to review and approve or to disapprove all future modifications or revisions required as the result of review by any local, county, State or Federal entity to ensure compliance with this permit and the applicable regulations.

17. Prior to site disturbance, pre-construction earth movement or construction of the Project, the Permittee shall obtain all other necessary local, County, State and Federal construction approval, including but not limited to Treatment Works Approval, Ocean County Soil Conservation District, Ocean County Planning Board, and Air Pollution Control permits.

David B. Fanz 4/18/12

David B. Fanz
Manager
Bureau of Coastal Regulation

Date

State of New Jersey

James E. McGreevey
Governor

Department of Environmental Protection

Land Use Regulation Program
P.O. Box 439, Trenton, NJ 08625-0439
Fax # (609) 292-8115
Fax # (609) 777-3656
www.state.nj.us/landusc

Bradley M. Campbell
Commissioner

MAY 18 2004

Ian M. Borden
Property Development Services, Inc.
700 Hooper Avenue
Toms River, NJ 08755

RE: Letter of Interpretation/Line Verification
File No.: 1500-04-0001.1
Activity No: FWW040001
Applicant: Jaylin Holdings, LLC
Block: 44, Lots: 2, 3 & 5
Township of Manchester, Ocean County
Block: 505, Lots: 14 & 15
Township of Dover, Ocean County

Dear Mr. Borden:

This letter is in response to your request for a Letter of Interpretation to verify the jurisdictional boundary of the freshwater wetlands and waters on the referenced property.

In accordance with agreements between the State of New Jersey Department of Environmental Protection, the U.S. Army Corps of Engineers Philadelphia and New York Districts, and the U.S. Environmental Protection Agency, the NJDEP, Land Use Regulation Program is the lead agency for establishing the extent of State and Federally regulated wetlands and waters. The USEPA and/or USACOE retain the right to reevaluate and modify the jurisdictional determination at any time should the information prove to be incomplete or inaccurate.

Based upon the information submitted, and upon a site inspection conducted on May 4, 2004, the Land Use Regulation Program has determined that **the wetlands and waters boundary line(s) as shown on the plan map consisting of one sheet entitled "WETLANDS LOCATION SURVEY, BLOCK 44, LOTS 2, 3 & 5, MANCHESTER TOWNSHIP, BLOCK 505, LOTS 14 & 15, DOVER TOWNSHIP, OCEAN COUNTY, NEWJERSEY," dated 6/21/95, last revised 10/23/96, and prepared by Lynn M. Robinson, PLS of Christie-Werner Associates, Inc. is accurate as shown for the property in question.**

Any activities regulated under the Freshwater Wetlands Protection Act proposed within the wetlands or transition areas or the deposition of any fill material into any water area, will require a permit from this office unless exempted under the Freshwater Wetlands Protection Act, N.J.S.A. 13:9B-1 et seq., and implementing rules, N.J.A.C. 7:7A. A copy of this plan, together with the information upon which this boundary determination is based, has been made part of the Program's public records.

Pursuant to the Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A-1 et seq., you are entitled to rely upon this jurisdictional determination for a period of five years from the date of this letter.

The freshwater wetlands and waters boundary line(s), as determined in this letter, must be shown on any future site development plans. The line(s) should be labeled with the above LURP file number and the following note:

"Freshwater Wetlands/Waters Boundary Line as verified by NJDEP, File #1500-04-0001.1, Activity #FWW040001."

In addition, the Department has determined that the wetlands on and adjacent to the property are of intermediate resource and the standard transition area or buffer required adjacent to these wetlands is 50 feet. It should be noted that this determination of wetland classification is based on the best information presently available to the Department. The classification is subject to change if this information is no longer accurate, or as additional information is made available to the Department, including, but not limited to, information supplied by the applicant.

In addition, all wetlands that are a tributary to Barnegat Bay are designated as a "Priority Wetland" by the U.S. Environmental Protection Agency. This classification may affect the requirements for an Individual Wetlands Permit (see N.J.A.C. 7:7A-7), the types of Statewide General Permits available for the wetlands portion of this property (see N.J.A.C. 7:7A-4) and any modification available through a transition area waiver (see N.J.A.C. 7:7A-6). Please refer to the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 et seq.) and implementing rules for additional information.

This letter in no way legalizes any fill, which may have been placed, or other regulated activities, which may have occurred on-site. Also this determination does not affect your responsibility to obtain any local, State, or Federal permits which may be required.

In accordance with N.J.A.C. 7:7A-1.7, any person who is aggrieved by this decision may request a hearing within 30 days of the decision date by writing to: New Jersey Department of Environmental Protection, Office of Legal Affairs, Attention: Adjudicatory Hearing Requests, P.O. Box 402, Trenton, NJ 08625-0402. This request must include a completed copy of the Administrative Hearing Request Checklist.

Please contact Ryan J. Anderson of our staff at (609) 292-8262 should you have any questions regarding this letter. Be sure to indicate the Program's file number in all communication.

Sincerely,

David B Fanz

David B. Fanz, Supervisor
Bureau of Coastal Regulation

c: Manchester Township Clerk
Manchester Township Construction Official
Dover Township Clerk
Dover Township Construction Official

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
(See Issuing Division below)

The New Jersey Department of Environmental Protection grants this permit in accordance with your application, attachments accompanying same application, and applicable laws and regulations. This permit is also subject to the further conditions and stipulations enumerated in the supporting documents which are agreed to by the permittee upon acceptance of the permit.

Permit No. 1500-04-0001.1 FHA04-0001.1		Permit Type Stream Encroachment Permit
Issuance Date March 4, 2005	Effective Date March 4, 2005	Expiration Date March 4, 2010
Name and Address of Applicant Jaylin Holdings, LLC Dover Esplanade Building 1 1027 Hooper Avenue Toms River, NJ 08753		Name and Address of Owner and/or Operator
Location of Activity Lot/s: 14,15/2,3,4,5 Block: 505/44	Issuing Division Land Use Regulation Program	Statute(s) N.J.S.A. 58:16A-50 N.J.S.A. 58:10A

This permit grants permission:

To establish stream encroachment lines along an unnamed tributary to Sunken Branch, in connection with the construction of a Wal-Mart shopping center, located immediately southwest of the intersection of State Highway 37 and Northampton Boulevard, situated within Lots 14 and 15 of Block 505, in Dover Township, and Lots 2 through 5 of Block 44 in Manchester Township, Ocean County, New Jersey.

Prepared By: _____
Vincent J. Mazzei, Jr., P.E.

(See page 4 for manager's signature.)

Revised Date	Approved by the Department of Environmental Protection Name (Print or Type) _____ Title _____ Signature _____ Title _____

Terms And Conditions

This permit is subject to the following terms and conditions:

1. This permit is revocable, or subject to modification or change at any time, pursuant to the applicable regulations, when in the judgement of the Department of Environmental Protection of the State of New Jersey such revocation, modification or change shall be necessary.

2. The issuance of the permit shall not be deemed to affect in any way action by the Department of Environmental Protection of the State of New Jersey on any future application.

3. The works, facilities, and/or activities shown by plans and/or other engineering data, which are this day approved, subject to the conditions herewith established, shall be constructed and/or executed in conformity with such plans and/or engineering data and the said conditions.

4. No change in plans or specifications shall be made except with the prior written permission of the Department of Environmental Protection of the State of New Jersey.

5. The granting of this permit shall not be construed to in any way affect the title or ownership of property, and shall not make the Department of Environmental Protection or the State a party in any suit or question of ownership.

6. This permit does not waive the obtaining of Federal or other State or local government consent when necessary. This permit is not valid and no work shall be undertaken until such time as all other required approvals and permits have been obtained.

7. A copy of this permit shall be kept at the work site, and shall be exhibited upon request of any person.

8. In cases of conflict, the conditions of this permit shall supersede the plans and/or engineering data.

9. Limit and Extent of Approval

   a. This approval grants permission to the applicant and/or its agents to undertake an activity regulated by the State of New Jersey as described by the text of this permit and as detailed by the herein approved plans. Any construction, grading, removal of vegetation, or other activity at this site within or affecting a regulated flood plain, other than specifically approved by this permit or as detailed by the approved drawings, shall require additional approvals from the Department. The commencement of such regulated activities without the appropriate approvals shall be in violation of State law.

   b. All activities authorized by this permit shall be completed within five years of the issuance date as listed on the first page of this document. At that time, this approval, if not previously revoked, shall automatically become null and void, and none of the activities referenced herein may commence or continue until a new approval has been granted by the Department.

10. Method of Construction

   a. All activities approved by this permit shall be performed under the supervision and direction of a Professional Engineer licensed in the State of New Jersey, and shall be undertaken using the best management practices available. Furthermore, the site shall be subject to inspection at any time by representatives of the Department to ensure the continuous application of the provisions of this permit.

b. During the course of construction, neither the applicant nor its agents shall cause or permit any unreasonable interference with the free flow of the stream by placing or dumping any materials, equipment, debris or structures within or adjacent to the stream corridor. Upon completion or abandonment of the work, the applicant and/or its agents shall remove and dispose of in a lawful manner all excess materials, equipment and debris from the stream corridor and adjacent lands.

c. All activities authorized by this permit shall be stabilized in accordance with the *Standards for Soil Erosion and Sediment Control in New Jersey* (obtainable from local Soil Conservation District offices), or equal engineering specifications, to prevent eroded soil and sediment from entering adjacent waterways and wetlands at any time during and subsequent to construction. The Department reserves the right to order the suspension of any activity if unacceptable levels of erosion or turbidity result from the same. Furthermore, the applicant shall maintain the stream corridor as shown on the approved drawing/s for either such time as is required for the channel and/or banks to become reasonably stabilized, or for one year after completion of the project (as evidenced by a Certificate of Completion), whichever period of time is longer.

11. Responsibilities of Applicant

a. The granting of this permit does not in any way relieve the applicant and/or its agents from the responsibility for damages caused by any construction or activities hereby approved, nor does the Department accept responsibility for any structural designs.

b. No construction authorized by this permit may begin until the enclosed **permit acceptance form** has been signed by the applicant and is returned to the Department. By signing and submitting this form, the applicant accepts this permit in its entirety and agrees to adhere to all of its terms and conditions. Please be advised that this permit may be declared null and void should it be determined that adequate measures had not been taken by the applicant and/or its agents to ensure the continuous implementation of these terms and conditions.

c. Within ten (10) days of the receipt of this permit by the applicant, this permit shall be recorded in its entirety in the office of the County Clerk or the Registrar of Deeds and Mortgages for each county where this permit is located. Verified notice of this action shall be forwarded to the Department immediately thereafter.

d. The enclosed **construction notice** shall be completed by the applicant or its agent and submitted to the Department at least fourteen (14) days prior to the commencement of the herein approved activities.

e. The enclosed **completion report** shall be completed by a Professional Engineer licensed in the State of New Jersey and submitted to the Department within thirty (30) days after completion of the herein approved activities.

12. The applicant must obtain all necessary local, federal, and other State approvals prior to the commencement of the herein-permitted activities. Specifically, please note that approvals from the local Soil Conservation District may be required.

13. The applicant must make specific arrangements to ensure the continuous maintenance and efficient operation of all proposed water quality measures on site. This includes, but is not limited to, the cleaning and inspection of all water quality inlets at least twice a year and after every major storm, and the continuous implementation of appropriate soil conservation practices within any grassed swales, storm water outfall structures and other similar appurtenances throughout the site in order to limit soil erosion and sediment discharge into adjacent waterways.

14. Trees, shrubs, grasses, and other vegetation within 25 feet from the top of all stream banks on site shall not be disturbed for any reason, except as approved by the Department and as shown on the approved site plans. This condition applies to all streams and waterways on site, regardless of the contributory drainage area.

15. All land lying between the lines labeled "STREAM ENCROACHMENT LINE", as shown on the approved drawings, shall be reserved for the passage of floodwaters and for the preservation of near stream vegetation and wildlife. No construction, grading, removal of vegetation or other disturbance is permitted within this area except for that which is specifically approved by this permit and detailed on the approved drawings.

16. Consistency With Areawide Water Quality Management Plan

    This project has not been reviewed for consistency with the relevant Water Quality Management Plan or the Statewide Water Quality Management Planning Rules (N.J.A.C. 7:15). As such, there is no intended or implied approval regarding additional permits, which may be required by the Department. For treatment works approvals, the consistency determination will be performed by the Bureau of Engineering and Permitting (North/South) which may be reached at (609) 292-6894 for North (Middlesex, Hunterdon and counties north) or (609) 633-1169 for South (Mercer, Monmouth and counties south). For general information concerning water quality management planning process, please contact the Office of Environmental Planning at (609) 633-1179.

17. The Department has approved this stream encroachment permit because the submitted project satisfies the requirements of the Flood Hazard Area Control Act Rules. The decision to approve this permit does not in any way indicate that the required CAFRA permit and Freshwater Wetlands approvals will also be approved. No construction may begin until all necessary approvals are obtained from the Department

18. The drawings hereby approved are 21 sheets prepared by Bohler Engineering, dated 8/6/2004 and last revised 11/1/2004 unless noted otherwise, entitled:

    "PROPOSED WAL*MART 195SC (STORE #1844-05) PRELIMINARY & FINAL MAJOR SITE PLAN & MINOR SUBDIVISION N.J.S.H. ROUTE #37 & NORTHAMPTON BOULEVARD BLOCK 44, LOTS 2, 3, PART OF LOT 4 & 5, MANCHESTER TWP. BLOCK 505, LOT 14, 15, DOVER TWP. OCEAN COUNTY, NJ."

    "OVERALL SITE PLAN", sheet 5 of 27;

    "SITE PLAN", sheets 6 through 8 of 27;

    "GRADING & DRAINAGE PLAN", sheets 6 through 11 of 27;

    "UTILITY PLAN", sheets 12 through 14 of 27;

    "DETAIL SHEET", sheets 22 through 27 of 27;

    "OPERATION & MAINTENANCE PLAN NOTES", sheets 2 and 3 of 6, dated 10/20/2004 and unrevised; and

    "STORMWATER MANAGEMENT FACILITY OPERATIONS & MAINTENANCE PLAN", sheets 4 through 6 of 6, dated 10/20/2004 and unrevised.

Kevin Broderick, Manager
Bureau of Coastal Regulation

3/4/05
Date

State of New Jersey

Department of Environmental Protection

Richard J. Codey
Acting Governor

Bradley M. Campbell
Commissioner

Land Use Regulation Program
P.O. Box 439, Trenton, NJ 08625-0439
Fax # (609) 292-8115
www.state.nj.us/dep/landuse

BOHL46053
MAR 18 2005
050227
JHC, CE, TBH

Dear Sir or Madam:

Enclosed, please find an approved construction permit. Please read it carefully and return the attached ***permit acceptance form*** if you agree with our decision. Construction may begin only after you have completed and returned this form. The project manager listed on the first page is available to discuss any concerns or questions you may have. If you consider yourself aggrieved by our decision, you may also request a hearing by completing the requirements of the attached ***administrative hearing request checklist and tracking form.***

Please keep your permit ad any approved drawings at the construction site for the duration of the project. It is helpful if you have the proper documentation readily available when my staff inspects your work. If you have received a stream encroachment permit, please complete and return the attached construction notice at least fourteen days before construction is scheduled to begin. For all permits, please complete and return the attached ***completion notice***, properly signed and sealed by a professional engineer licensed in New Jersey, within thirty days of the completion of the project.

If a tidelands grant, lease or license is required as a permit condition, this permit is not valid until the Bureau of Tidelands Management has delivered the necessary conveyances. Construction prior to the receipt of the necessary conveyances is in violation of State law and will subject you to fines up to $1000.00 plus $100.00 per day. Furthermore, the cost for the tidelands instrument may be higher since the property claimed will be appraised as improved property. You may be required to remove any unauthorized structures placed in tidelands claimed areas.

Sincerely,

Mark D. Mauriello

Mark Mauriello, Director
Land Use Regulation Program

w/attachments

CONSTRUCTION REPORT

Mail to:

State of New Jersey
Department of Environmental Protection
Land Use Regulation Program
P.O. Box 439
Trenton, New Jersey 08625

Review Engineer: _____

Engineer Section: _____

Permit Number/s: _____

_____

_____

Date Issued: _____

Applicant: _____

Name of Project: _____

Municipality/County: _____

Date Construction is to Begin: _____

I hereby give notice that construction will begin on the above noted project on the date stated above (must give at least 14 days notice). Also, as required by condition 7 of the stream encroachment permit, a copy of the above referenced permit/s along with all approved drawings shall be available for inspection at the project site throughout construction.

Engineer's Signature and Seal: _____

New Jersey License Number: _____

Date: _____

COMPLETION REPORT

Mail to:

State of New Jersey
Department of Environmental Protection
Land Use Regulation Program
P.O. Box 439
Trenton, New Jersey 08625

Review Engineer: _____

Engineer Section: _____

Permit Number/s: _____

_____

_____

Date Issued: _____

Applicant: _____

Name of Project: _____

Municipality/County: _____

Date of Completion: _____

The undersigned hereby certifies that all activities approved by the Department within the above referenced permit/s have been constructed and completed in accordance with the plans approved therein, that said project is in compliance with all terms and conditions of the same, and that all unauthorized encroachments have been removed.

Engineer's Signature and Seal: _____

New Jersey License Number: _____

Date: _____

ACCEPTANCE OF REVOCABLE CONSTRUCTION PERMIT/S

Mail to:

State of New Jersey
Department of Environmental Protection
Land Use Regulation Program
P.O. Box 439
Trenton, New Jersey 08625

Review Engineer: _____

Engineering Section: _____

Permit Number(s): _____

_____

_____

Date Issued: _____

The undersigned hereby accepts the above referenced revocable permit/s, subject to the terms and conditions included therein, including but not limited to the right of the State to revoke said permit/s with cause, and also subject to all provisions of law, rules, and regulations of any applicable government agency.

Signature: _____

Printed Name: _____

Title/Affiliation: _____

Attest: _____
(To be properly witnessed, signed, and sealed)

Pag

Adjudicatory Hearing Request Checklist and Tracking Form

I. Permit Decision or Other Department Decision Being Appealed:

Issuance Date of Decision Document

Document Number (if any)

II.

Name of Person Requesting Hearing

Name of Attorney (if applicable)

Address

Address

Telephone No.

Telephone No.

III. If you are the applicant or permittee, please include the following information with your hearing request:

A. The date you received the permit decision or other decision which you are appealing;
B. A copy of the decision document;
C. The findings of fact and conclusions of law you are appealing;
D. A statement as to whether or not you raised each legal and factual issue during the permit application process;
E. Suggested revised or alternative permit conditions;
F. An estimate of the time required for the hearing;
G. A request, if necessary, for a barrier-free hearing location for physically disabled persons;
H. A clear indication of any willingness to negotiate a settlement with the Department prior to the Department's processing of your hearing request to the Office of Administrative Law; and
I. This form, completed, signed and dated with all of the information listed above, including attachment, to:

1. New Jersey Department of Environmental Protection
Office of Legal Affairs
Attention: Adjudicatory Hearing Requests
401 E. State Street
P.O. Box 402
Trenton, NJ 08625-0402;

with a copy to:

2. New Jersey Department of Environmental Protection
Land Use Regulation Program
Attention: Director
501 E. State Street
P.O. Box 439
Trenton, NJ 08625-0439

Signature: _____ Date: _____

IV. If you are a person other than the applicant or permittee, please include the following information with your hearing request:

A. The date you or your agent received notice of the permit decision, and a copy of the permit decision;
B. Evidence that a copy of your hearing request has been delivered to the applicant for the permit decision which is the subject of your hearing request (e.g., certified mail return receipt);
C. A detailed statement of which findings of fact and/or conclusion of law you are challenging;
D. A description of your participation in any public hearings held in connection with the permit application and copies of any written comments you submitted;
E. Whether you claim a statutory or constitutional right to a hearing, and, if you claim such a right, a reference to the applicable statute or an explanation of how your interests are affected by the permit decision;
F. Suggested revised or alternative permit conditions;
G. An estimate of the time required for the hearing;
H. A request, if necessary, for a barrier-free hearing location for physically disabled persons;
I. A clear indication of any willingness to negotiate a settlement with the Department prior to the Department's processing of the hearing request to the Office of Administrative Law; and
J. This form, completed, signed and dated with all the information listed above, including attachments to:

1. New Jersey Department of Environmental Protection
Office of Legal Affairs
Attention: Adjudicatory Hearing Requests
401 East State Street
P.O. Box 402
Trenton, NJ 08625-0402

with a copy to:

2. New Jersey Department of Environmental Protection
Land Use Regulation Program
Attention: Director
501 E. State Street
P.O. Box 439
Trenton, NJ 08625-0439

V. Signature: _____ Date: _____

PRELIMINARY & FINAL SITE PLAN

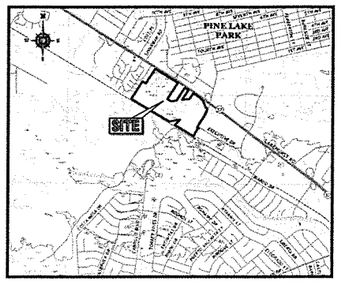
FOR

GRUNIN PROPERTIES

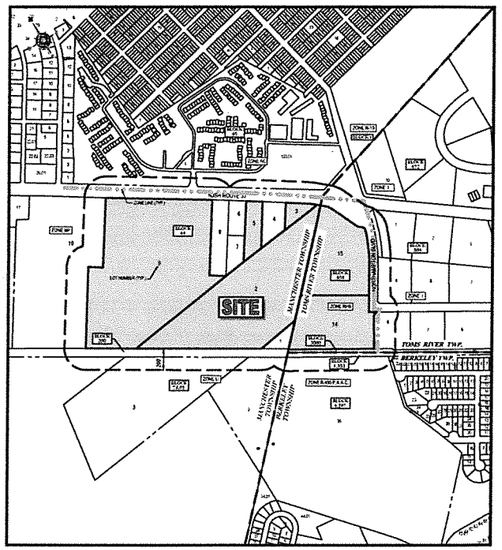
PROPOSED

RETAIL DEVELOPMENT

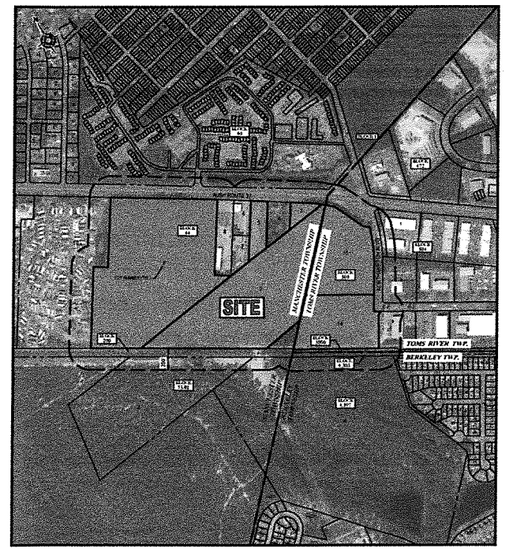
NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5 & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HD-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RHB)
OCEAN COUNTY, NEW JERSEY



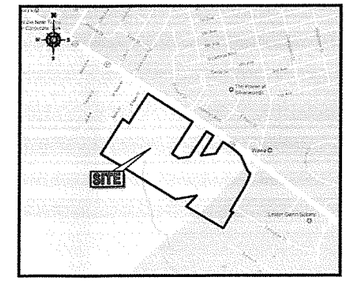
USGS MAP
SCALE: 1" = 2,000'
SOURCE: USGS KEBWICK GROVE QUADRANGLE



TAX MAP
SCALE: 1" = 500'
SOURCE: GIS PARCEL DATA MAPS



AERIAL MAP
SCALE: 1" = 500'
SOURCE: NJGIN INFORMATION WAREHOUSE



KEY MAP
SCALE: 1" = 1,000'
SOURCE: GOOGLE MAPS

PROPERTY OWNERS LIST

WITHIN 200 RADIUS

BERKELEY TOWNSHIP			MANCHESTER TOWNSHIP			TOMS RIVER TOWNSHIP		
BLOCK	LOT	OWNER	BLOCK	LOT	OWNER	BLOCK	LOT	OWNER
4.197	23	[illegible]	40	7	[illegible]	504	3	[illegible]
4.197	14.01	[illegible]	44	1	[illegible]	505	8	[illegible]
4.197	15	[illegible]	44	2	[illegible]	505	9	[illegible]
4.198	15	[illegible]	44	3	[illegible]	505	14	[illegible]
			44	5	[illegible]	505	15	[illegible]
			44	9	[illegible]			
			44	1	[illegible]			
			44	4.1	[illegible]			
			44	6	[illegible]			
			44	10	[illegible]			
			71.01	1	[illegible]			
			71.02	1	[illegible]			
			71.01	1	[illegible]			
			71.02	3	[illegible]			
			204	1	[illegible]			

ALSO TO BE NOTIFIED

[illegible]

DRAWING SHEET INDEX

SHEET TITLE	SHEET NUMBER
COVER SHEET	C-01 OF 22
GENERAL NOTES SHEET	C-02 OF 22
OVERALL PLAN	C-03 OF 22
DEMOLITION PLAN 'A' & 'B'	C-04 - C-05 OF 22
SITE LAYOUT PLAN 'A' & 'B'	C-06 - C-07 OF 22
GRADING PLAN 'A' & 'B'	C-08 - C-09 OF 22
DRAINAGE & UTILITIES PLAN 'A' & 'B'	C-10 - C-11 OF 22
LIGHTING PLAN 'A' & 'B'	C-12 - C-13 OF 22
LANDSCAPE PLAN 'A' & 'B'	C-14 - C-15 OF 22
LANDSCAPE NOTES & DETAILS	C-16 OF 22
SOIL EROSION & SEDIMENT CONTROL PLAN	C-17 OF 22
SOIL EROSION CONTROL DETAILS SHEET	C-18 OF 22
DETAIL SHEET	C-19 - 22 OF 22
TREE MANAGEMENT PLAN 'A'	1 OF 2
TREE MANAGEMENT PLAN 'B'	2 OF 2
TOPOGRAPHIC / ALTA SURVEY (BY OTHERS)	1 OF 1

OWNER CERTIFICATIONS

I CERTIFY THAT I AM THE OWNER OF BLOCK 44 LOTS 2, 3, 5 & 9 (MANCHESTER) AND BLOCK 505 LOTS 14 & 15 (TOMS RIVER) AND CONSENT TO THE FILING OF THIS APPLICATION.

NAME — DATE 4/8/16

OWNER / APPLICANT:

JAYLIN HOLDINGS, LLC
C/O GRUNIN PROPERTIES
DOVER ESPLANADE BLDG. #1
1027 HOOPER AVENUE
TOMS RIVER, NJ 08753

PREPARED BY

BOHLER ENGINEERING

APPROVAL BLOCK

COUNTY PLANNING BOARD APPROVAL

APPROVED BY THE PLANNING BOARD OF OCEAN COUNTY, NEW JERSEY.

CHAIRMAN — DATE
SECRETARY — DATE
BOARD ENGINEER — DATE

APPROVAL BLOCK

TOWNSHIP PLANNING BOARD

PRELIMINARY & FINAL SITE APPROVAL GRANTED ON _____ BY THE TOMS RIVER TOWNSHIP PLANNING BOARD.

CHAIRMAN — DATE
SECRETARY — DATE

TOWNSHIP ENGINEER

I HEREBY CERTIFY THAT THE ENGINEERING CONDITIONS IMPOSED ON THIS APPLICATION FOR PRELIMINARY & FINAL SITE PLAN APPROVAL HAVE BEEN MET.

TOMS RIVER TOWNSHIP ENGINEER — DATE

TOWNSHIP PLANNING BOARD

PRELIMINARY & FINAL SITE APPROVAL GRANTED ON _____ BY THE MANCHESTER TOWNSHIP PLANNING BOARD.

CHAIRMAN — DATE
SECRETARY — DATE

TOWNSHIP ENGINEER

I HEREBY CERTIFY THAT THE ENGINEERING CONDITIONS IMPOSED ON THIS APPLICATION FOR PRELIMINARY & FINAL SITE PLAN APPROVAL HAVE BEEN MET.

MANCHESTER TOWNSHIP ENGINEER — DATE

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
LANDSCAPE ARCHITECTURE
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
ARCHITECTURE
SURVEYING
CONSTRUCTION MANAGEMENT

SOUTHERN NEW JERSEY
1 CENTURY DRIVE, SUITE 100
BURLINGTON, NJ
PHONE: (609) 387-0700
FAX: (609) 387-0701

SOUTHERN PENNSYLVANIA
1 BOYD AVENUE
PITTSBURGH, PA
PHONE: (412) 921-7294
FAX: (412) 921-7294

NORTHERN VIRGINIA
1 SOUTH STREET, SE
LEESBURG, VA
PHONE: (703) 771-6440
FAX: (703) 771-6441

SOUTHEASTERN PA
1 SOUTHWOOD DR.
NORRISTOWN, PA
PHONE: (610) 279-3670
FAX: (610) 279-3671

NORTHERN NEW JERSEY
1 CENTURY DRIVE, SUITE 100
BURLINGTON, NJ
PHONE: (609) 387-0700
FAX: (609) 387-0701

BALTIMORE, MD
1 CHARLOTTE, NC
1 RALEIGH, NC
1 SOUTHERN OREGON
1 ATLANTA, GA
1 HOUSTON, TX
1 DALLAS, TX

WWW.BOHLER.NET

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	06/12/2019	REV. PER CLIENT COMMENTS	AJH / GSD

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROTECT YOURSELF
A PHONE CALL CAN BE YOUR INSURANCE POLICY
WHAT YOU DON'T KNOW CAN HURT YOU.
THE STATE OF NEW JERSEY REQUIRES YOU TO CONTACT THE APPROPRIATE UTILITY COMPANIES TO DETERMINE THE EXACT LOCATION OF UNDERGROUND UTILITIES.

PROJECT No.	JM170508
DRAWN BY:	SMC
CHECKED BY:	GLM
DATE:	11/30/2017
SCALE:	AS SHOWN
CAD I.D.	JM170508-CVR-1A

PROJECT:
PRELIMINARY & FINAL SITE PLAN
FOR
GRUNIN PROPERTIES
PROPOSED RETAIL DEVELOPMENT
NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HD-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RHB)
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
BOHLER ENGINEERING NJ, LLC
10000 MIDLANTIC DRIVE, SUITE 410W
MOUNT LAUREL, NJ 08054
Phone: (856) 530-4000
Fax: (856) 530-4001
www.BohlerEngineering.com
AUTHORIZATION OF BOHLER ENGINEERING

D.F. WISOTSKY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 43951
CONNECTICUT LICENSE No. 22096
NEW YORK LICENSE No. 073745

SHEET TITLE
COVER SHEET

SHEET NUMBER
C-01
OF 22

REVISION 1 - 06/12/2019

DEMOLITION NOTES

(Rev. 1/2019)

1. THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS. THE GENERAL NOTES ARE REFERENCED HEREIN, AND THE CONTRACTOR MUST REFER TO THEM AND FULLY COMPLY WITH THESE NOTES, IN THEIR ENTIRETY. THE CONTRACTOR MUST BE FAMILIAR WITH AND ACKNOWLEDGE FAMILIARITY WITH ALL OF THE GENERAL NOTES AND ALL OF THE PLANS' SPECIFIC NOTES.
2. THE CONTRACTOR MUST CONDUCT DEMOLITION/REMOVALS ACTIVITIES IN SUCH A MANNER AS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, SIDEWALKS, WALKWAYS, AND ALL OTHER ADJACENT FACILITIES. THE CONTRACTOR MUST OBTAIN ALL APPLICABLE PERMITS FROM THE APPROPRIATE GOVERNMENTAL AUTHORITY(IES) PRIOR TO THE COMMENCEMENT OF ANY ROAD OPENING OR DEMOLITION ACTIVITIES IN OR ADJACENT TO THE RIGHT-OF-WAY.
3. WHEN DEMOLITION-RELATED ACTIVITIES IMPACT ROADWAYS AND/OR ROADWAY RIGHT-OF-WAY, THE CONTRACTOR MUST PROVIDE TRAFFIC CONTROL AND GENERALLY ACCEPTED SAFE PRACTICES IN CONFORMANCE WITH THE CURRENT FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), AND THE FEDERAL, STATE, AND LOCAL REGULATIONS.
4. THE DEMOLITION (AND/OR REMOVALS) PLAN IS INTENDED TO PROVIDE GENERAL INFORMATION AND TO IDENTIFY ONLY CONDITIONS REGARDING ITEMS TO BE DEMOLISHED, REMOVED, AND/OR TO REMAIN.
   A. THE CONTRACTOR MUST ALSO REVIEW ALL CONSTRUCTION DOCUMENTS AND INCLUDE WITHIN THE DEMOLITION ACTIVITIES ALL INCIDENTAL WORK NECESSARY FOR THE CONSTRUCTION OF THE NEW SITE IMPROVEMENTS.
   B. THIS PLAN IS NOT INTENDED TO AND DOES NOT PROVIDE DIRECTION REGARDING THE MEANS, METHODS, SEQUENCING, TECHNIQUES AND PROCEDURES TO BE EMPLOYED TO ACCOMPLISH THE WORK. ALL MEANS, METHODS, SEQUENCING, TECHNIQUES AND PROCEDURES TO BE USED MUST BE IN STRICT ACCORDANCE AND CONFORMANCE WITH ALL STATE, FEDERAL, LOCAL, AND JURISDICTIONAL REQUIREMENTS. THE CONTRACTOR MUST COMPLY WITH ALL OSHA AND OTHER SAFETY PRECAUTIONS NECESSARY TO PROVIDE A SAFE WORK SITE FOR THE CONTRACTOR AND THE PUBLIC.
5. THE CONTRACTOR MUST PROVIDE ALL "METHODS AND MEANS" NECESSARY TO PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF EXISTING STRUCTURES, AND ANY OTHER IMPROVEMENTS THAT ARE REMAINING ON OR OFF SITE. THE CONTRACTOR, AT THE CONTRACTOR'S SOLE COST, MUST REPAIR ALL DAMAGE TO ALL ITEMS AND FEATURES THAT ARE TO REMAIN. CONTRACTOR MUST USE NEW MATERIAL FOR ALL REPAIRS. CONTRACTOR'S REPAIRS MUST INCLUDE THE RESTORATION OF ALL ITEMS AND FEATURES REPAIRED TO THEIR PRE-DEMOLITION CONDITION, OR BETTER. CONTRACTOR MUST PERFORM ALL REPAIRS AT THE CONTRACTOR'S SOLE EXPENSE.
6. ENGINEER OF RECORD AND/OR BOHLER ENGINEERING ARE NOT RESPONSIBLE FOR JOB SITE SAFETY OR SUPERVISION. THE CONTRACTOR MUST PROCEED WITH THE DEMOLITION IN A SYSTEMATIC AND SAFE MANNER, COMPLYING WITH ALL OSHA REQUIREMENTS, TO ENSURE PUBLIC AND CONTRACTOR SAFETY AND SAFETY TO ALL PROPERTY ON THE SITE OR ADJACENT OR NEAR TO THE SAME.
7. THE CONTRACTOR IS RESPONSIBLE FOR JOB SITE SAFETY, WHICH MUST INCLUDE, BUT IS NOT LIMITED TO, THE INSTALLATION AND MAINTENANCE OF BARRIERS, FENCING, OTHER APPROPRIATE AND/OR NECESSARY SAFETY FEATURES AND ITEMS NECESSARY TO PROTECT THE PUBLIC FROM AREAS OF CONSTRUCTION AND CONSTRUCTION ACTIVITIES. THE CONTRACTOR MUST SAFEGUARD THE SITE AS NECESSARY TO PERFORM THE DEMOLITION IN SUCH A MANNER AS TO PREVENT THE ENTRY OF ALL UNAUTHORIZED PERSONS AT ANY TIME, TO OR NEAR THE DEMOLITION AREA.
8. PRIOR TO THE COMMENCEMENT OF ANY SITE ACTIVITY AND ANY DEMOLITION ACTIVITY, THE CONTRACTOR MUST, IN WRITING, RAISE ANY QUESTIONS CONCERNING THE ACCURACY OR INTENT OF THESE PLANS AND/OR SPECIFICATIONS, ALL CONCERNS OR QUESTIONS REGARDING THE APPLICABLE SAFETY STANDARDS, AND/OR THE SAFETY OF THE CONTRACTOR AND/OR THIRD PARTIES IN PERFORMING THE WORK ON THIS PROJECT. ANY SUCH CONCERNS MUST BE CONVEYED TO THE ENGINEER OF RECORD AND/OR BOHLER ENGINEERING, IN WRITING AND MUST ADDRESS ALL ISSUES AND ITEMS RESPONDED TO, BY THE ENGINEER OF RECORD AND/OR BY BOHLER ENGINEERING, IN WRITING. ALL DEMOLITION ACTIVITIES MUST BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THESE PLANS AND SPECIFICATIONS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, RULES, REQUIREMENTS, STATUTES, ORDINANCES AND CODES.
9. THE CONTRACTOR MUST BECOME FAMILIAR WITH THE APPLICABLE UTILITY SERVICE PROVIDER REQUIREMENTS AND IS RESPONSIBLE FOR ALL COORDINATION REGARDING UTILITY DEMOLITION AND/OR DISCONNECTION AS IDENTIFIED OR REQUIRED FOR THE PROJECT. THE CONTRACTOR MUST PROVIDE THE OWNER WITH WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED, REMOVED AND/OR ABANDONED IN ACCORDANCE WITH THE JURISDICTION AND UTILITY COMPANY REQUIREMENTS AND ALL OTHER APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES.
10. PRIOR TO COMMENCING ANY DEMOLITION, THE CONTRACTOR MUST:
    A. OBTAIN ALL REQUIRED PERMITS AND MAINTAIN THE SAME ON SITE FOR REVIEW BY THE ENGINEER AND ALL PUBLIC AGENCIES WITH JURISDICTION THROUGHOUT THE DURATION OF THE PROJECT, SITE WORK, AND DEMOLITION WORK.
    B. NOTIFY, AT A MINIMUM, THE MUNICIPAL ENGINEER, DESIGN ENGINEER, AND LOCAL SOIL CONSERVATION JURISDICTION, AT LEAST 72 BUSINESS HOURS PRIOR TO THE COMMENCEMENT OF WORK.
    C. INSTALL THE REQUIRED SOIL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO SITE DISTURBANCE, AND MAINTAIN SAID CONTROLS UNTIL SITE IS STABILIZED.
    D. IN ACCORDANCE WITH STATE LAW, THE CONTRACTOR MUST CALL THE STATE ONE-CALL DAMAGE PROTECTION SYSTEM FOR UTILITY MARK OUT, IN ADVANCE OF ANY EXCAVATION.
    E. LOCATE AND PROTECT ALL UTILITIES AND SERVICES, INCLUDING BUT NOT LIMITED TO GAS, WATER, ELECTRIC, SANITARY AND STORM SEWER, TELEPHONE, CABLE, FIBER OPTIC CABLE, ETC. WITHIN AND ADJACENT TO THE LIMITS OF PROJECT ACTIVITIES. THE CONTRACTOR MUST USE AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL UNDERGROUND UTILITIES.
    F. PROTECT AND MAINTAIN IN OPERATION, ALL ACTIVE UTILITIES AND SYSTEMS THAT ARE NOT BEING REMOVED DURING ANY DEMOLITION ACTIVITIES.
    G. ARRANGE FOR AND COORDINATE WITH THE APPLICABLE UTILITY SERVICE PROVIDER(S) FOR THE TEMPORARY OR PERMANENT TERMINATION OF SERVICE REQUIRED BY THE PROJECT PLANS AND SPECIFICATIONS REGARDING THE METHODS AND MEANS TO CONSTRUCT SAME. THESE ARE NOT THE ENGINEER OF RECORD'S RESPONSIBILITY. IN THE EVENT OF ABANDONMENT, THE CONTRACTOR MUST PROVIDE THE UTILITY ENGINEER AND OWNER WITH IMMEDIATE WRITTEN NOTIFICATION THAT THE EXISTING UTILITIES AND SERVICES HAVE BEEN TERMINATED AND ABANDONED IN ACCORDANCE WITH JURISDICTIONAL AND UTILITY COMPANY REQUIREMENTS.
    H. ARRANGE FOR AND COORDINATE WITH THE APPLICABLE UTILITY SERVICE PROVIDER(S) REGARDING WORKING "OFF-PEAK" HOURS OR ON WEEKENDS AS NECESSARY OR AS REQUIRED TO MINIMIZE THE IMPACT ON, OF AND TO THE AFFECTED PARTIES. WORK REQUIRED TO BE PERFORMED "OFF-PEAK" IS TO BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.
    I. IN THE EVENT THE CONTRACTOR DISCOVERS ANY HAZARDOUS MATERIAL, THE REMOVAL OF WHICH IS NOT ADDRESSED IN THE PROJECT PLANS AND SPECIFICATIONS, OR THE CONTRACT WITH THE OWNER/DEVELOPER, THE CONTRACTOR MUST IMMEDIATELY CEASE ALL WORK IN THE AREA OF DISCOVERY, AND IMMEDIATELY NOTIFY, IN WRITING AND VERBALLY, THE OWNER AND ENGINEER OF RECORD AND BOHLER ENGINEERING. THE DISCOVERY OF SUCH MATERIALS TO PURSUE PROPER AND COMPLIANT REMOVAL OF SAME.
11. THE CONTRACTOR MUST ENSURE THAT ANY EXISTING ASBESTOS-CONTAINING MATERIALS ENCOUNTERED ARE PROPERLY REMOVED FROM THE SUBJECT PREMISES AND ARE DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REQUIREMENTS, PRIOR TO THE COMMENCEMENT OF DEMOLITION ON SITE AND MUST PERFORM ALL AGENCY NOTIFICATIONS AS REQUIRED, AT THE CONTRACTOR'S SOLE EXPENSE.
12. THE CONTRACTOR MUST NOT PERFORM ANY EARTH MOVEMENT ACTIVITIES, DEMOLITION OR REMOVAL OF FOUNDATION WALLS, FOOTINGS, OR OTHER MATERIALS WITHIN THE LIMITS OF DISTURBANCE, UNLESS SAME IS IN STRICT ACCORDANCE AND CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS, OR PURSUANT TO THE WRITTEN DIRECTION OF THE OWNER'S STRUCTURAL OR GEOTECHNICAL ENGINEER.
13. DEMOLITION ACTIVITIES AND EQUIPMENT MUST NOT USE OR INCLUDE AREAS OUTSIDE THE DEFINED PROJECT LIMIT LINE, WITHOUT SPECIFIC WRITTEN PERMISSION AND AUTHORITY OF AND FROM THE OWNER AND ALL GOVERNMENTAL AGENCIES WITH JURISDICTION.
14. THE CONTRACTOR MUST BACKFILL ALL EXCAVATION RESULTING FROM, OR INCIDENTAL TO, DEMOLITION ACTIVITIES. BACKFILL MUST BE ACCOMPLISHED WITH APPROVED BACKFILL MATERIALS AND MUST BE SUFFICIENTLY COMPACTED TO SUPPORT ALL NEW IMPROVEMENTS AND MUST BE PERFORMED IN COMPLIANCE WITH THE RECOMMENDATIONS AND GUIDANCE ARTICULATED IN THE GEOTECHNICAL REPORT. BACKFILLING MUST OCCUR IMMEDIATELY AFTER DEMOLITION ACTIVITIES AND MUST BE PERFORMED SO AS TO PREVENT WATER ENTERING THE EXCAVATION. FINISHED SURFACES MUST BE GRADED TO PROMOTE POSITIVE DRAINAGE. THE CONTRACTOR IS RESPONSIBLE FOR COMPACTION TESTING AND MUST SUBMIT SUCH REPORTS AND RESULTS TO THE ENGINEER OF RECORD AND THE OWNER.
15. EXPLOSIVES MUST NOT BE USED WITHOUT PRIOR WRITTEN CONSENT FROM BOTH THE OWNER AND ALL APPLICABLE, NECESSARY AND REQUIRED GOVERNMENTAL AUTHORITIES. PRIOR TO COMMENCING ANY EXPLOSIVE PROGRAM AND/OR ANY DEMOLITION ACTIVITIES, THE CONTRACTOR MUST ENSURE AND OVERSEE THE INSTALLATION OF ALL OF THE REQUIRED PERMIT AND EXPLOSIVE CONTROL MEASURES THAT THE FEDERAL, STATE, AND LOCAL GOVERNMENTS REQUIRE. THE CONTRACTOR IS ALSO RESPONSIBLE TO CONDUCT AND PERFORM ALL INSPECTION AND SEISMIC VIBRATION TESTING THAT IS REQUIRED TO MONITOR THE EFFECTS ON ALL LOCAL STRUCTURES AND THE LIKE.
16. IN ACCORDANCE WITH FEDERAL, STATE, AND/OR LOCAL STANDARDS, THE CONTRACTOR MUST USE DUST CONTROL MEASURES TO LIMIT AIRBORNE DUST AND DIRT RISING AND SCATTERING IN THE AIR. AFTER THE DEMOLITION IS COMPLETE, THE CONTRACTOR MUST CLEAN ALL ADJACENT STRUCTURES AND IMPROVEMENTS TO REMOVE ALL DUST AND DEBRIS WHICH THE DEMOLITION OPERATIONS CAUSE. THE CONTRACTOR IS RESPONSIBLE FOR RETURNING ALL ADJACENT AREAS TO THEIR "PRE-DEMOLITION" CONDITION AT CONTRACTOR'S SOLE COST.
17. PAVEMENT MUST BE SAW CUT IN STRAIGHT LINES, AND EXCEPT FOR EDGE OF BUTT JOINTS, MUST EXTEND TO THE FULL DEPTH OF THE EXISTING PAVEMENT. ALL DEBRIS FROM REMOVAL OPERATIONS MUST BE REMOVED FROM THE SITE AT THE TIME OF EXCAVATION. STOCKPILING OF DEBRIS OUTSIDE OF APPROVED AREAS WILL NOT BE PERMITTED, INCLUDING BUT NOT LIMITED TO, THE PUBLIC RIGHT-OF-WAY.
18. THE CONTRACTOR MUST MAINTAIN A RECORD SET OF PLANS UPON WHICH IS INDICATED THE LOCATION OF EXISTING UTILITIES THAT ARE CAPPED, ABANDONED IN PLACE, OR RELOCATED DUE TO DEMOLITION ACTIVITIES. THIS RECORD DOCUMENT MUST BE PREPARED IN A NEAT AND WORKMAN-LIKE MANNER AND TURNED OVER TO THE OWNER/DEVELOPER UPON COMPLETION OF THE WORK. ALL OF WHICH IS AT THE CONTRACTOR'S SOLE COST.
19. THE CONTRACTOR MUST EMPTY, CLEAN AND REMOVE FROM THE SITE ALL UNDERGROUND STORAGE TANKS, IF ENCOUNTERED, IN ACCORDANCE WITH FEDERAL, STATE, COUNTY AND LOCAL REQUIREMENTS, PRIOR TO CONTINUING CONSTRUCTION IN THE AREA AROUND THE TANK WHICH EMPTYING, CLEANING AND REMOVAL ARE AT THE CONTRACTOR'S SOLE COST.

SITE SPECIFIC NOTES

1. ALL UTILITIES AND APPURTENANCES REQUIRED TO DELIVER UTILITY SERVICES FOR THE PROPOSED DEVELOPMENT, INCLUDING BUT NOT LIMITED TO, ELECTRIC CONDUIT FOR SITE AREA LIGHTING SHALL BE LOCATED ENTIRELY ON DEVELOPMENT SIDE OF SNAKE BARRIER.
2. SILT FENCE DEPICTED IS SCHEMATIC FOR THE PURPOSE OF SITE PLAN APPROVAL AND PERMITTING WHICH REQUIRES LIMIT OF DISTURBANCE. CONTRACTOR SHALL INSTALL SILT FENCE TO ALLOW ADEQUATE AREA TO COMPLETE ALL GRADING AND DISTURBANCE ACTIVITIES REQUIRED FOR THE PROPOSED IMPROVEMENTS.
3. CONTRACTOR SHALL CONSULT GAS COMPANY AND PLUMBING INSPECTOR FOR EXACT NUMBER AND LOCATION OF BOLLARDS FOR GAS METER PROTECTION PRIOR TO INSTALLATION.
4. HOURS OF OPERATION - 24 HOURS PER DAY.

GRAPHIC LEGEND

(UG10102 - 03/12/12)

- PROPERTY LINE
- EXIST. CONTOUR & ELEVATION
- PROP. FINISH GRADE CONTOUR & ELEVATION
- EXIST. WATER
- PROP. WATER
- EXIST. GAS
- PROP. GAS
- EXIST. ELECTRIC/TELEPHONE
- PROP. ELECTRIC/TELEPHONE
- EXIST. ELECTRIC/TELEPHONE/CABLE
- PROP. ELECTRIC/TELEPHONE/CABLE
- EXIST. OVERHEAD WIRES
- PROP. OVERHEAD WIRES
- EXIST. STORM PIPE
- PROP. STORM PIPE
- EXIST. SANITARY PIPE
- PROP. SANITARY PIPE
- PROP. DIRECTION OF DRAINAGE FLOW ARROW
- EXISTING ELEVATION
- EXIST. TOP OF CURB ELEVATION (TC 123.45)
- EXIST. GRADE ELEVATION (G 122.95)
- PROP. TOP OF WALL ELEVATION (TW XXX.XX)
- PROP. GRADE ON HIGH SIDE OF WALL (GH XXX.XX)
- PROP. GRADE ON LOW SIDE OF WALL (GL XXX.XX)
- PROP. TOP OF CURB & FINISHED GRADE ELEV. (TC XXX.XX / G XXX.XX)
- EXIST. AREA/YARD LIGHT
- PROP. AREA/YARD LIGHT
- PROP. CLEAN OUT
- EXIST. INLET
- PROP. INLET
- EXIST. MANHOLE
- PROP. STORM MANHOLE
- PROP. SANITARY MANHOLE
- EXIST. HYDRANT
- PROP. HYDRANT
- EXIST. UTILITY VALVE
- PROP. UTILITY VALVE
- EXIST. UTILITY POLE
- PROP. UTILITY POLE
- EXIST. TRAFFIC SIGNAL
- PROP. TRAFFIC SIGNAL

GENERAL NOTES

(Rev. 1/2019)

1. THESE PLANS ARE SOLELY BASED ON INFORMATION THE OWNER AND OTHERS PROVIDED TO BOHLER ENGINEERING NEW JERSEY, LLC (HEREIN "BOHLER ENGINEERING") PRIOR TO THE DATE ON WHICH ENGINEER PREPARED THESE PLANS. THE CONTRACTOR MUST FIELD VERIFY ALL EXISTING CONDITIONS AND IMMEDIATELY NOTIFY BOHLER ENGINEERING, IN WRITING, IF ANY ACTUAL SITE CONDITIONS DIFFER FROM THOSE SHOWN ON THESE PLANS, OR IF THE PROPOSED WORK CONFLICTS WITH ANY OTHER SITE FEATURES.
2. THE CONTRACTOR MUST STRICTLY COMPLY WITH THESE NOTES AND ALL SPECIFICATIONS/REPORTS CONTAINED HEREIN. THE CONTRACTOR MUST ENSURE THAT ALL SUBCONTRACTORS FULLY AND COMPLETELY CONFORM TO AND COMPLY WITH THESE REQUIREMENTS. THESE NOTES, AND THE REQUIREMENTS ARTICULATED IN THE NOTES CONTAINED IN ALL THE OTHER DRAWINGS THAT COMPRISE THE PLAN SET OF DRAWINGS. ADDITIONAL NOTES AND SPECIFIC PLAN NOTES MAY BE FOUND ON THE INDIVIDUAL PLANS. THESE GENERAL NOTES APPLY TO THIS ENTIRE DOCUMENT PACKAGE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW ALL CONSTRUCTION CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE, PRIOR TO THE INITIATION AND COMMENCEMENT OF CONSTRUCTION.
3. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR MUST CONFIRM WITH THE ENGINEER OF RECORD THAT THE LATEST EDITION OF THE DOCUMENTS AND/OR REPORTS REFERENCED WITHIN THE PLAN REFERENCES ARE BEING USED FOR CONSTRUCTION. THIS IS THE CONTRACTOR'S SOLE AND COMPLETE RESPONSIBILITY.
4. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR MUST ENSURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION IS TO BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED THE CONDITIONS OF APPROVAL TO ALL PLANS AND OTHER DOCUMENTS REVIEWED AND APPROVED BY THE PERMITTING AUTHORITIES AND HAS ALSO CONFIRMED THAT ALL NECESSARY AND REQUIRED PERMITS HAVE BEEN OBTAINED. THE CONTRACTOR MUST HAVE COPIES OF ALL PERMITS AND APPROVALS ON SITE AT ALL TIMES.
5. THE CONTRACTOR MUST ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS/REPORTS AND CONDITIONS OF APPROVAL, AND ALL APPLICABLE REQUIREMENTS, RULES, REGULATIONS, STATUTORY REQUIREMENTS, CODES, LAWS AND STANDARDS OF ALL GOVERNMENTAL ENTITIES WITH JURISDICTION OVER THIS PROJECT, AND ALL PROVISIONS IN AND CONDITIONS OF THE CONSTRUCTION CONTRACT WITH THE OWNER/DEVELOPER INCLUDING ALL EXHIBITS, ATTACHMENTS AND ADDENDA TO SAME.
6. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR MUST COORDINATE THE BUILDING LAYOUT BY CAREFULLY REVIEWING THE MOST CURRENT ARCHITECTURAL, CIVIL AND STRUCTURAL CONSTRUCTION DOCUMENTS (INCLUDING, BUT NOT LIMITED TO, MECHANICAL, ELECTRICAL, PLUMBING AND FIRE SUPPRESSION PLANS, WHERE APPLICABLE). THE CONTRACTOR MUST IMMEDIATELY NOTIFY OWNER, ARCHITECT AND ENGINEER OF RECORD, IN WRITING, OF ANY CONFLICTS, DISCREPANCIES OR AMBIGUITIES WHICH EXIST BETWEEN THESE PLANS AND ANY OTHER PLANS THAT COMPRISE THE CONSTRUCTION DOCUMENTS.
7. CONTRACTOR MUST REFER TO AND ENSURE COMPLIANCE WITH THE APPROVED ARCHITECTURAL/BUILDING PLANS OF RECORD FOR EXACT LOCATIONS AND DIMENSIONS OF ENTRY/EXIT POINTS, ELEVATIONS, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY LOCATIONS.
8. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR MUST IMMEDIATELY NOTIFY ENGINEER OF RECORD, IN WRITING, IF ANY CONFLICTS, DISCREPANCIES, OR AMBIGUITIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION. NO EXTRA COMPENSATION WILL BE PAID TO THE CONTRACTOR FOR WORK WHICH HAS TO BE RE-DONE OR REPAIRED DUE TO DIMENSIONS, MEASUREMENTS OR GRADES SHOWN INCORRECTLY ON THESE PLANS PRIOR TO BOTH (A) THE CONTRACTOR GIVING ENGINEER OF RECORD WRITTEN NOTIFICATION OF SAME AND (B) ENGINEER OF RECORD, THEREAFTER, PROVIDING THE CONTRACTOR WITH WRITTEN AUTHORIZATION TO PROCEED WITH SUCH ADDITIONAL WORK.
9. THE CONTRACTOR MUST VERIFY ALL DIMENSIONS AND MEASUREMENTS INCLUDED ON DESIGN DOCUMENTS HEREIN AND MUST NOT SCALE OFF THE DRAWINGS DUE TO POTENTIAL PRINTING INACCURACIES. ALL DIMENSIONS AND MEASUREMENTS ARE TO BE CHECKED AND CONFIRMED BY THE GENERAL CONTRACTOR PRIOR TO PREPARATION OF SHOP DRAWINGS, FABRICATION/ORDERING OF PARTS AND MATERIALS AND COMMENCEMENT OF SITE WORK. SITE PLAN DRAWINGS ARE NOT INTENDED AS SURVEY DOCUMENTS. DIMENSIONS SUPERSEDE GRAPHICAL REPRESENTATIONS. THE CONTRACTOR MUST MAKE CONTRACTOR'S OWN MEASUREMENTS FOR LAYOUT OF IMPROVEMENTS.
10. THE OWNER AND CONTRACTOR MUST BE FAMILIAR WITH, AND RESPONSIBLE FOR THE PROCUREMENT OF ANY AND ALL CERTIFICATIONS REQUIRED FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
11. WHEN INCLUDED AS ONE OF THE REFERENCED DOCUMENTS, THE GEOTECHNICAL REPORT, SPECIFICATIONS AND RECOMMENDATIONS SET FORTH THEREIN ARE A PART OF THE REQUIRED CONSTRUCTION DOCUMENTS AND, IN CASE OF CONFLICT, DISCREPANCY OR AMBIGUITY, THE MORE STRINGENT REQUIREMENTS AND/OR RECCOMMENDATIONS CONTAINED IN, (A) THE PLANS, AND (B) THE GEOTECHNICAL REPORT AND RECOMMENDATIONS, MUST TAKE PRECEDENCE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE CONTRACTOR MUST NOTIFY THE ENGINEER OF RECORD, IN WRITING, OF ANY SUCH CONFLICT, DISCREPANCY OR AMBIGUITY BETWEEN THE GEOTECHNICAL REPORT AND PLANS AND SPECIFICATIONS, PRIOR TO PROCEEDING WITH ANY FURTHER WORK. IF A GEOTECHNICAL REPORT WAS NOT CREATED, THEN THE CONTRACTOR MUST FOLLOW AND COMPLY WITH ALL OF THE REQUIREMENTS OF ANY AND ALL MUNICIPAL, COUNTY, STATE, AND FEDERAL LAWS AND APPLICABLE SPECIFICATIONS WHICH HAVE JURISDICTION OVER THIS PROJECT.
12. ENGINEER OF RECORD IS NEITHER LIABLE NOR RESPONSIBLE FOR ANY SUBSURFACE CONDITIONS AND FURTHER, HAS NO LIABILITY FOR ANY HAZARDOUS MATERIALS, HAZARDOUS SUBSTANCES, OR POLLUTANTS ON, ABOUT OR UNDER THE PROPERTY.
13. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING WHEN AND WHERE SHORING IS REQUIRED AND FOR INSTALLING ALL SHORING REQUIRED DURING EXCAVATION (TO BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS) AND ANY ADDITIONAL PRECAUTIONS TO BE TAKEN TO ASSURE THE STABILITY OF ADJACENT, NEARBY AND CONTIGUOUS STRUCTURES AND PROPERTIES. ALL OF THIS WORK IS TO BE PERFORMED AT CONTRACTOR'S SOLE COST AND EXPENSE.
14. THE CONTRACTOR MUST EXERCISE EXTREME CAUTION WHEN PERFORMING ANY WORK ACTIVITIES ADJACENT TO PAVEMENT, STRUCTURES, ETC. WHICH ARE TO REMAIN EITHER FOR AN INITIAL PHASE OF THE PROJECT OR AS PART OF THE FINAL CONDITION. THE CONTRACTOR IS RESPONSIBLE FOR TAKING ALL APPROPRIATE MEASURES REQUIRED TO ENSURE THE STRUCTURAL STABILITY OF SIDEWALKS AND PAVEMENT, UTILITIES, BUILDINGS, AND INFRASTRUCTURE WHICH ARE TO REMAIN, AND TO PROVIDE A SAFE WORK AREA FOR THIRD PARTIES, PEDESTRIANS AND ANYONE INVOLVED WITH THE PROJECT.
15. DEBRIS MUST NOT BE BURIED ON THE SUBJECT SITE. ALL DEMOLITION AND CONSTRUCTION WASTES, UNSUITABLE EXCAVATED MATERIAL, EXCESS SOIL AND DEBRIS (SOLID WASTE) MUST BE DISPOSED OF IN ACCORDANCE WITH THE REQUIREMENTS OF ANY AND ALL MUNICIPAL, COUNTY, STATE, AND FEDERAL LAWS AND APPLICABLE CODES WHICH HAVE JURISDICTION OVER THIS PROJECT OR OVER THE CONTRACTOR.
16. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO MAINTAIN RECORDS TO DEMONSTRATE PROPER AND FULLY COMPLIANT DISPOSAL ACTIVITIES, TO BE PROMPTLY PROVIDED TO THE OWNER UPON REQUEST.
17. THE CONTRACTOR MUST REPAIR, AT CONTRACTOR'S SOLE COST, ALL DAMAGE DONE TO ANY NEW OR EXISTING CONSTRUCTION OR PROPERTY DURING THE COURSE OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. AND MUST BEAR ALL COSTS ASSOCIATED WITH SAME TO INCLUDE, BUT NOT BE LIMITED TO, REDESIGN, RE-SURVEY, RE-PERMITTING AND CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR AND MUST REPLACE ALL SIGNAL INTERCONNECTION CABLE, WIRING CONDUITS, AND ANY UNDERGROUND ACCESSORY EQUIPMENT DAMAGED DURING CONSTRUCTION AND MUST BEAR ALL COSTS ASSOCIATED WITH SAME. THE REPAIR OF ANY SUCH NEW OR EXISTING CONSTRUCTION OR PROPERTY MUST RESTORE SUCH CONSTRUCTION OR PROPERTY TO A CONDITION EQUIVALENT TO OR BETTER THAN THE CONDITIONS PRIOR TO COMMENCEMENT OF THE CONSTRUCTION, AND IN CONFORMANCE WITH APPLICABLE CODES, LAWS, RULES, REGULATIONS, STATUTORY REQUIREMENTS AND STATUTES. THE CONTRACTOR MUST BEAR ALL COSTS ASSOCIATED WITH SAME. THE CONTRACTOR MUST, PROMPTLY, DOCUMENT ALL EXISTING DAMAGE AND NOTIFY, IN WRITING, THE OWNER AND THE CONSTRUCTION MANAGER PRIOR TO THE START OF CONSTRUCTION.
18. THE ENGINEER OF RECORD AND BOHLER ENGINEERING ARE NOT RESPONSIBLE FOR AND HAVE NO CONTRACTUAL, LEGAL OR OTHER RESPONSIBILITIES FOR JOB SITE SAFETY JOB SITE SUPERVISION, OR ANYTHING RELATED TO SAME. THE ENGINEER OF RECORD AND BOHLER ENGINEERING HAVE NOT BEEN RETAINED TO PERFORM OR TO BE RESPONSIBLE FOR JOB SITE SAFETY, SAME BEING WHOLLY OUTSIDE OF ENGINEER OF RECORD'S AND BOHLER ENGINEERING SERVICES AS RELATED TO THE PROJECT. THE ENGINEER OF RECORD AND BOHLER ENGINEERING ARE NOT RESPONSIBLE TO IDENTIFY OR REPORT ANY JOB SITE SAFETY ISSUES OR ANY JOB SITE CONDITIONS, AT ANY TIME.
19. THE CONTRACTOR MUST IMMEDIATELY IDENTIFY IN WRITING, TO THE ENGINEER OF RECORD AND BOHLER ENGINEERING, ANY DISCREPANCIES THAT MAY OR COULD AFFECT THE PUBLIC SAFETY, HEALTH OR GENERAL WELFARE, OR PROJECT COST. IF THE CONTRACTOR PROCEEDS WITH CONSTRUCTION WITHOUT PROVIDING PROPER WRITTEN NOTIFICATION AS DESCRIBED ABOVE, IT WILL BE AT THE CONTRACTOR'S OWN RISK AND, FURTHER, THE CONTRACTOR MUST INDEMNIFY, DEFEND AND HOLD HARMLESS THE ENGINEER OF RECORD AND BOHLER ENGINEERING FOR ANY AND ALL DAMAGES, COSTS, INJURIES, ATTORNEY'S FEES AND THE LIKE WHICH RESULT FROM OR ARE IN ANY WAY RELATED TO SAME INCLUDING, BUT NOT LIMITED TO, ANY THIRD PARTY AND FIRST PARTY CLAIMS.
20. THE ENGINEER OF RECORD AND BOHLER ENGINEERING ARE NOT RESPONSIBLE FOR ANY INJURY OR DAMAGES RESULTING FROM THE CONTRACTOR'S FAILURE TO BUILD OR CONSTRUCT IN STRICT ACCORDANCE WITH THE APPROVED PLANS, AND CURRENT CODES, RULES, STATUTES AND THE LIKE. IF THE CONTRACTOR AND/OR OWNER FAIL TO BUILD OR CONSTRUCT IN STRICT ACCORDANCE WITH APPROVED PLANS, RULES, STATUTES, CODES AND THE LIKE, THE CONTRACTOR AND/OR OWNER AGREE TO AND MUST JOINTLY, INDEPENDENTLY, SEPARATELY, AND SEVERALLY INDEMNIFY AND HOLD THE ENGINEER OF RECORD AND BOHLER ENGINEERING HARMLESS FOR AND FROM ALL INJURIES, CLAIMS AND DAMAGES THAT ENGINEER AND BOHLER ENGINEERING SUFFER AND ANY AND ALL COSTS THAT ENGINEER AND BOHLER ENGINEERING INCUR AS RELATED TO SAME.
21. ALL CONTRACTORS MUST CARRY AT LEAST THE MINIMUM AMOUNT OF THE SPECIFIED AND COMMERCIALLY REASONABLE STATUTORY WORKER'S COMPENSATION INSURANCE, EMPLOYER'S LIABILITY INSURANCE AND COMMERCIAL GENERAL LIABILITY INSURANCE (CGL) INCLUDING ALSO ALL UMBRELLA COVERAGES. ALL CONTRACTORS MUST HAVE THEIR CGL POLICIES ENDORSED TO NAME BOHLER ENGINEERING, AND ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBCONSULTANTS AS ADDITIONAL NAMED INSUREDS AND TO PROVIDE CONTRACTUAL LIABILITY COVERAGE SUFFICIENT TO INSURE THE (DEFEND, IF APPLICABLE) AND HOLD HARMLESS AND INDEMNITY OBLIGATIONS ASSUMED AND AGREED TO BY THE CONTRACTOR HEREIN. ALL CONTRACTORS MUST FURNISH BOHLER ENGINEERING WITH CERTIFICATIONS OF INSURANCE OR CERTIFICATES OF INSURANCE AS EVIDENCE OF THE REQUIRED INSURANCE COVERAGES PRIOR TO COMMENCING ANY WORK AND UPON RENEWAL OF EACH POLICY DURING THE ENTIRE PERIOD OF CONSTRUCTION AND FOR TWO YEARS AFTER THE COMPLETION OF CONSTRUCTION AND AFTER ALL PERMITS ARE ISSUED, WHICHEVER DATE IS LATER. IN ADDITION, ALL CONTRACTORS AGREE THAT THEY WILL, TO THE FULLEST EXTENT PERMITTED UNDER THE LAW, INDEMNIFY, DEFEND AND HOLD HARMLESS BOHLER ENGINEERING AND ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBCONSULTANTS FROM AND AGAINST ANY DAMAGES, INJURIES, CLAIMS, ACTIONS, PENALTIES, EXPENSES, PUNITIVE DAMAGES, TORT DAMAGES, STATUTORY CLAIMS, STATUTORY CAUSES OF ACTION, LOSSES, CAUSES OF ACTION, LIABILITIES OR COSTS, INCLUDING, BUT NOT LIMITED TO, REASONABLE ATTORNEYS' FEES AND DEFENSE COSTS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH OR TO THE PROJECT, INCLUDING ALL CLAIMS BY EMPLOYEES OF THE CONTRACTOR(S), ALL CLAIMS BY THIRD PARTIES AND ALL CLAIMS RELATED TO THE PROJECT. THE CONTRACTOR MUST NOTIFY ENGINEER, IN WRITING, AT LEAST THIRTY (30) DAYS PRIOR TO ANY TERMINATION, SUSPENSION OR CHANGE OF ITS INSURANCE HEREUNDER.
22. THE ENGINEER OF RECORD AND BOHLER ENGINEERING ARE NOT RESPONSIBLE FOR CONSTRUCTION METHODS, MEANS, TECHNIQUES OR PROCEDURES, GENERALLY OR FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES OR PROCEDURES FOR COMPLETION OF THE WORK DEPICTED BOTH ON THESE PLANS, AND FOR ANY CONFLICTS IN SCOPE AND REVISIONS THAT RESULT FROM SAME. THE CONTRACTOR IS FULLY AND SOLELY RESPONSIBLE FOR DETERMINING THE MEANS AND METHODS FOR COMPLETION OF THE WORK, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
23. NEITHER THE PROFESSIONAL ACTIVITIES OF: BOHLER ENGINEERING, NOR THE PRESENCE OF BOHLER ENGINEERING AND/OR ITS PAST, PRESENT AND FUTURE OWNERS, OFFICERS, DIRECTORS, PARTNERS, SHAREHOLDERS, MEMBERS, PRINCIPALS, COMMISSIONERS, AGENTS, SERVANTS, EMPLOYEES, AFFILIATES, SUBSIDIARIES, AND RELATED ENTITIES, AND ITS SUBCONTRACTORS AND SUBCONSULTANTS AT A CONSTRUCTION/PROJECT SITE (HEREIN "BOHLER ENGINEERING PARTIES"), RELIEVES OR WILL RELIEVE THE CONTRACTOR OF AND FROM ITS OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, OVERSEEING, SUPERINTENDING AND COORDINATING THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND COMPLIANCE WITH ALL HEALTH AND SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES WITH JURISDICTION OVER THE PROJECT AND/OR PROPERTY. BOHLER ENGINEERING AND ITS EMPLOYEES, PERSONNEL, AGENTS, SUBCONTRACTORS AND SUBCONSULTANTS HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER (OR ANY RESPONSIBILITY FOR) ANY CONSTRUCTION, THE CONTRACTOR OR ITS EMPLOYEES RELATING TO THEIR WORK AND ANY AND ALL HEALTH AND SAFETY PROGRAMS OR PROCEDURES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SITE SAFETY. THE CONTRACTOR MUST INDEMNIFY, DEFEND, PROTECT AND HOLD HARMLESS BOHLER ENGINEERING FOR AND FROM ANY LIABILITY TO BOHLER ENGINEERING RESULTING FROM THE CONTRACTOR'S WORK, SERVICES AND/OR VIOLATIONS OF THIS NOTE, THESE NOTES OR ANY NOTES IN THE PLAN SET AND, FURTHER, THE CONTRACTOR MUST NAME BOHLER ENGINEERING AS AN ADDITIONAL INSURED UNDER THE GENERAL CONTRACTOR'S POLICIES OF GENERAL LIABILITY INSURANCE AS DESCRIBED ABOVE.
24. WHEN IT IS CLEARLY AND SPECIFICALLY WITHIN BOHLER ENGINEERING'S SCOPE OF SERVICES CONTRACT WITH THE OWNER/DEVELOPER, BOHLER ENGINEERING WILL REVIEW OR TAKE OTHER APPROPRIATE ACTION ON THE CONTRACTOR SUBMITTALS, SUCH AS SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND OTHER DATA, WHICH THE CONTRACTOR IS REQUIRED TO SUBMIT, BUT ONLY FOR THE LIMITED PURPOSE OF EVALUATING CONFORMANCE WITH THE DESIGN INTENT AND THE INFORMATION SHOWN IN THE CONSTRUCTION CONTRACT DOCUMENTS. CONSTRUCTION MEANS AND METHODS AND/OR TECHNIQUES OR PROCEDURES, COORDINATION OF THE WORK WITH OTHER TRADES, AND CONSTRUCTION SAFETY PRECAUTIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND BOHLER ENGINEERING HAS NO RESPONSIBILITY OR LIABILITY FOR SAME. BOHLER ENGINEERING WILL PERFORM ITS SHOP DRAWING REVIEW WITH REASONABLE PROMPTNESS, AS CONDITIONS PERMIT. ANY DOCUMENT, DOCUMENTING BOHLER ENGINEERING'S REVIEW OF A SPECIFIC ITEM OR LIMITED SCOPE, MUST NOT INDICATE THAT BOHLER ENGINEERING HAS REVIEWED THE ENTIRE ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. BOHLER ENGINEERING IS NOT RESPONSIBLE FOR ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR MUST, IN WRITING, PROMPTLY AND IMMEDIATELY BRING ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS TO BOHLER ENGINEERING'S ATTENTION. BOHLER ENGINEERING IS NOT REQUIRED TO REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OF CORRELATED ITEMS HAVE NOT BEEN RECEIVED.
25. IF THE CONTRACTOR DEVIATES FROM THESE PLANS AND/OR SPECIFICATIONS, INCLUDING THE NOTES CONTAINED HEREIN, WITHOUT FIRST OBTAINING THE PRIOR WRITTEN AUTHORIZATION OF THE ENGINEER OF RECORD AND/OR BOHLER ENGINEERING FOR ALL DEVIATIONS WITHIN ENGINEER'S SCOPE, THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PAYMENT OF ALL COSTS INCURRED IN CORRECTING ANY WORK PERFORMED WHICH DEVIATES FROM THE PLANS, ALL FINES AND/OR PENALTIES ASSESSED WITH RESPECT THERETO AND ALL COMPENSATORY OR PUNITIVE DAMAGES RESULTING THEREFROM AND, FURTHER, MUST DEFEND, INDEMNIFY, PROTECT, AND HOLD HARMLESS THE ENGINEER OF RECORD AND BOHLER ENGINEERING PARTIES TO THE FULLEST EXTENT PERMITTED UNDER THE LAW, FOR AND FROM ALL FEES, ATTORNEYS' FEES, DAMAGES, COSTS, JUDGMENTS, CLAIMS, INJURIES, PENALTIES AND THE LIKE RELATED TO SAME.
26. THE CONTRACTOR IS RESPONSIBLE FOR A MAINTAINING AND PROTECTING THE TRAFFIC CONTROL PLAN AND ELEMENTS IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REQUIREMENTS, FOR ALL WORK THAT AFFECTS PUBLIC TRAVEL EITHER IN THE RIGHT OF WAY OR ON SITE. THE COST FOR THIS ITEM MUST BE INCLUDED IN THE CONTRACTOR'S PRICE AND IS THE CONTRACTOR'S SOLE RESPONSIBILITY.
27. OWNER MUST MAINTAIN AND PRESERVE ALL PHYSICAL SITE FEATURES AND DESIGN FEATURES DEPICTED ON THE PLANS AND RELATED DOCUMENTS IN STRICT ACCORDANCE WITH THE APPROVED PLAN(S) AND DESIGN; AND, FURTHER, THE ENGINEER OF RECORD AND/OR BOHLER ENGINEERING ARE NOT RESPONSIBLE FOR ANY FAILURE TO SO MAINTAIN OR PRESERVE SITE AND/OR DESIGN FEATURES. IF OWNER FAILS TO MAINTAIN AND/OR PRESERVE ALL PHYSICAL SITE FEATURES AND/OR DESIGN FEATURES DEPICTED ON THE PLANS AND RELATED DOCUMENTS, OWNER AGREES TO INDEMNIFY AND HOLD THE ENGINEER OF RECORD AND BOHLER ENGINEERING PARTIES, HARMLESS FOR ALL INJURIES, DAMAGES AND COSTS THAT ENGINEER OF RECORD AND/OR BOHLER ENGINEERING INCUR AS A RESULT OF SAID FAILURE OR FAILURE TO PRESERVE.
28. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION ACTIVITIES AND MATERIALS COMPLY WITH AND CONFORM TO APPLICABLE FEDERAL, STATE AND LOCAL RULES AND REGULATIONS, LAWS, ORDINANCES, AND CODES, AND ALL APPLICABLE REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970, (29 U.S.C. 651 ET SEQ.) AS AMENDED, AND ANY MODIFICATIONS, AMENDMENTS OR REVISIONS TO SAME.
29. THE CONTRACTOR MUST STRICTLY COMPLY WITH THE LATEST AND CURRENT OSHA STANDARDS AND REGULATIONS, AND/OR ANY OTHER AGENCY WITH JURISDICTION OVER EXCAVATION AND TRENCHING PROCEDURES. ENGINEER OF RECORD AND BOHLER ENGINEERING HAS NO RESPONSIBILITY FOR OR AS RELATED TO EXCAVATION AND TRENCHING PROCEDURES AND WORK.
30. THE CONTRACTOR AND THE OWNER MUST INSTALL ALL ELEMENTS AND COMPONENTS IN STRICT COMPLIANCE WITH AND IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDED INSTALLATION CRITERIA AND SPECIFICATIONS. IF THE CONTRACTOR AND/OR OWNER FAIL TO DO SO, THEY AGREE TO JOINTLY, INDEPENDENTLY, SEPARATELY, COLLECTIVELY, AND SEVERALLY INDEMNIFY, DEFEND, PROTECT AND HOLD ENGINEER OF RECORD AND/OR BOHLER ENGINEERING PARTIES HARMLESS FOR ALL INJURIES AND DAMAGES THAT ENGINEER SUFFERS AND COSTS THAT ENGINEER INCURS AS A RESULT OF SAID FAILURE.
31. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN AN ON-SITE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN COMPLIANCE WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIREMENTS OR LOCAL GOVERNING AGENCY FOR SITES WHERE ONE (1) ACRE OR MORE IS DISTURBED BY CONSTRUCTION ACTIVITIES (UNLESS THE LOCAL JURISDICTION REQUIRES A DIFFERENT THRESHOLD). THE CONTRACTOR MUST ENSURE THAT ALL ACTIVITIES, INCLUDING THOSE OF ALL SUBCONTRACTORS, ARE IN COMPLIANCE WITH THE SWPPP, INCLUDING BUT NOT LIMITED TO LOGGING ACTIVITIES (MINIMUM ONCE PER WEEK AND AFTER RAINFALL EVENTS) AND CORRECTIVE MEASURES, AS APPROPRIATE AND FURTHER, THE CONTRACTOR IS SOLELY AND COMPLETELY RESPONSIBLE FOR FAILING TO DO SO.
32. AS CONTAINED IN THESE DRAWINGS AND ASSOCIATED DOCUMENTS PREPARED BY THE SIGNATORY PROFESSIONAL ENGINEER OF RECORD, THE USE OF THE WORDS 'CERTIFY' OR 'CERTIFICATION' CONSTITUTE(S) AN EXPRESSION ONLY OF PROFESSIONAL OPINION REGARDING THE INFORMATION WHICH IS THE SUBJECT OF THE ENGINEER OF RECORD'S KNOWLEDGE OR BELIEF AND IN ACCORDANCE WITH COMMON AND ACCEPTED PROCEDURE CONSISTENT WITH THE APPLICABLE STANDARDS OF PRACTICE, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE OF ANY NATURE OR TYPE, EITHER EXPRESSED OR IMPLIED, UNDER ANY CIRCUMSTANCES.

GENERAL INLET NOTES:

(G020001-03/12/12)

1. INLETS SHALL MEET H-25 LOADING.
2. INLETS MAY BE CONSTRUCTED OF BRICK, CONCRETE SOLID, CONCRETE BLOCK OR PRECAST CONCRETE. WALLS SHALL BE 8 INCHES THICK IF BRICK AND 6 INCHES THICK IF CONCRETE, CONCRETE BLOCK OR PRECAST CONCRETE. INLET FOUNDATIONS AND INVERTS SHALL BE CLASS B CONCRETE.
3. CORBELLING OF INLET WALLS WILL BE PERMITTED AT THE RATE OF ½ INCH PER 8 INCHES OF HEIGHT; MAXIMUM CORBEL 6 INCHES PER WALL.
4. EXCEPT FOR INLETS TYPE A AND C, FOUNDATIONS AND INVERTS SHALL BE CONSTRUCTED IN TWO STAGES, AND THE BOTTOM OF THE FOOTINGS SHALL BE 8 INCHES BELOW THE OUTER WALL OF THE LOWEST PIPE IN THE INLET.
5. WHEN THE DEPTH OF AN INLET THAT IS NOT PRECAST EXCEEDS 10 FEET AS MEASURED FROM TOP OF GRATE TO INVERT, WALLS BELOW A DEPTH OF 8 FEET SHALL BE 12 INCHES THICK AND THE DEPTH OF FOUNDATION INCREASED TO 12 INCHES, WHEN ROCK IS ENCOUNTERED, THE DEPTH OF THE FOUNDATIONS SHALL NOT BE INCREASED.
6. INLET FOUNDATIONS WHICH ARE PRECAST SHALL BE PLACED ON A 6 INCH THICK BED OF COMPACTED COARSE AGGREGATE SIZE NO. 57. THE COARSE AGGREGATE SHALL EXTEND 6 INCHES BEYOND THE HORIZONTAL LIMITS OF THE INLET FOUNDATION.
7. CASTINGS FOR PRECAST INLETS SHALL BE ADJUSTED TO GRADE WITH COURSES OF BRICK, AS REQUIRED, 12 INCHES MAXIMUM.
8. WHEN THE DEPTH OF A PRECAST INLET EXCEEDS 10 FEET AS MEASURED FROM TOP OF GRATE TO INVERT, THE FOUNDATION SHALL BE INCREASED TO 12 INCHES, WHEN ROCK IS ENCOUNTERED, THE DEPTH OF THE FOUNDATION SHALL NOT BE INCREASED.
9. MINIMUM WALL REINFORCEMENT FOR PRECAST INLETS TYPES A, B, C, E, D-1, AND B MODIFIED:

DEPTH BELOW TOP OF GRATE	HORIZONTAL REINF.	VERTICAL REINF.	WALL THK.
0' TO 10'-0"	#4 @ 10" C.C.	#4 @ 18" C.C.	6"
10'-1" TO 15'-0"	#4 @ 8" C.C.	#4 @ 18" C.C.	6"
15'-1" TO 20'-0"	#4 @ 6" C.C.	#4 @ 18" C.C.	6"

REINFORCING SHOWN FOR PRECAST INLETS IS THE MINIMUM REQUIRED. ADDITIONAL REINFORCING FOR HANDLING IS THE RESPONSIBILITY OF THE CONTRACTOR.

ALTERNATE REINFORCEMENT

DEPTH BELOW TOP OF GRATE
0' TO 10'-0" WWF 3X6 W6 WIRES SPACED AT 3" TO RUN HORIZONTAL IN ALL CASES.
10'1" TO 15'-0" WWF 3X6 W6 ADD #10 BAR @ 18" HORIZONTAL.
15'1" TO 20'-0" WWF 3X6 ADD #10 BAR @ 9" HORIZONTAL OR ADD #13 BAR AT 15" HORIZONTAL.

10. ALL INLETS AND MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND ITS AMENDMENTS.
11. FOR CAST IRON CLASS 30 B ONLY. ANY OTHER CLASS OF CAST IRON OR TYPE OF MATERIAL MUST BE ON THE BUREAU OF MATERIALS APPROVED PRODUCTS LIST OR NEW TECHNOLOGIES AND PRODUCTS APPROVED PRODUCTS LIST.
12. ALL PIPES SHALL EXTEND NO MORE THAN 1 INCH INTO THE STRUCTURE.
13. A 2500 PSI MIN. CONCRETE PIPE FLOW CHANNEL SHALL BE INSTALLED IN THE STRUCTURE BOTTOM AFTER ALL THE PIPES ARE INSTALLED. OR THE FLOW CHANNELS CAN BE PRECAST WITH THE BASE.

GRADING NOTES

(Rev. 1/2019)

1. THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS. THE GENERAL NOTES ARE REFERENCED HEREIN, AND THE CONTRACTOR MUST REFER TO THEM AND FULLY COMPLY WITH THESE NOTES, IN THEIR ENTIRETY. THE CONTRACTOR MUST BE FAMILIAR WITH AND ACKNOWLEDGE FAMILIARITY WITH ALL OF THE GENERAL NOTES AND ALL OF THE PLANS' SPECIFIC NOTES.
2. SITE GRADING MUST BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT AS REFERENCED IN THIS PLAN SET. IF NO GEOTECHNICAL REPORT HAS BEEN REFERENCED, THE CONTRACTOR MUST HAVE A GEOTECHNICAL ENGINEER PROVIDE WRITTEN SPECIFICATIONS AND RECOMMENDATIONS PRIOR TO THE CONTRACTOR COMMENCING THE GRADING WORK. THE CONTRACTOR MUST FOLLOW THE REQUIREMENTS OF ALL MUNICIPAL, COUNTY, STATE, AND FEDERAL LAWS WHICH HAVE JURISDICTION OVER THIS PROJECT.
3. THE CONTRACTOR IS REQUIRED TO SECURE ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS FOR ALL OFF-SITE MATERIAL SOURCES AND DISPOSAL FACILITIES. THE CONTRACTOR MUST SUPPLY A COPY OF APPROVALS TO THE ENGINEER OF RECORD AND THE OWNER PRIOR TO THE CONTRACTOR COMMENCING ANY WORK.
4. THE CONTRACTOR IS FULLY RESPONSIBLE FOR VERIFYING EXISTING TOPOGRAPHIC INFORMATION AND UTILITY INVERT ELEVATIONS PRIOR TO COMMENCING ANY CONSTRUCTION. SHOULD DISCREPANCIES BETWEEN THE PLANS AND INFORMATION OBTAINED THROUGH FIELD VERIFICATIONS BE IDENTIFIED OR EXIST, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE ENGINEER OF RECORD, IN WRITING.
5. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING AND REPLACING ALL UNSUITABLE MATERIALS WITH SUITABLE MATERIALS AS SPECIFIED IN THE GEOTECHNICAL REPORT. THE CONTRACTOR MUST COMPACT ALL EXCAVATED OR FILLED AREAS IN STRICT ACCORDANCE WITH THE GEOTECHNICAL ENGINEER'S GUIDANCE. MOISTURE CONTENT AT TIME OF PLACEMENT MUST BE SUBMITTED IN A COMPACTION REPORT PREPARED BY A QUALIFIED GEOTECHNICAL ENGINEER, REGISTERED WITH THE STATE WHERE THE WORK IS PERFORMED. THIS REPORT MUST VERIFY THAT ALL FILLED AREAS AND SUBGRADE AREAS WITHIN THE BUILDING PAD AREA AND AREAS TO BE PAVED HAVE BEEN COMPACTED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE GEOTECHNICAL REPORT AND ALL APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES WHICH ARE IN EFFECT AND WHICH ARE APPLICABLE TO THE PROJECT. SUBBASE MATERIAL FOR SIDEWALKS, CURB, OR ASPHALT MUST BE FREE OF ORGANICS AND OTHER UNSUITABLE MATERIALS. SHOULD SUBBASE BE DEEMED UNSUITABLE BY OWNER/DEVELOPER, OR OWNER/DEVELOPER'S REPRESENTATIVE, SUBBASE MUST BE REMOVED AND FILLED WITH APPROVED FILL MATERIAL, COMPACTED AS THE GEOTECHNICAL REPORT DIRECTS. EARTHWORK ACTIVITIES INCLUDING, BUT NOT LIMITED TO, EXCAVATION, BACKFILL, AND COMPACTING MUST COMPLY WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT AND ALL APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES. EARTHWORK ACTIVITIES MUST COMPLY WITH THE STANDARD STATE DOT SPECIFICATIONS FOR ROADWAY CONSTRUCTION (LATEST EDITION) AND ANY AMENDMENTS OR REVISIONS THERETO.
6. THE TOPS OF EXISTING MANHOLES, INLET STRUCTURES, AND SANITARY CLEANOUT TOPS MUST BE ADJUSTED, AS NECESSARY, TO MATCH PROPOSED FINISHED GRADES WITH NO TRIPPING OR SAFETY HAZARD IN ACCORDANCE WITH ALL APPLICABLE STANDARDS, REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES.
7. IN THE EVENT OF A DISCREPANCY(IES) AND/OR A CONFLICT(S) BETWEEN PLANS, OR RELATIVE TO OTHER PLANS, THE GRADING PLAN TAKES PRECEDENCE AND CONTROLS. THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE ENGINEER OF RECORD, IN WRITING, OF ANY DISCREPANCY(IES) AND/OR CONFLICT(S).
8. THE CONTRACTOR IS RESPONSIBLE TO IMPORT FILL OR EXPORT EXCESS MATERIAL AS NECESSARY TO CONFORM TO THE PROPOSED GRADING, AND TO BACKFILL EXCAVATIONS FOR THE INSTALLATION OF UNDERGROUND IMPROVEMENTS.
9. PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY 6" ABOVE PAVEMENT GRADE UNLESS OTHERWISE NOTED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE ENGINEER OF RECORD APPROVES FINAL CURBING CUT SHEETS PRIOR TO INSTALLING CURBING.
10. THE CONTRACTOR MUST CONFIRM AND ENSURE THAT AS CONSTRUCTED IMPROVEMENTS CREATE THE FOLLOWING MINIMUM SLOPES (EXCEPT WHERE ADA REQUIREMENTS LIMIT THEM): 1.0% ON ALL CONCRETE SURFACES, 1.5% ON ASPHALT SURFACES, 2% IN LANDSCAPED AREAS AND 0.75% SLOPE AGAINST ALL BUILDINGS, GUTTERS, AND CURBS TO PROVIDE POSITIVE DRAINAGE.
11. WHERE RETAINING WALLS (WHETHER OR NOT THEY MEET THE JURISDICTIONAL DEFINITION) ARE IDENTIFIED ON THE PLANS, TOP AND BOTTOM OF WALL ELEVATIONS (TW & BW) REPRESENT THE PROPOSED FINISHED GRADE AT THE FACE OF WALL AND DO NOT REPRESENT THE ELEVATION OF THE PROPOSED WALL (INCLUDING THE CAP UNIT OR FOOTING). WALL FOOTING/FOUNDATION ELEVATIONS WHICH ARE NOT IDENTIFIED HEREIN AND ARE TO BE DETERMINED BY THE CONTRACTOR, MUST BE DETERMINED AND SET BASED UPON FINAL STRUCTURAL DESIGN SHOP DRAWINGS PREPARED BY THE APPROPRIATE PROFESSIONAL LICENSED IN THE STATE WHERE THE CONSTRUCTION OCCURS. THE CONTRACTOR MUST ENSURE THAT LICENSED STRUCTURAL ENGINEER DESIGNS ALL WALLS SHOWN HEREON AND THAT PRIOR TO CONSTRUCTION, THE MUNICIPALITY APPROVES ALL SIGNED AND SEALED SHOP DRAWINGS. FURTHER, THE CONTRACTOR MUST ENSURE THAT FENCING, GUIDERAIL, UTILITIES, AND OTHER SITE AMENITIES IN THE VICINITY OF THE RETAINING WALL(S), PROPOSED SCHEMATICALLY IN THESE PLANS, ARE MATERIALLY CONSIDERED AND INCORPORATED INTO THE RETAINING WALL DESIGN (BY OTHERS).
12. THE CONTRACTOR MUST ENSURE THAT THERE ARE NO UTILITIES INSTALLED ON THE PASSIVE SIDE OF THE RETAINING WALL. NO EXCAVATION MAY BE PERFORMED ON THE PASSIVE SIDE OF THE RETAINING WALL WITHOUT APPROPRIATELY AND SAFELY SUPPORTING THE WALL IN ACCORDANCE WITH THE STANDARD OF CARE AND ALL APPLICABLE RULES, REGULATIONS, CODES, ORDINANCES, LAWS AND STATUTES.
13. FOR SINGLE AND TWO-FAMILY RESIDENTIAL PROJECTS WHERE THE PROPOSED DWELLING AND ADJACENT SPOT ELEVATION(S) ARE SCHEMATIC FOR GENERIC BUILDING FOOTPRINT, GRADES MUST BE ADJUSTED BASED ON FINAL ARCHITECTURAL PLANS TO PROVIDE A MINIMUM OF EIGHT (8) INCHES BELOW TOP OF BLOCK AND/OR EIGHT (8) INCHES BELOW SIDING, WHICHEVER IS LOWEST, AND MUST PROVIDE POSITIVE DRAINAGE (5% MIN.) AWAY FROM DWELLING. ALL CONSTRUCTION, INCLUDING GRADING, MUST COMPLY WITH THE MOST CURRENT LOCAL AND STATE BUILDING CODE AND ALL OTHER APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES.
14. WHERE BASEMENTS ARE TO BE PROVIDED FOR PROPOSED DWELLING UNITS, THE OWNER/DEVELOPER MUST, BY BORING OR BY TEST PIT, DETERMINE THE DEPTH TO GROUNDWATER AT THE LOCATION OF THE PROPOSED DWELLINGS. WHERE GROUNDWATER IS ENCOUNTERED IN THE BASEMENT AREA, BASEMENTS MUST NOT BE INSTALLED UNLESS THE CONTRACTOR USES AND APPLIES SPECIAL CONSTRUCTION METHODS, WHICH MUST BE REVIEWED AND APPROVED BY THE MUNICIPAL CONSTRUCTION CODE OFFICIAL, IN ADVANCE. IF AND WHERE SUMP PUMPS ARE INSTALLED, THE CONTRACTOR MUST COORDINATE WITH THE MUNICIPAL ENGINEER AND ENGINEER OF RECORD FOR THE DISCHARGE LOCATION, WHETHER ON-GRADE OR PIPED TO A STORM DRAINAGE SYSTEM.

DRAINAGE AND UTILITY NOTES

(Rev. 1/2019)

1. THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS. THE GENERAL NOTES ARE REFERENCED HEREIN, AND THE CONTRACTOR MUST REFER TO THEM AND FULLY COMPLY WITH THESE NOTES, IN THEIR ENTIRETY. THE CONTRACTOR MUST BE FAMILIAR WITH AND ACKNOWLEDGE FAMILIARITY WITH ALL OF THE GENERAL NOTES AND ALL OF THE PLANS' SPECIFIC NOTES.
2. LOCATIONS OF ALL EXISTING AND PROPOSED SERVICES ARE APPROXIMATE, AND THE CONTRACTOR MUST INDEPENDENTLY VERIFY AND CONFIRM THOSE LOCATIONS AND SERVICES WITH LOCAL UTILITY COMPANIES PRIOR TO COMMENCING ANY CONSTRUCTION OR EXCAVATION. THE CONTRACTOR MUST INDEPENDENTLY VERIFY AND CONFIRM ALL SANITARY CONNECTION POINTS AND ALL OTHER UTILITY SERVICE CONNECTION POINTS IN THE FIELD, PRIOR TO COMMENCING ANY CONSTRUCTION. THE CONTRACTOR MUST REPORT ALL DISCREPANCIES, ERRORS AND OMISSIONS IN WRITING, TO THE ENGINEER OF RECORD.
3. THE CONTRACTOR MUST VERTICALLY AND HORIZONTALLY LOCATE ALL UTILITIES AND SERVICES INCLUDING, BUT NOT LIMITED TO, GAS, WATER, ELECTRIC, SANITARY AND STORM, TELEPHONE, CABLE, FIBER OPTIC CABLE, ETC. WITHIN THE LIMITS OF DISTURBANCE OR WORK SPACE, WHICHEVER IS GREATER. THE CONTRACTOR MUST USE, REFER TO, AND COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE UTILITY NOTIFICATION SYSTEM TO LOCATE ALL OF THE UNDERGROUND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL DAMAGE TO ANY EXISTING UTILITIES WHICH OCCUR DURING CONSTRUCTION, AT NO COST TO THE OWNER AND AT CONTRACTOR'S SOLE COST AND EXPENSE. THE CONTRACTOR MUST BEAR ALL COSTS ASSOCIATED WITH DAMAGE TO ANY EXISTING UTILITIES WHICH OCCURS DURING CONSTRUCTION.
4. THE CONTRACTOR MUST FIELD VERIFY THE PROPOSED INTERFACE POINTS (CROSSINGS) WITH EXISTING UNDERGROUND UTILITIES BY USING A TEST PIT TO CONFIRM EXACT DEPTH, PRIOR TO COMMENCEMENT OF CONSTRUCTION.
5. STORMWATER ROOF DRAIN LOCATIONS ARE BASED ON ARCHITECTURAL PLANS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATIONS OF SAME BASED UPON FINAL ARCHITECTURAL PLANS.
6. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING SITE PLAN DOCUMENTS AND ARCHITECTURAL PLANS FOR EXACT BUILDING UTILITY CONNECTION LOCATIONS, GREASE TRAP REQUIREMENTS AND DETAILS, DOOR ACCESS, AND EXTERIOR GRADING. THE ARCHITECT WILL DETERMINE THE UTILITY SIZES. THE CONTRACTOR MUST COORDINATE THE INSTALLATION OF UTILITY SERVICES WITH THE INDIVIDUAL COMPANIES, TO AVOID CONFLICTS AND TO ENSURE THAT PROPER DEPTHS ARE ACHIEVED. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT INSTALLATION OF ALL IMPROVEMENTS COMPLIES WITH ALL UTILITY REQUIREMENTS OF THE APPLICABLE JURISDICTION AND REGULATORY AGENCIES AND ALL OTHER APPLICABLE REQUIREMENTS, RULES, STATUTES, LAWS, ORDINANCES AND CODES AND, FURTHER, IS RESPONSIBLE FOR COORDINATING THE UTILITY TIE-INS/CONNECTIONS PRIOR TO CONNECTING TO THE EXISTING UTILITY/SERVICE. WHERE A CONFLICT(S) EXISTS BETWEEN THESE DOCUMENTS AND THE ARCHITECTURAL PLANS, OR WHERE ARCHITECTURAL PLAN UTILITY CONNECTION POINTS DIFFER, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE ENGINEER OF RECORD, IN WRITING, AND PRIOR TO CONSTRUCTION, MUST RESOLVE SAME.
7. ALL FILL, COMPACTION, AND BACKFILL MATERIALS REQUIRED FOR UTILITY INSTALLATION MUST BE EXACTLY AS PER THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT AND THE CONTRACTOR MUST COORDINATE SAME WITH THE APPLICABLE UTILITY COMPANY SPECIFICATIONS. WHEN THE PROJECT DOES NOT HAVE GEOTECHNICAL RECOMMENDATIONS, FILL AND COMPACTION MUST, AT A MINIMUM, COMPLY WITH THE STATE DOT REQUIREMENTS AND SPECIFICATIONS AND CONSULTANT HAS NO LIABILITY OR RESPONSIBILITY FOR OR AS RELATED TO FILL, COMPACTION AND BACKFILL.
8. DURING THE INSTALLATION OF SANITARY, STORM, AND ALL UTILITIES, THE CONTRACTOR MUST MAINTAIN A CONTEMPORANEOUS AND THOROUGH RECORD OF CONSTRUCTION TO IDENTIFY THE AS-INSTALLED LOCATIONS OF ALL UNDERGROUND INFRASTRUCTURE. THE CONTRACTOR MUST CAREFULLY NOTE ANY INSTALLATIONS THAT DEVIATE, IN ANY RESPECT, FROM THE INFORMATION CONTAINED IN THESE PLANS. THIS RECORD MUST BE KEPT ON A CLEAN COPY OF THE SITE PLAN, WHICH THE CONTRACTOR MUST PROMPTLY PROVIDE TO THE OWNER IMMEDIATELY UPON THE COMPLETION OF WORK.
9. THE CONTRACTOR MUST ENSURE THAT ALL UTILITY TRENCHES LOCATED IN EXISTING PAVED ROADWAYS INCLUDING SANITARY, WATER AND STORM SYSTEMS, ARE REPAIRED IN ACCORDANCE WITH REFERENCED MUNICIPAL, COUNTY AND/OR STATE DOT DETAILS AS APPLICABLE. THE CONTRACTOR MUST COORDINATE INSPECTION AND APPROVAL OF COMPLETED WORK WITH THE AGENCY WITH JURISDICTION OVER SAME.
10. FINAL LOCATIONS OF PROPOSED UTILITY POLES, AND/ OR POLES TO BE RELOCATED ARE AT THE SOLE DISCRETION OF THE RESPECTIVE UTILITY COMPANY, REGARDLESS OF WHAT THIS PLAN DEPICTS.
11. WATER SERVICE MATERIALS, BURIAL DEPTH, AND COVER REQUIREMENTS MUST BE SPECIFIED BY THE LOCAL UTILITY COMPANY. THE CONTRACTOR MUST CONTACT THE APPLICABLE MUNICIPALITY TO CONFIRM THE PROPER WATER METER AND VAULT, PRIOR TO COMMENCING CONSTRUCTION.
12. THE CONTRACTOR'S PRICE FOR WATER SERVICE MUST INCLUDE ALL FEES, COSTS AND APPURTENANCES REQUIRED BY THE UTILITY TO PROVIDE FULL AND COMPLETE WORKING SERVICE.
13. SEWERS CONVEYING SANITARY FLOW, COMBINED SANITARY AND STORMWATER FLOW, OR INDUSTRIAL FLOW MUST BE SEPARATED FROM WATER MAINS BY A DISTANCE OF AT LEAST 10 FEET HORIZONTALLY. IF SUCH LATERAL SEPARATION IS NOT POSSIBLE, THE PIPES MUST BE IN SEPARATE TRENCHES WITH THE AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN, OR SUCH OTHER SEPARATION AS APPROVED BY THE GOVERNMENTAL AGENCY WITH JURISDICTION OVER SAME. WHERE APPROPRIATE SEPARATION FROM A WATER MAIN IS NOT POSSIBLE, THE SEWER MUST BE ENCASED IN CONCRETE, OR CONSTRUCTED OF DUCTILE IRON PIPE USING MECHANICAL OR SLIP-ON JOINTS FOR A DISTANCE OF AT LEAST 10 FEET ON EITHER SIDE OF THE CROSSING. IN ADDITION, ONE FULL LENGTH OF SEWER PIPE SHOULD BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE WATER LINE AS POSSIBLE. WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER MUST BE PROVIDED.
14. WHEN THESE PLANS INVOLVE MULTIPLE BUILDINGS, SOME OF WHICH MAY BE BUILT AT A LATER DATE, THE CONTRACTOR MUST EXTEND ALL LINES, INCLUDING BUT NOT LIMITED TO STORM, SANITARY, UTILITIES, AND IRRIGATION LINES, TO A POINT AT LEAST FIVE (5) FEET BEYOND THE PAVED AREAS FOR WHICH THE CONTRACTOR IS RESPONSIBLE. THE CONTRACTOR MUST CAP ENDS AS APPROPRIATE, MARK LOCATIONS WITH A 2X4 STAKE, AND MUST NOTE THE LOCATION OF ALL OF THE ABOVE ON A CLEAN COPY OF THE PLAN, WHICH THE CONTRACTOR MUST PROMPTLY PROVIDE TO THE OWNER IMMEDIATELY UPON THE COMPLETION OF WORK.
15. STORM AND SANITARY PIPE LENGTHS INDICATED ARE NOMINAL AND ARE MEASURED FROM CENTER OF INLET AND/OR MANHOLES STRUCTURE TO CENTER OF STRUCTURE.
16. THE CONTRACTOR MUST NOTIFY, IN WRITING, THE ENGINEER OF RECORD AT LEAST THREE (3) BUSINESS DAYS PRIOR TO INSTALLATION OF SANITARY COMPONENTS. FAILURE TO HAVE SANITARY INSTALLATION AND TESTING OBSERVED BY THE DESIGNATED ENGINEER MAY REQUIRE RE-EXCAVATION OF SANITARY LINE, AND RE-TESTING, WHICH WILL BE DONE AT THE CONTRACTOR'S SOLE COST AND EXPENSE.
17. SEWERS CROSSING STREAMS AND/OR LOCATION WITHIN 10 FEET OF THE STREAM EMBANKMENT, OR WHERE SITE CONDITIONS SO INDICATE, MUST BE CONSTRUCTED OF REINFORCED CONCRETE, DUCTILE IRON OR OTHER SUITABLE MATERIAL.
18. SANITARY PIPE MUST BE POLYVINYL CHLORIDE (PVC) SDR 35 EXCEPT WHERE CLEARLY INDICATED OTHERWISE.
    A. FOR PIPES LESS THAN 12 FEET DEEP: POLYVINYL CHLORIDE (PVC) SDR 35 PER ASTM D3034.
    B. FOR PIPES GREATER THAN 12 FEET DEEP: POLYVINYL CHLORIDE (PVC) SDR 26 PER ASTM D3034.
    C. SANITARY LATERAL MUST BE PVC SCHEDULE 40 OR PVC SDR 26 UNLESS CLEARLY INDICATED OTHERWISE.
19. UNLESS CLEARLY INDICATED OTHERWISE, ALL STORM PIPES MUST BE REINFORCED CONCRETE PIPES (RCP) CLASS III WITH SILT/SOIL TIGHT JOINTS. WHEN HIGH-DENSITY POLYETHYLENE PIPE (HDPE) IS CALLED FOR ON THE PLANS, IT MUST CONFORM TO AASHTO M252 FOR PIPES 4" TO 10" AND TO AASHTO M294 FOR PIPES 12" TO 60" AND TYPE S (SMOOTH INTERIOR WITH ANGULAR CORRUGATIONS) WITH GASKET FOR SILT/SOIL TIGHT JOINT. PIPE FOR ROOF DRAIN CONNECTION MUST BE HDPE SDR 26 OR PVC SCHEDULE 40 UNLESS INDICATED OTHERWISE. HDPE PIPE JOINT GASKETS MUST BE PROVIDED AND CONFORM TO ASTM F477.
20. WATER MAIN PIPING MUST BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE LOCAL WATER COMPANY. IN THE ABSENCE OF SUCH REQUIREMENTS, WATER MAIN PIPING MUST BE CEMENT-LINED DUCTILE IRON (DIP) MINIMUM CLASS 52 THICKNESS. ALL PIPE AND APPURTENANCES MUST COMPLY WITH THE APPLICABLE AWWA STANDARDS IN EFFECT AT THE TIME OF APPLICATION.
21. GAS METERS MUST BE PROTECTED BY BOLLARDS AND FENCES IF INSTALLED WITHIN THE EXTERIOR OF THE BUILDING AS REQUIRED BY THE JURISDICTIONAL GAS PURVEYOR.

LIGHTING NOTES

(Rev. 1/2019)

1. THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS. THE GENERAL NOTES ARE REFERENCED HEREIN, AND THE CONTRACTOR MUST REFER TO THEM AND FULLY COMPLY WITH THESE NOTES, IN THEIR ENTIRETY. THE CONTRACTOR MUST BE FAMILIAR WITH AND ACKNOWLEDGE FAMILIARITY WITH ALL OF THE GENERAL NOTES AND ALL OF THE PLANS' SPECIFIC NOTES.
2. THE LIGHTING CONTRACTOR MUST COMPLY WITH ALL APPLICABLE CONTRACTOR REQUIREMENTS INDICATED IN THE PLANS, INCLUDING BUT NOT LIMITED TO GENERAL NOTES, GRADING AND UTILITY NOTES, SITE SAFETY, AND ALL AGENCY AND GOVERNMENTAL REGULATIONS.
3. THIS LIGHTING PLAN DEPICTS PROPOSED, SUSTAINED ILLUMINATION LEVELS CALCULATED USING DATA PROVIDED BY THE NOTED MANUFACTURER. ACTUAL SUSTAINED SITE ILLUMINATION LEVELS AND PERFORMANCE OF LUMINAIRES MAY VARY DUE TO VARIATIONS IN WEATHER, ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, THE SERVICE LIFE OF EQUIPMENT AND LUMINAIRES AND OTHER RELATED VARIABLE FIELD CONDITIONS.
4. THE LIGHTING VALUES AND CALCULATION POINTS DEPICTED ON THIS PLAN ARE ALL ANALYZED ON A HORIZONTAL GEOMETRIC PLANE AT ELEVATION ZERO (GROUND LEVEL) UNLESS OTHERWISE NOTED. ILLUMINATION LEVELS ARE SHOWN IN FOOT-CANDLES.
5. THE LUMINAIRES, LAMPS AND LENSES MUST BE REGULARLY MAINTAINED TO ENSURE THAT THEY FUNCTION PROPERLY. THIS WORK MAY INCLUDE, BUT IS NOT LIMITED TO, VISUAL OBSERVATION, CLEANING OF LENSES, AND RE-LAMPING (IF NECESSARY) AT LEAST ONCE EVERY SIX (6) MONTHS, UPON COMPLETION AND OWNER'S ACCEPTANCE OF THE WORK ALL OF THE ABOVE OUTLINED AND DESCRIBED RESPONSIBILITIES SHALL BECOME SOLELY THE OWNER'S.
6. WHERE APPLICABLE, THE EXISTING CONDITION LIGHT LEVELS ILLUSTRATED ARE REPRESENTATIVE OF AN APPROXIMATION UTILIZING LABORATORY DATA FOR SIMILAR FIXTURES. UNLESS ACTUAL FIELD MEASUREMENTS ARE TAKEN WITH A LIGHT METER, DUE TO FACTORS SUCH AS FIXTURE MAINTENANCE, EQUIPMENT TOLERANCES, WEATHER CONDITIONS, ETC., ACTUAL LIGHT LEVELS MAY DIFFER. EXISTING LIGHT LEVELS DEPICTED ON THIS PLAN ARE TO BE CONSIDERED APPROXIMATE.
7. THIS LIGHTING PLAN IS INTENDED TO SHOW THE LOCATIONS AND TYPE OF LUMINAIRES. POWER SYSTEM, CONDUITS, WIRING AND OTHER ELECTRICAL COMPONENTS ARE SOLELY THE ARCHITECT'S, MECHANICAL ENGINEER'S AND/OR LIGHTING CONTRACTOR'S RESPONSIBILITY, AS INDICATED IN THE CONSTRUCTION CONTRACT DOCUMENTS. THESE ITEMS MUST BE INSTALLED AS REQUIRED BY STATE AND LOCAL REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF LIGHTING FIXTURES AND APPURTENANCES IN ACCORDANCE WITH ALL APPLICABLE BUILDING AND ELECTRICAL CODES.
8. THE CONTRACTOR MUST BRING IMMEDIATELY, IN WRITING, ANY LIGHT LOCATIONS THAT CONFLICT WITH DRAINAGE, UTILITIES, OR OTHER STRUCTURE(S) TO THE ENGINEER OF RECORD'S ATTENTION, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
9. THE LIGHTING CONTRACTOR MUST COORDINATE WITH THE PROJECT ARCHITECT REGARDING ANY AND ALL POWERS SOURCE FROM WITHIN THE BUILDING, AND TIMING DEVICES NECESSARY TO MEET THE DESIGN INTENT.
10. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT SHIELDING AND OR ROTATED OPTICS ARE INSTALLED AS INDICATED ON THE PLAN IN ORDER TO ACHIEVE THE LIGHTING LEVELS THE REVIEWING AGENCY APPROVED.
11. ILLUMINATION LEVELS SHOWN ON THIS PLAN WERE CALCULATED WITH LIGHTING DESIGN SOFTWARE AGI32 BY LIGHTING ANALYST.
12. THE LIGHT LOSS FACTORS USED IN THESE LIGHTING CALCULATIONS ARE 0.90 FOR ALL LED LUMINAIRES, 0.80 FOR ALL HIGH-PRESSURE SODIUM LUMINAIRES AND 0.72 FOR ALL METAL HALIDE LUMINAIRES UNLESS OTHERWISE SPECIFIED. THESE FACTORS ARE INDICATIVE OF CUSTOMARY LIGHTING INDUSTRY MODELING STANDARDS.
13. ILLUMINATION LEVELS ON THE LIGHTING PLAN HAVE BEEN CALCULATED FOR PROPOSED LIGHTS ONLY. ACTUAL ILLUMINATION LEVELS IN THE FIELD MAY DIFFER FROM THOSE DEPICTED ON THE PLAN DUE TO INTERFERENCE FROM EXISTING/AMBIENT LIGHTING WHOSE ILLUMINATION LEVELS ARE NOT REFLECTED ON THIS PLAN.
14. ATM LIGHTING NOTE:
    BASED ON THE REGULATORY LIGHTING LEVELS INTENDED BY PUBLISHED STANDARDS FOR BANK ATM'S (N.J.S.A. 17:16K-10), A MINIMUM OF 10 FOOT-CANDLES AT 3 FEET ABOVE GRADE MUST BE PROVIDED AT THE FACE OF AN UNENCLOSED ATM AND EXTENDING IN AN UNOBSTRUCTED DIRECTION OUTWARD 5 FEET, A MINIMUM OF 2 FOOT-CANDLES AT 3 FEET ABOVE GRADE MUST BE PROVIDED WITHIN 50 FEET IN ALL UNOBSTRUCTED DIRECTIONS FROM THE FACE OF THE ATM OR THE ENTRANCE OF AN ATM FACILITY. IN THE EVENT ANY SUCH ATM OR ATM FACILITY IS LOCATED WITHIN 10 FEET OF THE CORNER OF THE BUILDING IN WHICH IT IS LOCATED AND THE ATM OR ATM FACILITY IS GENERALLY ACCESSIBLE FROM THE ADJACENT SIDE OF SUCH BUILDING, THERE MUST BE A MINIMUM OF 2 FOOT-CANDLES AT 3 FEET ABOVE GRADE ALONG THE FIRST 40 UNOBSTRUCTED FEET OF THE ADJACENT SIDE OF THE BUILDING, MEASURED FROM THE CORNER. A MINIMUM OF 2 FOOT-CANDLES AT 3 FEET ABOVE GRADE MUST BE PROVIDED IN THAT PORTION OF THE DEFINED PARKING AREA WITHIN 60 FEET OF AN ATM OR THE ENTRANCE TO AN ATM FACILITY.

ABOVE GROUND DETENTION BASIN MAINTENANCE NOTES

(Rev. 1/2019)

1. STORM WATER MANAGEMENT FACILITIES SHALL BE REGULARLY MAINTAINED TO INSURE THEY FUNCTION AT DESIGN CAPACITY AND TO PREVENT HEALTH HAZARDS ASSOCIATED WITH DEBRIS BUILDUP AND STAGNANT WATER. THE PRIVATELY OWNED PORTION OF THE SYSTEM MUST BE PRIVATELY MAINTAINED.
2. RESPONSIBILITY FOR OPERATION AND MAINTENANCE OF STORM WATER FACILITIES, INCLUDING PERIODIC REMOVAL AND DISPOSAL OF ACCUMULATED PARTICULATE MATERIAL AND DEBRIS, BUT NOT LIMITED TO THE FOLLOWING: VISUAL INSPECTION OF ALL SYSTEM COMPONENTS AT LEAST TWICE EACH YEAR; VACUUMING OF ALL STORM SEWER INLETS ONCE EVERY SIX MONTHS (FREQUENCY OF VACUUMING MAY BE ADJUSTED TO ONCE A YEAR IF FIRST YEAR MAINTENANCE RECORDS INDICATE THAT SEDIMENT AND DEBRIS ACCUMULATION IS INSIGNIFICANT); REVERSE FLUSHING AND VACUUMING IF SYSTEM INSPECTIONS INDICATE SIGNIFICANT ACCUMULATION OF SEDIMENT IN THE PIPES; AND PERIODIC REMOVAL AND DISPOSAL OF OTHER MATERIAL AND DEBRIS, SHALL REMAIN WITH THE OWNER OR OWNERS OF THE PROPERTY, WITH PERMANENT ARRANGEMENTS THAT IS SHALL PASS TO ANY SUCCESSIVE OWNER, UNLESS ASSUMED BY A GOVERNMENTAL AGENCY.
3. IN THE EVENT THAT THE FACILITY BECOMES A DANGER TO PUBLIC SAFETY OR PUBLIC HEALTH, OR IF IT IS IN NEED OF MAINTENANCE, THE OWNER SHALL EFFECT SUCH MAINTENANCE AND REPAIR OF THE FACILITY IN A MANNER THAT IS APPROVED BY THE TOWNSHIP ENGINEER OR HIS DESIGNEE. IF THE OWNER FAILS OR REFUSES TO PERFORM SUCH MAINTENANCE AND REPAIR, THE MUNICIPALITY MAY IMMEDIATELY PROCEED TO DO SO AND SHALL BILL THE COST THEREOF TO THE OWNER.

INFILTRATION BASIN CONSTRUCTION NOTES

(Rev. 1/2019)

1. TO AVOID SEDIMENTATION THAT MAY RESULT IN CLOGGING AND REDUCE THE BASIN'S PERMEABILITY RATE, THE INFILTRATION BASIN(S) SHALL BE CONSTRUCTED WITHOUT THE USE OF HEAVY EQUIPMENT AND ACCORDING TO THE FOLLOWING RECOMMENDED SEQUENCES:
   A. TO THE GREATEST EXTENT PRACTICAL, WORK SHOULD BE SCHEDULED SO THAT THE BOTTOM AND SIDEWALLS OF THE BASIN EXCAVATION WILL NOT BE EXPOSED TO RAINFALL AND/OR WIND-BLOWN SILT BETWEEN THE TIME OF EXCAVATION AND THE TIME OF FINAL INSPECTION AND APPLICATION OF STABILIZATION METHOD. ANY LOOSE SOIL OR DEBRIS WHICH IS WASHED INTO OR OTHERWISE DEPOSITED WITHIN THE EXCAVATION AS A RESULT OF THE EXCAVATION REMAINING OPEN TO THE ELEMENTS SHALL BE CAREFULLY REMOVED PRIOR TO STABILIZATION METHOD.
   B. THE INFILTRATION BASIN SHALL NOT BE PLACED INTO OPERATION UNTIL ITS DRAINAGE AREA IS COMPLETELY STABILIZED. PRIOR TO STABILIZATION, UPSTREAM RUNOFF SHALL BE DIVERTED AROUND THE BASIN AND INTO SEPARATE, TEMPORARY STORMWATER MANAGEMENT FACILITIES AND SEDIMENT BASINS. SUCH TEMPORARY FACILITIES AND BASINS SHALL BE INSTALLED AND UTILIZED FOR STORMWATER MANAGEMENT AND SEDIMENT CONTROL UNTIL STABILIZATION IS ACHIEVED IN ACCORDANCE WITH THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY, AS AMENDED AND SUPPLEMENTED, WHICH IS INCORPORATED HEREIN BY REFERENCE.
   C. IF FOR PRACTICAL REASONS, TEMPORARY STORMWATER MANAGEMENT FACILITIES AND SEDIMENT BASINS CANNOT BE CONSTRUCTED ON THE SITE, THE INFILTRATION BASIN MAY BE PLACED INTO OPERATION PRIOR TO THE COMPLETE STABILIZATION OF ITS DRAINAGE AREA PROVIDED THAT THE BASIN'S BOTTOM DURING THIS PERIOD IS CONSTRUCTED AT A DEPTH AT LEAST TWO (2) FEET HIGHER THAN ITS FINAL DESIGN ELEVATION. WHEN THE DRAINAGE AREA IS COMPLETELY STABILIZED, ALL ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE INFILTRATION BASIN, WHICH SHALL THEN BE EXCAVATED TO ITS FINAL DESIGN ELEVATION IN ACCORDANCE WITH THE CONSTRUCTION REQUIREMENTS OF THIS SECTION.
   D. TO AVOID COMPACTION OF SUBGRADE SOILS, NO HEAVY EQUIPMENT SUCH AS HEAVY BACKHOES, DUMP TRUCKS OR BULLDOZERS SHALL BE PERMITTED TO OPERATE WITHIN THE INFILTRATION AREA OF THE BASIN. ALL EXCAVATION REQUIRED TO CONSTRUCT A STORMWATER INFILTRATION BASIN SHALL BE PERFORMED BY EQUIPMENT PLACED OUTSIDE THE BASIN BOTTOM/INFILTRATION AREA. IF THIS IS NOT POSSIBLE, THE SOILS WITHIN THE EXCAVATED AREA SHALL BE RENOVATED AND TILLED AFTER CONSTRUCTION IS COMPLETED TO REVERSE THE EFFECTS OF COMPACTION.
   E. ANY SMEARED OR COMPACTED SOIL SURFACES WHICH HAVE BEEN PRODUCED ON THE BOTTOM OR SIDEWALLS OF THE EXCAVATION SHALL BE REMOVED TO EXPOSE A FRESH SOIL SURFACE WHICH IS ROUGH AND UNEVEN.
2. WHERE FILL MATERIAL IS PROPOSED WITHIN THE BASIN COMPACTION MAY BE REQUIRED AND SHALL BE CARRIED OUT IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:
   A. COMPACTION OF FILL SHALL BE CARRIED OUT UNDER THE OBSERVATION OF A PROFESSIONAL ENGINEER WITH EXPERTISE IN THE GEOTECHNICAL FIELD, AND AS INDICATED ON THE APPROVED ENGINEERING DESIGN.
   B. BASED UPON A FINAL REVIEW OF COMPACTION TESTING RESULTS, A PROFESSIONAL ENGINEER, WITH EXPERTISE IN THE GEOTECHNICAL FIELD, WILL DETERMINE THAT COMPACTION OF THE FILL HAS BEEN PERFORMED IN SUBSTANTIAL COMPLIANCE WITH THE TECHNICAL SPECIFICATIONS TO PREVENT EXCESSIVE SETTLEMENT OR SIGNIFICANT DIFFERENTIAL SETTLEMENT.
   C. FILL MATERIAL SHALL BE SPREAD AND COMPACTED IN LAYERS EIGHT (8) INCHES OR LESS IN THICKNESS.
   D. COMPACTION MAY BE ACCOMPLISHED MANUALLY OR MECHANICALLY, BY TAMPING OR ROLLING, OR BY DRIVING OVER THE FILLED AREA IN A CONTROLLED PATTERN USING TRACKED OR RUBBER-TIRED VEHICLES. COMPACTION OF COHESIONLESS SOILS MAY ALSO BE ACCOMPLISHED BY PUDDLING.
   E. THE LEVEL OF COMPACTION IS TO BE VERIFIED BY AN INDEPENDENT TESTING FIRM UNDER CONTRACT TO THE OWNER. THE OWNER WILL PAY THE COST OF INITIAL TESTING. AREAS THAT DO NOT MEET THE COMPACTION REQUIREMENTS MUST BE REWORKED IN ORDER TO MEET THE DENSITY AND PERMEABILITY REQUIREMENTS. THESE AREAS SHALL THEN TO BE RETESTED. ALL RE-TESTING, AS NECESSARY TO DEMONSTRATE COMPLIANCE WITH THE DESIGN, WILL BE PERFORMED BY THE INDEPENDENT TESTING COMPANY UNDER CONTRACT WITH THE OWNER, WITH THE COST OF SUCH RETESTING TO BE DEDUCTED FROM THE CONSTRUCTION CONTRACT PRICE.
   F. WHEN HEAVY EXCAVATING EQUIPMENT IS OPERATED WITHIN THE EXCAVATION FOR THE PURPOSE OF PLACEMENT OF COMPACTION OF THE FILL MATERIAL, THIS EQUIPMENT SHALL NOT BE DRIVEN DIRECTLY ON THE EXPOSED BOTTOM OF THE INFILTRATIVE SURFACE. A MINIMUM OF ONE FOOT OF FILL MATERIAL SHALL BE MAINTAINED BELOW THE VEHICLE TRACKS OR WHEELS AT ALL TIMES.
3. AFTER ALL CONSTRUCTION ACTIVITIES AND REQUIRED FIELD TESTING HAVE BEEN COMPLETED ON THE DEVELOPMENT SITE, A RECORD OF CONSTRUCTION PLAN DEPICTING THE AS CONSTRUCTED INFILTRATION AREA, BASIN CONTOURS, AND ELEVATIONS OF ALL STORMWATER MANAGEMENT MEASURES SHALL BE PREPARED BY A LICENSED PROFESSIONAL LAND SURVEYOR.

INFILTRATION/DETENTION BASIN PERMEABILITY TESTING REQUIREMENTS

(Rev. 1/2019)

AFTER THE INFILTRATION DETENTION BASIN SUBGRADE HAS BEEN ESTABLISHED AND AFTER THE FINISHED GRADE HAS BEEN ESTABLISHED IN THE INFILTRATION DETENTION BASIN, POST- CONSTRUCTION FIELD PERMEABILITY TESTS SHALL BE CONDUCTED. THE FIELD PERMEABILITY TESTS SHALL BE CONDUCTED ACCORDING TO THE METHODOLOGIES PROVIDED IN THIS NOTE. PERMEABILITY TESTS SHALL BE CONDUCTED BY THE GEOTECHNICAL ENGINEER OF RECORD OR HIS REPRESENTATIVE WITHIN THE FOOTPRINT OF THE PROPOSED INFILTRATION DETENTION BASIN TO DETERMINE THE SUITABILITY OF THE IN-PLACE SOIL AT THE SITE. SOIL PERMEABILITY TESTS SHALL BE CONDUCTED ON THE SUBSTRATUM TO BE LEFT IN PLACE BELOW THE BASIN WITHIN TWO FEET OF THE LOWEST ELEVATION OF THE BASIN BOTTOM. WHERE SOIL REPLACEMENT IS PROPOSED, THE PERMEABILITY TESTS SHALL BE CONDUCTED WITHIN THE SOIL IMMEDIATELY BELOW THE DEPTH OF PROPOSED SOIL REPLACEMENT LAYER.

A MINIMUM OF TWO (2) PERMEABILITY TESTS SHALL BE PERFORMED, AND THE SOIL PERMEABILITY RATE SHALL BE DETERMINED USING TEST METHODOLOGY AS PRESCRIBED IN N.J.A.C. 7:9A-6.2 (TUBE PERMEAMETER TEST), 6.5 (PIT BAILING TEST) OR 6.6 (PIEZOMETER TEST). WHEN THE TUBE PERMEAMETER TEST IS USED, A MINIMUM OF TWO REPLICATE SAMPLES SHALL BE TAKEN AND TESTED. ALTERNATIVE PERMEABILITY TEST PROCEDURES MAY BE ACCEPTED BY THE APPROVING AUTHORITY PROVIDED THE TEST PROCEDURE ATTAINS SATURATION OF SURROUNDING SOILS, ACCOUNTS FOR HYDRAULIC HEAD EFFECTS ON INFILTRATION RATES, PROVIDES A PERMEABILITY RATE WITH UNITS EXPRESSED IN INCHES PER HOUR AND IS ACCOMPANIED BY A PUBLISHED SOURCE REFERENCE. EXAMPLES OF SUITABLE SOURCES INCLUDE HYDROGEOLOGY, GEOTECHNICAL OR ENGINEERING TEXT AND DESIGN MANUALS, PROCEEDINGS OF AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) SYMPOSIA, OR PEER-REVIEW JOURNALS. NEITHER A SOIL PERMEABILITY CLASS RATING TEST, AS DESCRIBED IN N.J.A.C. 7:9A-6.3, NOR A PERCOLATION TEST, AS DESCRIBED IN N.J.A.C. 7:9A-6.4, ARE ACCEPTABLE TESTS FOR ESTABLISHING PERMEABILITY VALUES FOR THE PURPOSE OF COMPLYING WITH THIS NOTE.

IF THE AVERAGE TEST RESULTS OF THE POST-DEVELOPMENT FIELD PERMEABILITY TESTS FAIL TO ACHIEVE THE MINIMUM REQUIRED DESIGN PERMEABILITY RATES, THE STORMWATER INFILTRATION DETENTION BASIN BOTTOM SOILS SHALL BE RENOVATED BY THE CONTRACTOR BY THE GEOTECHNICAL ENGINEER OF RECORD AND RE-TESTED UNTIL SUCH MINIMUM REQUIRED DESIGN PERMEABILITY RATES ARE ACHIEVED.

GROUND SIGNS

ITEM	TOMS RIVER TOWNSHIP PERMITTED	TOMS RIVER TOWNSHIP PROPOSED	MANCHESTER TOWNSHIP PERMITTED	MANCHESTER TOWNSHIP PROPOSED
MAX. NUMBER OF SIGNS	3 (1 PER ESTABLISHMENT)	2	2	1
MAX. SIGN AREA	25 SF	25 SF	100 SF	100 SF
MIN. SIGN SETBACK	10'	10'	50' (½ OF FRONT YARD SETBACK)	50'
MAX. HEIGHT ABOVE GRADE	16'	16'	22'	22'

GENERAL NOTES:

1. THIS PLAN REFERENCES BOUNDARY & TOPOGRAPHIC SURVEY PREPARED BY CONTROL POINT ASSOCIATES, INC., DATED: 4/21/2004, LAST REVISED 2/8/2012.
2. ZONING DATA: ZONE: RHB (RURAL HIGHWAY BUSINESS) - TOMS RIVER
   ZONE: HD-3 (HIGHWAY DEVELOPMENT) - MANCHESTER
   TOWNSHIPS OF TOMS RIVER & MANCHESTER, OCEAN COUNTY, NEW JERSEY
   TOMS RIVER: SHOPPING CENTER AND RESTAURANTS ARE PERMITTED USES
   MANCHESTER: GENERAL MERCHANDISE STORES AND RESTAURANTS ARE PERMITTED USES
3. BULK REQUIREMENTS

REQUIREMENT	HD-3 ZONE (MANCHESTER) [35-32.2]	PROPOSED - MANCHESTER BLOCK 44, LOT 2.01 (CURRENT LOTS 2, 3, & 5)	EXISTING - MANCHESTER BLOCK 44, LOT 9	RHB ZONE (TOMS RIVER) [348-10.27 E]	PROPOSED - TOMS RIVER BLOCK 505, LOT 14.01 (CURRENT LOTS 14 & 15)	PROPOSED OVERALL TRACT
MINIMUM LOT AREA	3 ACRES	25.3 AC (1,103,744 SF) (1)	29.3 AC (1,276,177 SF) (1)	1 ACRE	17.5 AC (761,220 SF) (1)	71.7 AC (3,141,141 SF) (1)
MINIMUM LOT WIDTH	300'	852.98'	421.67'	150'	572.83'	1,077.01'
MINIMUM LOT FRONTAGE						
N.J.S.H. ROUTE 37	300'	561.32'	975.32'	150'	561.96'	1,064.95'
NORTHAMPTON BLVD.	300'	N/A	N/A	150'	665.55'	665.05'
MINIMUM LOT DEPTH	N/S	1,058.18'	1,487.21'	200'	1,065.12'	1,058.18'
MINIMUM FRONT YARD SETBACK	100'	N/A	N/A	100'	[illegible]	[illegible]
MINIMUM SIDE YARD SETBACK	50' (60' TO RESIDENTIAL)	N/A	N/A	20'	118.9'	118.9'
MINIMUM TOTAL SIDE YARDS SETBACK	N/S	N/A	N/A	50'	252.9'	252.9'
MINIMUM REAR YARD SETBACK	50' (60' TO RESIDENTIAL)	N/A	N/A	30'	335.1'	335.1'
MAXIMUM BUILDING HEIGHT	35'	N/A	N/A	40'	35'	35'
MAXIMUM BUILDING COVERAGE	18%	N/A	N/A	80% (3)	12.5% (95,397 SF)	3.0% (95,397 SF)
MAXIMUM IMPERVIOUS COVERAGE	18%	0%	N/A	N/S	47.7% (363,153 SF)	11.6% (363,153 SF)
CAFRA IMPERVIOUS LOT COVERAGE	30%	–	–	30%	–	23.8%
MINIMUM FLOOR AREA	15,000 SF	N/A	N/A	N/S	N/A	N/A
MINIMUM IMPROVABLE LOT AREA	40,000 SF	>40,000 SF	>40,000 SF	N/S	N/A	N/A
MAXIMUM SITE IMPROVEMENT RATIO	0.18	0.00 (5)	0.00	N/S	N/A	N/A
MINIMUM UNOCCUPIED OPEN SPACE	N/S	N/A	N/A	25%	52.3% (398,067 SF)	N/A

(V) = VARIANCE (N/S) = NOT SPECIFIED (N/A) = NOT APPLICABLE (W) = WAIVER

(1) = ACCOUNTS FOR LOT CONSOLIDATION AND PARCEL #83 (1,893 SF) TO BE ACQUIRED
(2) = AS DETERMINED BY AN UNOCCUPIED, GRASSED, WOODED OR LANDSCAPED AREA OPEN TO THE SKY ON THE SAME LOT WITH A PRINCIPAL AND/OR ACCESSORY BUILDING. IMPROVED SIDEWALKS, PAVED PATHS OR OTHER PEDESTRIAN WAYS WITHIN AN UNOCCUPIED OPEN SPACE AREA, WHICH EXCEED FOUR FEET IN WIDTH, SHALL BE DEDUCTED IN DETERMINING THE UNOCCUPIED OPEN SPACE AREA. PARKING AREA OR TRAFFIC CHANNELIZATION ISLANDS WHICH ARE NOT LANDSCAPED OR WHICH HAVE AN AREA LESS THAN 350 SF SHALL NOT BE CONSIDERED AS UNOCCUPIED OPEN SPACE.
(3) = MAXIMUM BUILDING LOT COVERAGE OF 80% IS EXTENDED BY THE PERMIT EXTENSION ACT OF 2008.
(4) = CAFRA IMPERVIOUS COVERAGE CALCULATED BASED ON THE NET UPLAND AREA (1,523,905 SF) AND THE IMPERVIOUS COVERAGE (363,153 SF) ON THE NET UPLAND AREA IN ACCORDANCE WITH NJAC 7:7-13.3.
(5) = EXCLUDES WETLANDS AND WETLAND TRANSITION AREAS FROM CALCULATION.

4. PARKING REQUIREMENTS:

MINIMUM PARKING AND AISLE SETBACK [348-10.27(E)(5)]
- TOMS RIVER: 35' REQUIRED — 11.4' PROPOSED (@ TOWNSHIP BOUNDARY) (V)
- MANCHESTER: 20' REQUIRED TO R.O.W. OR ROAD EASEMENT — N/A
  - 25' REQUIRED (1/2 OF REAR YARD) TO REAR PROPERTY LINE [35-29.4B] — N/A
  - 12.5' REQUIRED (1/4 OF SIDE YARD) TO SIDE PROPERTY LINE [35-29.4B] — N/A
  - 40' REQUIRED (TO RESIDENTIAL ZONE) [35-29.4C] — N/A

MINIMUM AISLE WIDTH
- TOMS RIVER: 24' WIDTH REQUIRED [348-8.20C] — 24' PROPOSED
- MANCHESTER: 24' WIDTH REQUIRED — N/A

MINIMUM ISLAND WIDTH [348-8.20(A)(6)]
- TOMS RIVER: 10' MIN WIDTH REQUIRED SEPARATING STALL FROM CIRCULATION AND ENTRANCE / EXIT DRIVES — 6' WIDTH PROPOSED (W)

MINIMUM DRIVEWAY SEPARATION [35-29.7]
- MANCHESTER: 100' MIN SEPARATION REQUIRED FROM PROPERTY LINE — N/A

MINIMUM LANDSCAPE ISLANDS [348-8.20(A)]
- TOMS RIVER: A 10' WIDE LANDSCAPE STRIP SHALL BE PROVIDED TO SEPARATE EVERY 50 SPACES — NONE PROPOSED (W)

MINIMUM SPACE SIZE:
- TOMS RIVER: 9' x 18' REQUIRED [348-8.20B(1)] — 9' x 18' PROPOSED
- MANCHESTER: 10' x 20' REQUIRED [35-29.3A] — N/A
- ADA ACCESSIBLE
  - TOMS RIVER: 12' x 18' REQUIRED [348-8.20B(1)] — 12' x 18' WITH ACCESSIBLE AISLE PROPOSED
  - MANCHESTER: 12' x 20' REQUIRED [245-28.C(3)] — N/A

MINIMUM REQUIRED SPACES:
- TOMS RIVER: 1 PER 250 4.0 / 1,000 SF GFA (TO NEAREST WHOLE NUMBER) (95,158/250) = 381 SPACES REQUIRED [348-8.29 O] — 568 SPACES PROPOSED
- MANCHESTER: 1 FOR EVERY 4 CUSTOMER SEATS AND 1 FOR EVERY EMPLOYEE [245-28.B] — 0 SPACES PROPOSED
- 568 TOTAL SPACES PROPOSED

TOTAL MINIMUM HANDICAP SPACES REQUIRED:
- TOMS RIVER: 2% OF TOTAL = 11.18 (12) SPACES [348-8.38B] — 18 SPACES PROPOSED
- MANCHESTER: N/A — N/A

5. LOADING REQUIREMENTS:
   MINIMUM SETBACK:
   - TOMS RIVER: NO LOADING SPACES IN FRONT YARD [348-8.19E] — COMPLIES
   - MANCHESTER: NOT SPECIFIED — N/A
   MINIMUM SPACE SIZE:
   - TOMS RIVER: 12' x 35' w/ 14' VERTICAL CLEARANCE REQUIRED [348-8.19E] — 12' x 60' PROPOSED
   - MANCHESTER: 12' x 35' w/ 14' VERTICAL CLEARANCE REQUIRED [245-28.E(1)] — N/A
   MINIMUM REQUIRED SPACES:
   - TOMS RIVER: 1 SPACE FOR BUILDINGS OVER 10,000 SF PLUS ADDITIONAL SPACES TO BE DETERMINED BY THE TOWNSHIP [348-8.19E] — 8 SPACES PROPOSED
   - MANCHESTER: 1 SPACE FOR BUILDINGS OVER 10,000 SF PLUS ADDITIONAL SPACES TO BE DETERMINED BY THE TOWNSHIP [245-28.E(1)] — N/A
6. FENCES:
   - TOMS RIVER: HEIGHT IN FRONT YARD - 4' [348-8.13A] — N/A
     - HEIGHT IN SIDE/REAR YARD - 6' [348-8.13A] — 4'
     - HEIGHT BETWEEN STREET & BUILDING - 30" [291-3] — N/A
     - HEIGHT OF FENCE - 72" [291-4] — 4'
   - MANCHESTER: HEIGHT IN FRONT YARD - 4' [35-31.4] — N/A
     - HEIGHT IN SIDE/REAR YARD - 6' [35-31.4] — N/A
7. PAVEMENT SECTION:
   - TOMS RIVER: PAVEMENT SECTION FOR ASPHALT - 1.5"-2"-6" [348-8.20H] — 1.5"-2"-6" PROPOSED
   - MANCHESTER: BASE COURSE FOR ASPHALT - 3.5" [35-85.14] — N/A
     - THICKNESS FOR CONCRETE - 6" [35-85.14] — N/A
8. DEAD END PARKING:
   - TOMS RIVER: DEAD END PARKING CIRCULATION - PROHIBITED [348-8.20-J(7)] — N/A
   - MANCHESTER: DEAD END PARKING CIRCULATION - N/S — N/A
9. SIDEWALK/CURBING:
   - TOMS RIVER: SIDEWALK AND CURBING ALONG STREET FRONTAGE REQUIRED AS A CONDITION OF APPROVAL [348-8.25-G(1)] — NONE PROPOSED (W)
   - MANCHESTER: SIDEWALK AND CURBING ALONG STREET FRONTAGE - N/S — N/A

ACCESSIBILITY DESIGN GUIDELINES

(Rev. 1/2019)

1. ALL ACCESSIBLE (A.K.A. ADA) COMPONENTS AND ACCESSIBLE ROUTES MUST BE CONSTRUCTED TO MEET, AT A MINIMUM, THE MORE STRINGENT OF: (A) THE REQUIREMENTS OF THE "AMERICANS WITH DISABILITIES ACT" (ADA) CODE (42 U.S.C. § 12101 ET SEQ. AND 42 U.S.C. § 4151 ET SEQ.); AND (B) ANY APPLICABLE LOCAL AND STATE GUIDELINES, AND ANY AND ALL AMENDMENTS TO BOTH, WHICH ARE IN EFFECT WHEN THESE PLANS WERE COMPLETED.
2. THE CONTRACTOR MUST REVIEW ALL DOCUMENTS REFERENCED IN THESE NOTES FOR ACCURACY, COMPLIANCE AND CONSISTENCY WITH INDUSTRY GUIDELINES.
3. THE CONTRACTOR MUST EXERCISE APPROPRIATE CARE AND PRECISION IN CONSTRUCTION OF ACCESSIBLE (ADA) COMPONENTS AND ACCESSIBLE ROUTES FOR THE SITE. FINISHED SURFACES ALONG THE ACCESSIBLE ROUTE OF TRAVEL FROM PARKING SPACES, PUBLIC TRANSPORTATION, PEDESTRIAN ACCESS, AND INTER-BUILDING ACCESS, TO POINTS OF ACCESSIBLE BUILDING ENTRANCE/EXIT, MUST COMPLY WITH THE ACCESSIBLE GUIDELINES AND REQUIREMENTS WHICH INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
   A. ACCESSIBLE PARKING SPACES AND ACCESS AISLES SLOPES MUST NOT EXCEED 1:50 (2.0%) IN ANY DIRECTION.
   B. PATH OF TRAVEL ALONG ACCESSIBLE ROUTE MUST PROVIDE A 36-INCHES MINIMUM WIDTH (48-INCHES PREFERRED), OR AS SPECIFIED BY THE GOVERNING AGENCY. UNOBSTRUCTED WIDTH OF TRAVEL (CAR OVERHANGS AND/OR HANDRAILS) MUST NOT REDUCE THIS MINIMUM WIDTH. THE SLOPE MUST NOT EXCEED 1:20 (5.0%) IN THE DIRECTION OF TRAVEL AND MUST NOT EXCEED 1:50 (2.0%) IN CROSS SLOPE. WHERE ACCESSIBLE PATH OF TRAVEL IS GREATER THAN 1:20 (5.0%), AN ACCESSIBLE RAMP MUST BE PROVIDED. ALONG THE ACCESSIBLE PATH OF TRAVEL, OPENINGS MUST NOT EXCEED 1/2-INCH IN WIDTH. VERTICAL CHANGES OF UP TO 1/2-INCH ARE PERMITTED ONLY IF THEY INCLUDES A 1/4-INCH BEVEL AT A SLOPE NOT STEEPER THAN 1:2. NO VERTICAL CHANGES OVER 1/4-INCH ARE PERMITTED.
   C. ACCESSIBLE RAMPS MUST NOT EXCEED A SLOPE OF 1:12 (8.3%) AND A RISE OF 30-INCHES. LEVEL LANDINGS MUST BE PROVIDED AT EACH END OF ACCESSIBLE RAMPS. LANDING MUST PROVIDE POSITIVE DRAINAGE AWAY FROM STRUCTURES, AND MUST NOT EXCEED 1:50 (2.0%) SLOPE IN ANY DIRECTION. RAMPS THAT CHANGE DIRECTION BETWEEN RUNS AT LANDINGS MUST HAVE A CLEAR LANDING OF A MINIMUM OF 60-INCHES BY 60-INCHES. HAND RAILS ON BOTH SIDES OF THE RAMP MUST BE PROVIDED ON AN ACCESSIBLE RAMP WITH A RISE GREATER THAN 6-INCHES.
   D. ACCESSIBLE CURB RAMPS MUST NOT EXCEED A SLOPE OF 1:12 (8.3%). WHERE FLARED SIDES ARE PROVIDED, THEY MUST NOT EXCEED 1:10 (10%) SLOPE. LEVEL LANDING MUST BE PROVIDED AT RAMPS TOP AT A MINIMUM OF 36-INCHES LONG (48-INCHES PREFERRED). IN ALTERATIONS, WHEN THERE IS NO LANDING AT THE TOP, FLARE SIDES SLOPES MUST NOT EXCEED A SLOPE OF 1:12 (8.3%).
   E. DOORWAY LANDINGS AREAS MUST BE PROVIDED ON THE EXTERIOR SIDE OF ANY DOOR LEADING TO AN ACCESSIBLE PATH OF TRAVEL. THIS LANDING MUST BE SLOPED AWAY FROM THE DOOR NO MORE THAN 1:50 (2.0%) FOR POSITIVE DRAINAGE. THIS LANDING AREA MUST BE NO FEWER THAN 60-INCHES (5 FEET) LONG, EXCEPT WHERE OTHERWISE CLEARLY PERMITTED BY ACCESSIBLE STANDARDS FOR ALTERNATIVE DOORWAY OPENING CONDITIONS. (SEE ICC/ANSI A117.1-2009 AND OTHER REFERENCES INCORPORATED BY CODE).
   F. WHEN THE PROPOSED CONSTRUCTION INVOLVES RECONSTRUCTION, MODIFICATION, REVISION OR EXTENSION OF OR TO ACCESSIBLE COMPONENTS FROM EXISTING DOORWAYS OR SURFACES, THE CONTRACTOR MUST VERIFY ALL EXISTING ELEVATIONS SHOWN ON THE PLAN. NOTE THAT TABLE 405.2 OF THE DEPARTMENT OF JUSTICE'S ADA STANDARDS FOR ACCESSIBLE DESIGN ALLOWS FOR STEEPER RAMP SLOPES, IN RARE CIRCUMSTANCES. THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE ENGINEER OF RECORD, IN WRITING, OF ANY DISCREPANCIES AND/OR FIELD CONDITIONS THAT DIFFER IN ANY WAY OR IN ANY RESPECT FROM WHAT IS SHOWN ON THE PLANS BEFORE COMMENCING ANY WORK. CONSTRUCTED IMPROVEMENTS MUST FALL WITHIN THE MAXIMUM AND MINIMUM LIMITATIONS IMPOSED BY THE BARRIER FREE REGULATIONS AND THE ACCESSIBLE GUIDELINES.
   G. THE CONTRACTOR MUST VERIFY ALL OF THE SLOPES OF THE CONTRACTOR'S FORMS PRIOR TO POURING CONCRETE. IF ANY NON-CONFORMANCE EXISTS OR IS OBSERVED OR DISCOVERED, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE ENGINEER OF RECORD, IN WRITING, PRIOR TO POURING CONCRETE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL COSTS TO REMOVE, REPAIR AND/OR REPLACE NON-CONFORMING CONCRETE AND/OR PAVEMENT SURFACES.
4. IT IS STRONGLY RECOMMENDED THAT THE CONTRACTOR REVIEW THE INTENDED CONSTRUCTION TO ENSURE SAME IS CONSISTENT WITH THE LOCAL BUILDING CODE PRIOR TO COMMENCING CONSTRUCTION.
5. ANY WORK PROPOSED IN THE STATE OF NEW JERSEY MUST CONFORM TO THE NJ UNIFORM CONSTRUCTION CODE SUBCHAPTER 7, BARRIER-FREE ACCESS.

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	06/12/2019	REV. PER CLIENT COMMENTS	AJH / GSO

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PROJECT No.:	JM170506
DRAWN BY:	SMC
CHECKED BY:	SLM
DATE:	11/30/2017
SCALE:	AS SHOWN
CAD I.D.:	JM170506-CVR-1A

PROJECT:

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT

NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HD-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RHB)
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
BOHLER ENGINEERING NJ, LLC
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NJ CERT. OF AUTHORIZATION NO. 24GA28161700

D.F. WISOTSKY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 42951
CONNECTICUT LICENSE No. 22096
NEW YORK LICENSE No. 073745

SHEET TITLE:

GENERAL NOTES SHEET

SHEET NUMBER:

C-02

OF 22

REVISION 1 - 06/12/2019

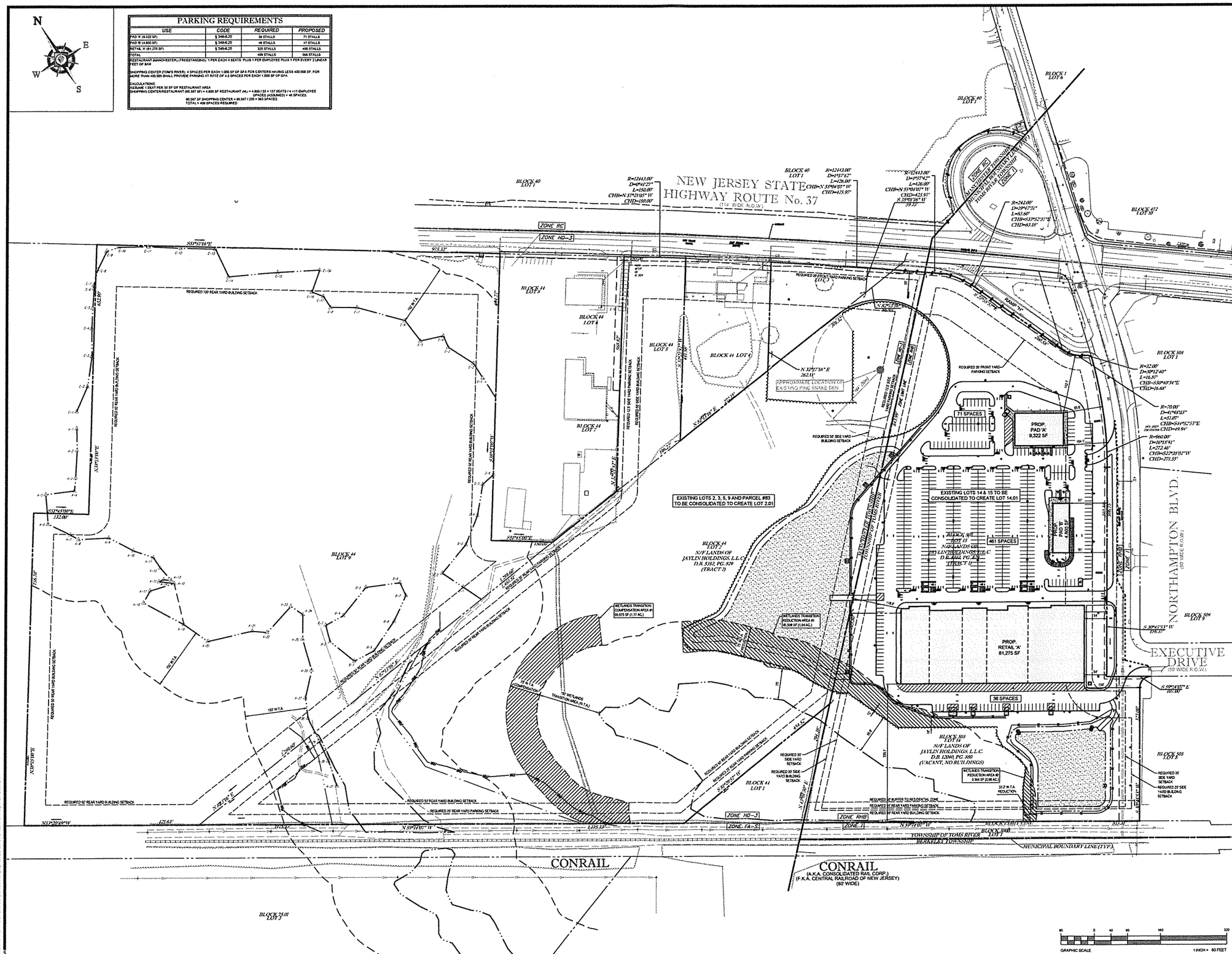
PARKING REQUIREMENTS

USE	CODE	REQUIRED	PROPOSED
PAD 'A' (9,322 SF)	§ 348-8.20	38 STALLS	71 STALLS
PAD 'B' (4,800 SF)	§ 348-8.20	48 STALLS	47 STALLS
RETAIL 'A' (81,275 SF)	§ 348-8.20	325 STALLS	490 STALLS
TOTAL		409 STALLS	568 STALLS

RESTAURANT (MANCHESTER) (FREESTANDING): 1 PER EACH 4 SEATS PLUS 1 PER EMPLOYEE PLUS 1 PER EVERY 2 LINEAR FEET OF BAR

SHOPPING CENTER (TOM'S RIVER): 4 SPACES PER EACH 1,000 SF OF GFA FOR CENTERS HAVING LESS 400,000 SF, FOR MORE THAN 400,000 SHALL PROVIDE PARKING AT RATE OF 4.5 SPACES FOR EACH 1,000 SF OF GFA

CALCULATIONS
ASSUME 1 SEAT PER 35 SF OF RESTAURANT AREA
SHOPPING CENTER/RESTAURANT (96,387 SF) = 4,800 SF RESTAURANT (44) + 4,800 / 35 = 137 SEATS / 4 = 11 EMPLOYEE SPACES (ASSUMED) = 48 SPACES
96,587 SF SHOPPING CENTER = 96,587 / 250 = 363 SPACES
TOTAL = 409 SPACES REQUIRED



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1	06/12/2019	REV. PER CLIENT COMMENTS	AJH / GSD

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CALL BEFORE YOU DIG
WHAT'S YOU DON'T KNOW CAN HURT YOU.
THE STATE OF NEW JERSEY REQUIRES NOTICE A MINIMUM OF TWO (2) WORKING DAYS BEFORE YOU DIG, PLACE PROPOSED IMPRESSIONS OR DEMOLISH THE EXISTING SURFACE AND MARKER IN THE EXCAVATION.

PROJECT No.:	JM170556
DRAWN BY:	SMC
CHECKED BY:	ELM
DATE:	11/20/2017
SCALE:	AS SHOWN
CAD I.D.:	JM170556-SPR-1A

PROJECT:

PRELIMINARY & FINAL SITE PLAN

FOR:

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT
NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HD-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RHB)
OCEAN COUNTY, NEW JERSEY

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D.F. WISOTSKY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 43951
CONNECTICUT LICENSE No. 22094
NEW YORK LICENSE No. 073745

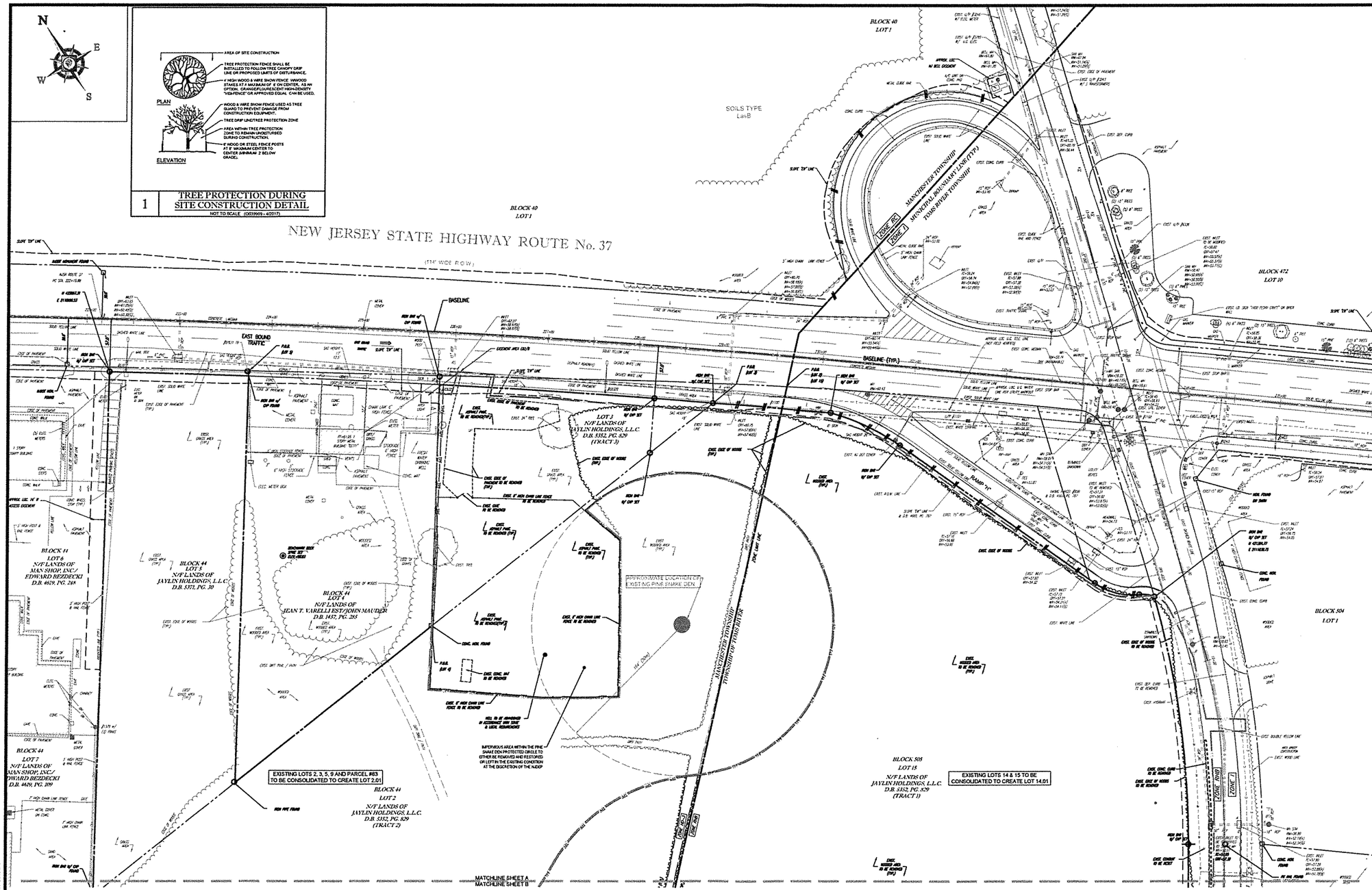
SHEET TITLE:

OVERALL PLAN

SHEET NUMBER:

C-03
OF 22

REVISION 1 - 06/12/2019



REFER TO SOIL EROSION AND SEDIMENT CONTROL PLAN (SHEETS #C-17, C-18) FOR SOIL EROSION NOTES AND MEASURES.

ALL EXISTING FEATURES IN R.O.W. ARE TO REMAIN UNLESS OTHERWISE NOTED

ALL EXISTING ON-SITE FEATURES WITHIN THE LIMIT OF DISTURBANCE ARE TO REMAIN UNLESS OTHERWISE NOTED. ALL EXISTING FEATURES OUTSIDE LIMIT OF DISTURBANCE ARE TO REMAIN UNLESS OTHERWISE NOTED.

T.B.R. = FEATURE TO BE REMOVED

CONTRACTOR TO INSTALL THE REQUIRED SOIL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO SITE DISTURBANCE

SEE SHEET #C-02 FOR PROJECT NOTES

THIS PLAN TO BE UTILIZED FOR DEMOLITION PURPOSES ONLY

ALERT TO CONTRACTOR:

PRIOR TO THE CONSTRUCTION OF OR CONNECTION TO ANY STORM DRAIN, SANITARY SEWER, WATER MAIN OR ANY OF THE DRY UTILITIES, THE CONTRACTOR SHALL EXCAVATE, VERIFY AND CALCULATE ALL POINTS OF CONNECTION AND ALL UTILITY CROSSINGS AND INFORM DESIGN ENGINEER AND THE OWNER/DEVELOPER OF ANY CONFLICT OR REQUIRED DEVIATIONS FROM THE PLAN. NOTIFICATION SHALL BE MADE A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION. DESIGN ENGINEER AND ITS CLIENTS SHALL BE HELD HARMLESS IN THE EVENT THAT THE CONTRACTOR FAILS TO MAKE SUCH NOTIFICATION.

40 0 20 40 80 160
GRAPHIC SCALE 1 INCH = 40 FEET

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TRAFFIC ENGINEERING
LANDSCAPE ARCHITECTURE
LAND DEVELOPMENT
SURVEYING
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BOSTON, MA
SOUTHERN NEW JERSEY
NORTHERN NEW JERSEY
SOUTHEASTERN PA
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SOUTHEASTERN NC
SOUTHEASTERN SC
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PROJECT No.:	JM170026
DRAWN BY:	SMC
CHECKED BY:	SLM
DATE:	11/03/2017
SCALE:	AS SHOWN
CAD I.D.:	JM170026-SPP-1A

PROJECT:

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT
NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HD-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RHB)
OCEAN COUNTY, NEW JERSEY

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BOHLER ENGINEERING NJ LLC
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D.F. WISOTSKY
PROFESSIONAL ENGINEER
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CONNECTICUT LICENSE No. 22094
NEW YORK LICENSE No. 073745

SHEET TITLE:

DEMOLITION PLAN 'A'

SHEET NUMBER
C-04
OF 22

REVISION 1 - 06/12/2019

ALERT TO CONTRACTOR:

PRIOR TO THE CONSTRUCTION OF OR CONNECTION TO ANY STORM DRAIN, SANITARY SEWER, WATER MAIN OR ANY OF THE DRY UTILITIES, THE CONTRACTOR SHALL EXCAVATE, VERIFY AND CALCULATE ALL POINTS OF CONNECTION AND ALL UTILITY CROSSINGS AND INFORM DESIGN ENGINEER AND THE OWNER/DEVELOPER OF ANY CONFLICT OR REQUIRED DEVIATIONS FROM THE PLAN. NOTIFICATION SHALL BE MADE A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION. DESIGN ENGINEER AND ITS CLIENTS SHALL BE HELD HARMLESS IN THE EVENT THAT THE CONTRACTOR FAILS TO MAKE SUCH NOTIFICATION.

ALL EXISTING ON-SITE FEATURES WITHIN THE LIMIT OF DISTURBANCE ARE TO REMAIN UNLESS OTHERWISE NOTED. ALL EXISTING FEATURES OUTSIDE LIMIT OF DISTURBANCE ARE TO REMAIN UNLESS OTHERWISE NOTED.

T.B.R. = FEATURE TO BE REMOVED

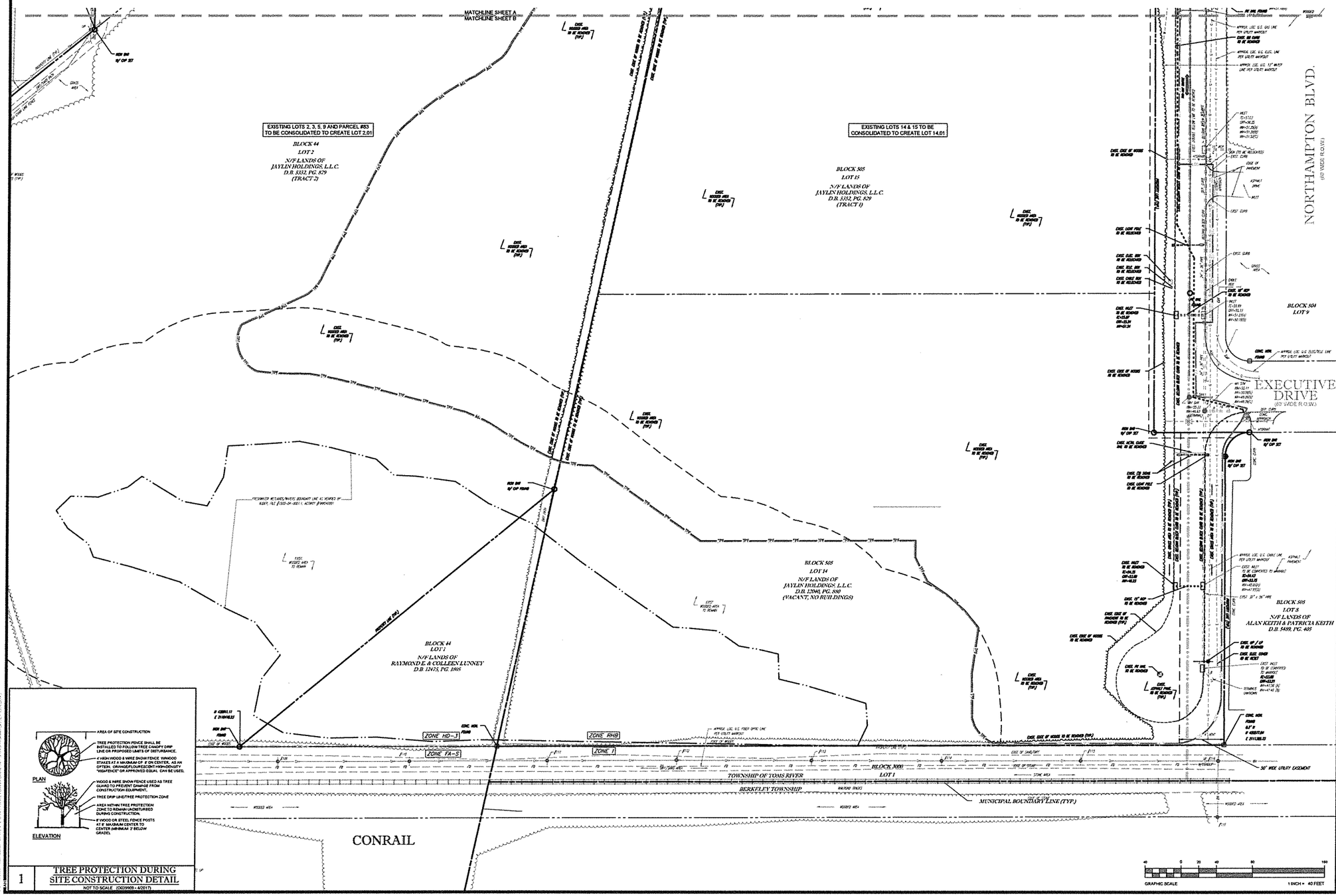
REFER TO SOIL EROSION AND SEDIMENT CONTROL PLAN (SHEETS #C-17, C-18) FOR SOIL EROSION NOTES AND MEASURES.

ALL EXISTING FEATURES IN R.O.W. ARE TO REMAIN UNLESS OTHERWISE NOTED

CONTRACTOR TO INSTALL THE REQUIRED SOIL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO SITE DISTURBANCE

SEE SHEET #C-02 FOR PROJECT NOTES

THIS PLAN TO BE UTILIZED FOR DEMOLITION PURPOSES ONLY



1 TREE PROTECTION DURING SITE CONSTRUCTION DETAIL

NOT TO SCALE (DD39903 - 4/2017)

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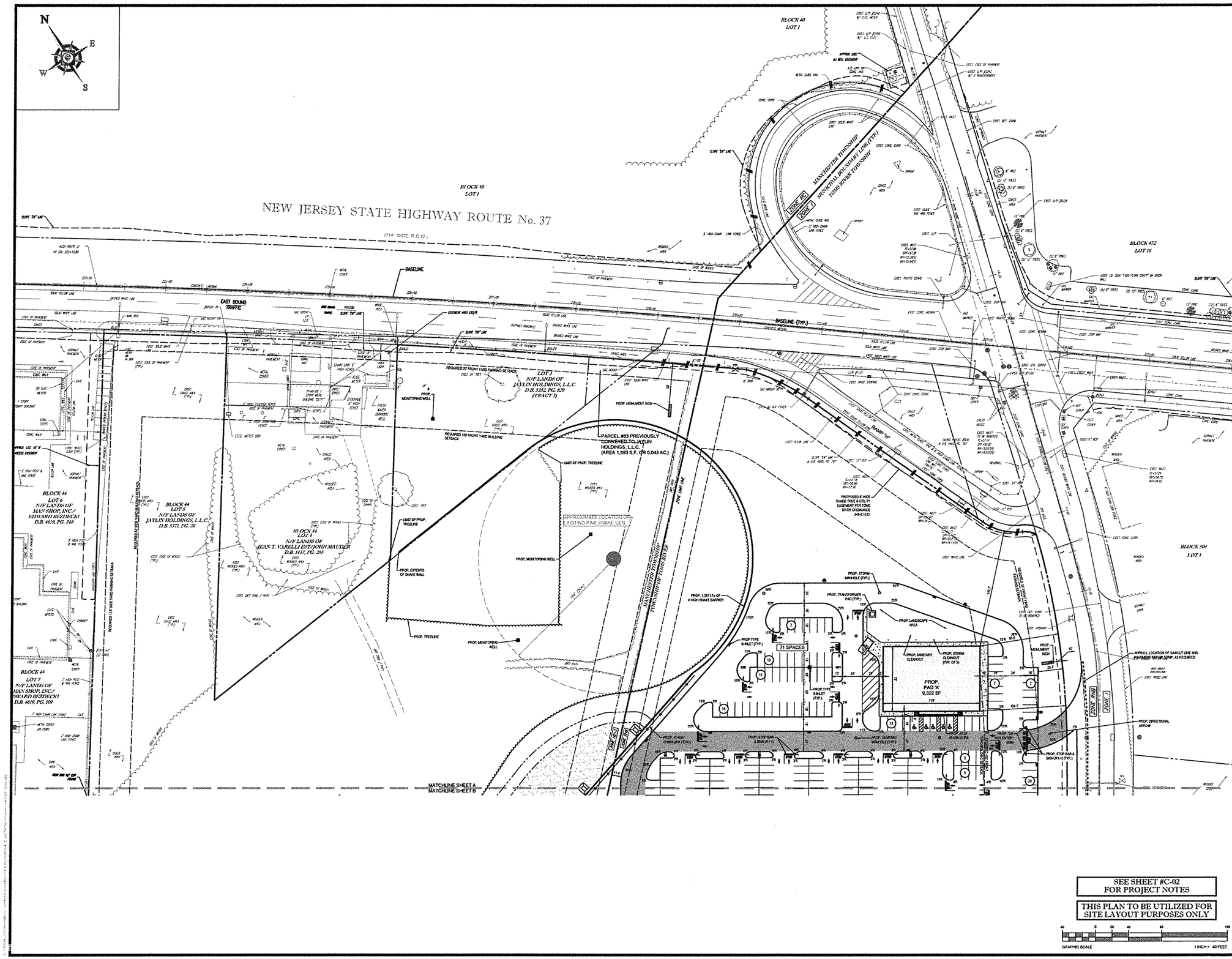

SEE SHEET #C-02
FOR PROJECT NOTES

THIS PLAN TO BE UTILIZED FOR
SITE LAYOUT PURPOSES ONLY

GRAPHIC SCALE 1 INCH = 40 FEET

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PROJECT No.	JM170508
DRAWN BY	SMC
CHECKED BY	SLM
DATE	11/20/2017
SCALE	AS SHOWN
CAD I.D.	JM170508-SPP-1A

PROJECT:
PRELIMINARY & FINAL SITE PLAN
FOR
GRUNIN PROPERTIES
PROPOSED RETAIL DEVELOPMENT
NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HD-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RHB)
OCEAN COUNTY, NEW JERSEY

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NJ CERT. OF AUTHORIZATION NO. 24GA28001100

D.F. WISOTSKY
PROFESSIONAL ENGINEER
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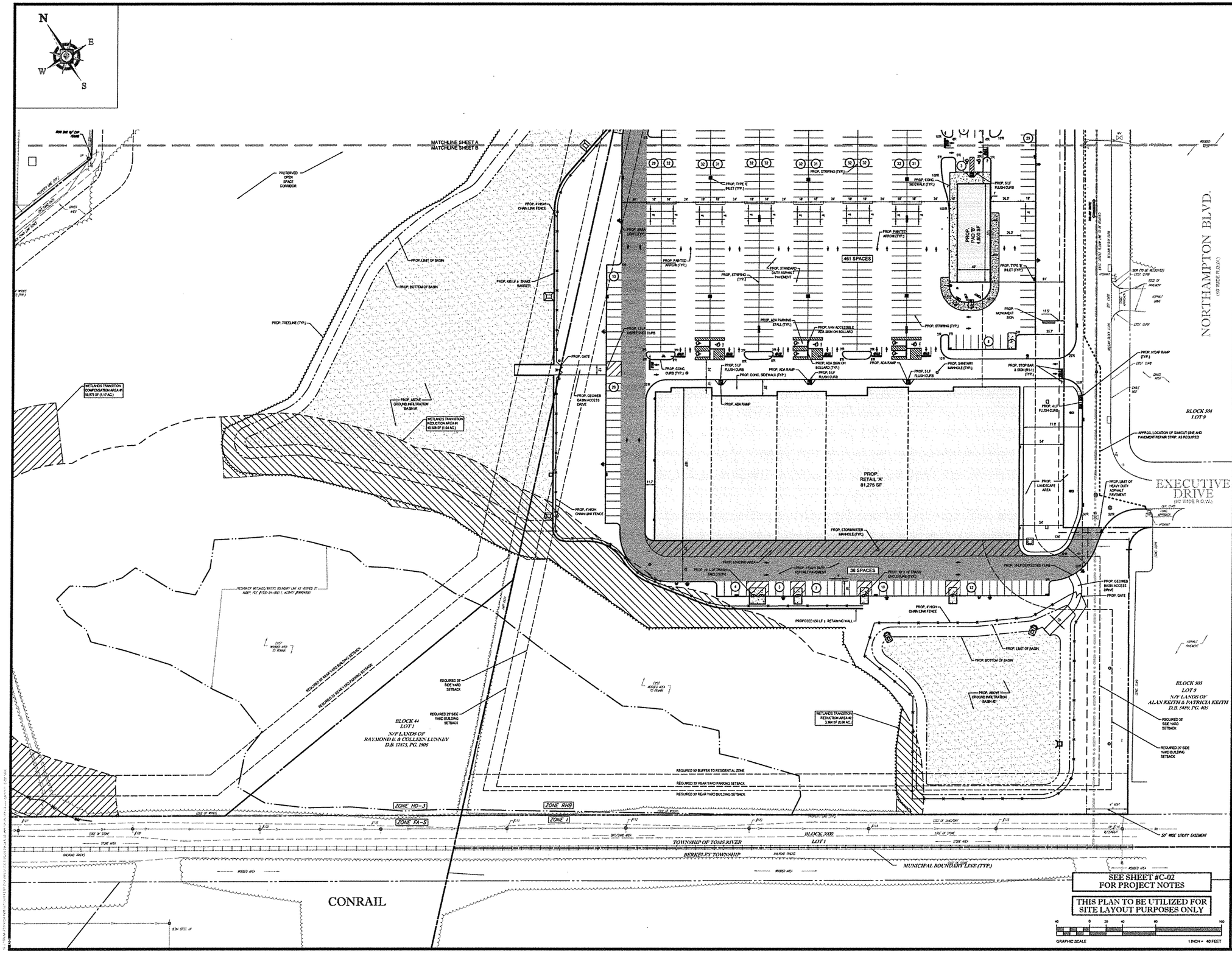
CONNECTICUT LICENSE No. 22058
NEW YORK LICENSE No. 073745

SHEET TITLE:
SITE LAYOUT PLAN 'A'

SHEET NUMBER:
C-06
OF 22

REVISION 1 - 06/12/2019



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1	06/12/2019	REV. PER CLIENT COMMENTS	AJH CSD

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PROJECT No.:	JM170506
DRAWN BY:	SMC
CHECKED BY:	SLM
DATE:	11/02/2017
SCALE:	AS SHOWN
CAD I.D.:	JM170506-SPP-1A

PROJECT

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT

NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 4A, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HD-3)
BLOCK 505, LOTS 14 & 15
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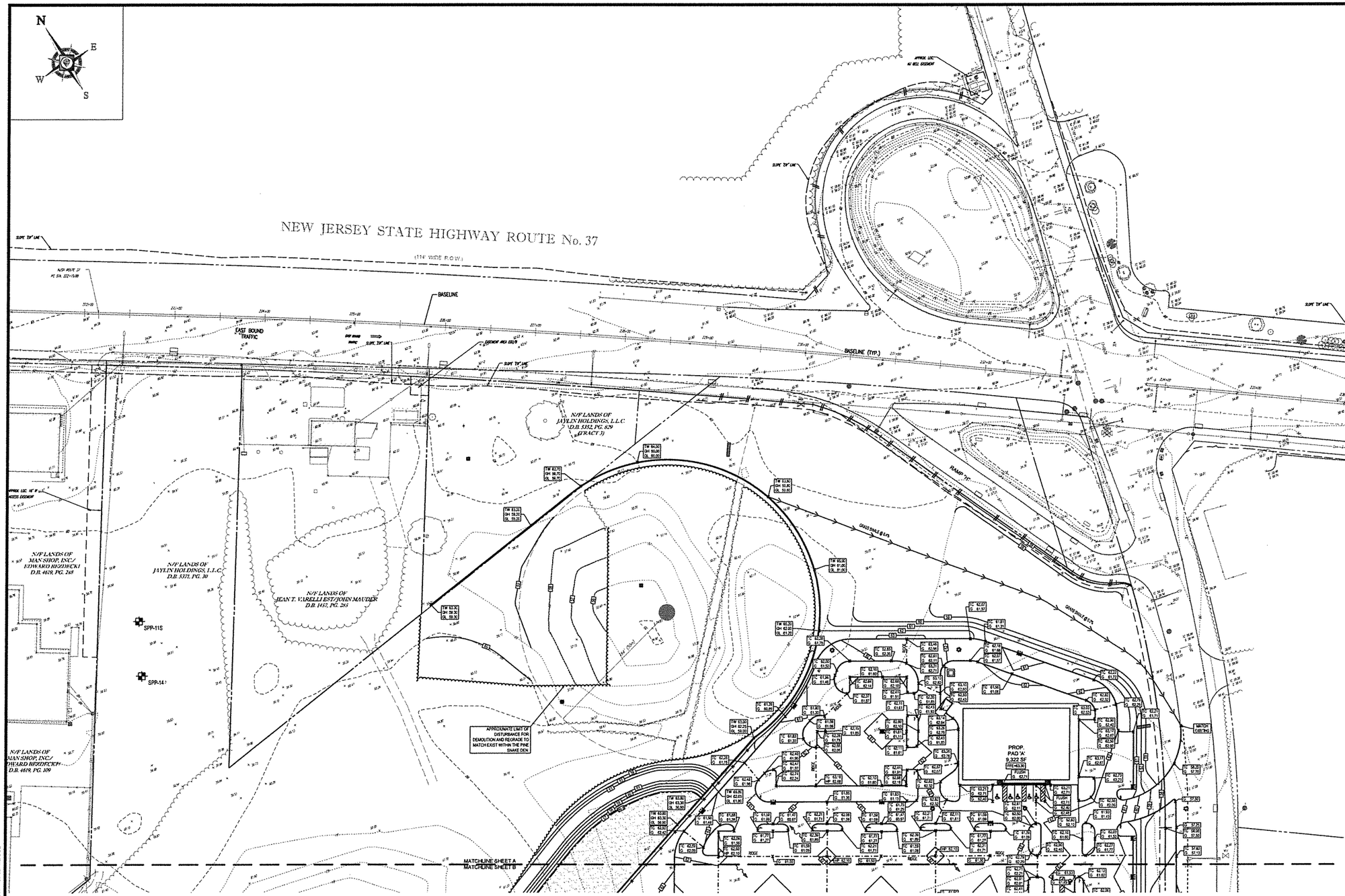
SHEET TITLE

SITE LAYOUT PLAN 'B'

SHEET NUMBER

C-07
OF 22

REVISION 1 - 06/12/2019



DEWATERING NOTE:
WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS.

SEE SHEET #C-02 FOR PROJECT NOTES

THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

GRAPHIC SCALE 1 INCH = 40 FEET

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PROJECT No.:	JM170506
DRAWN BY:	SMH
CHECKED BY:	SLM
DATE:	11/05/2019
SCALE:	AS SHOWN
CAD I.D.:	JM170506-GRD-1A

PROJECT:

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT
NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, & 9
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(TAX MAP SHEETS 7,02, 8, & 9, ZONE HD-3)
BLOCK 505, LOTS 14 & 15
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NEW JERSEY LICENSE No. 42951
CONNECTICUT LICENSE No. 22994
NEW YORK LICENSE No. 073745

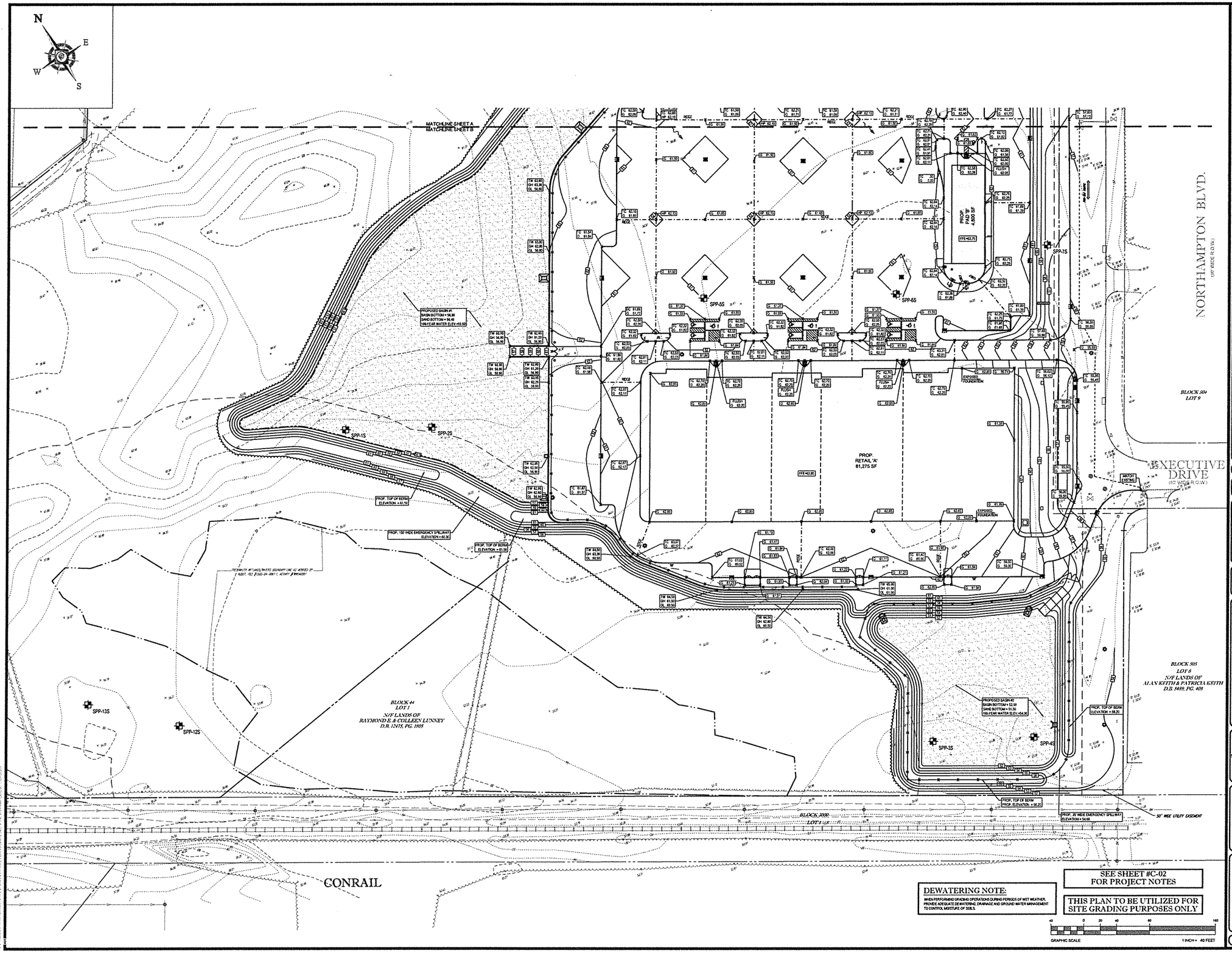
SHEET TITLE:

GRADING PLAN 'A'

SHEET NUMBER:

C-08
OF 22

REVISION 1 - 06/12/2019



DEWATERING NOTE:

WHEN PERFORMING GRADING OPERATIONS DURING PERIODS OF WET WEATHER, PROVIDE ADEQUATE DEWATERING, DRAINAGE AND GROUND WATER MANAGEMENT TO CONTROL MOISTURE OF SOILS.

SEE SHEET #C-02 FOR PROJECT NOTES

THIS PLAN TO BE UTILIZED FOR SITE GRADING PURPOSES ONLY

GRAPHIC SCALE — 1 INCH = 40 FEET

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SUSTAINABLE DESIGN • PERMITTING SERVICES

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• NEW YORK
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• HONOLULU, HI
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• MINNEAPOLIS, MN
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• RALEIGH, NC
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• SAN FRANCISCO, CA
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REVISIONS

REV	DATE	COMMENT	DRAWN BY / REVIEWED BY
1	06/12/2019	REV. PER CLIENT COMMENTS.	JJH / DJD

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PROTECT YOURSELF
3 PHASE CALL CAN BE YOUR INSURANCE POLICY

WHAT'S YOU DOIN'? DIGGIN' CAN HURT YOU.
THE STATE OF NEW JERSEY REQUIRES THREE (THAT'S 3) BUSINESS DAYS NOTICE FOR ANY PERSON PREPARING TO DIG IN THE STATE'S RIGHT OF WAY. DIAL 1-800-272-1000

PROJECT No.	JM17T008
DRAWN BY	SWC
CHECKED BY	SLM
DATE	11/03/2017
SCALE	AS SHOWN
CAD I.D.	JM17T008-GRD-1A

PROJECT:

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT
NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HO-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RH8)
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
BOHLER Engineering NJ, LLC
10000 MIDLANTIC DRIVE, SUITE 410W
MOUNT LAUREL, NJ 08054
Phone (856) 930-4000
Fax (856) 930-4001
www.BohlerEngineering.com
NJ CERT. OF AUTHORIZATION No. 24GA28019700

D.F. WISOTSKY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 43961
CONNECTICUT LICENSE No. 22094
NEW YORK LICENSE No. 072745

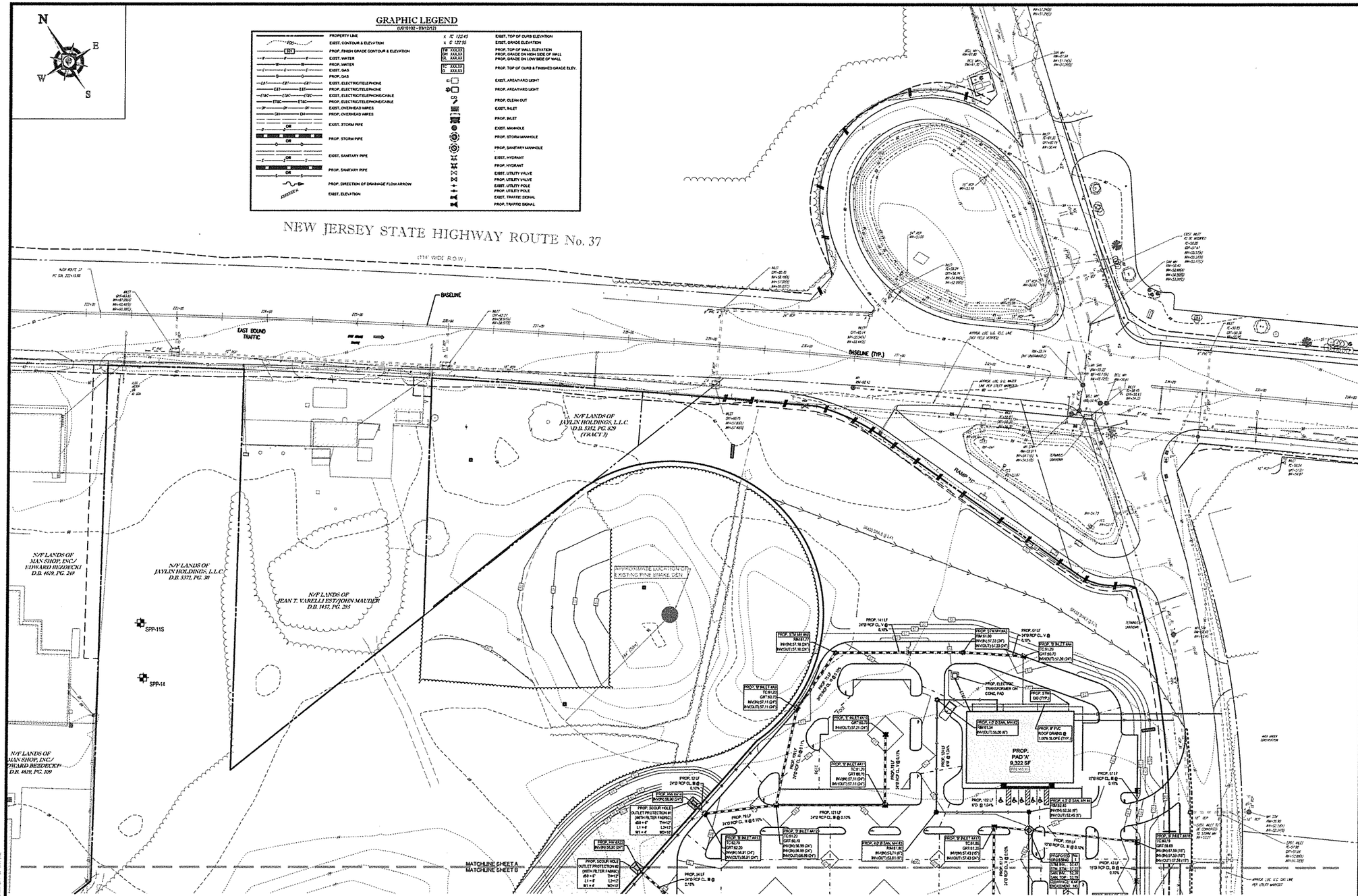
SHEET TITLE:

GRADING PLAN 'B'

SHEET NUMBER:

C-09
OF 22

REVISION 1 - 06/12/2019



UTILITY NOTES:

1. PROPOSED GAS AND WATER METERS TO BE INSTALLED FOR EACH BUILDING TENANT. BOLLARD PROTECTION SHOULD BE PROVIDED PER UTILITY COMPANY DIRECTION
2. RESTAURANT USERS SHALL BE EQUIPPED WITH GREASE INTERCEPTORS FOR SANITARY LINE CONNECTION.
3. UTILITY DESIGN IS PRESENTED AND SCHEMATIC FINAL DESIGN IS TO BE COORDINATED WITH ARCHITECTURAL BUILDING FOOTPRINTS.
4. ALL ELECTRIC, GAS, TELEPHONE AND CABLE CONNECTIONS ARE TO BE INSTALLED VIA UNDERGROUND CONDUIT.

THIS PLAN TO BE UTILIZED FOR DRAINAGE AND UTILITIES PURPOSES ONLY

GRAPHIC SCALE 1 INCH = 40 FEET

BOHLER ENGINEERING

SITE, CIVIL, AND CONSULTING ENGINEERING, ARCHITECTURE, LANDSCAPE ARCHITECTURE, PROGRAM MANAGEMENT, TRANSPORTATION ENGINEERING

LAND DEVELOPMENT
ENVIRONMENTAL
SITE ENGINEERING
TRANSPORTATION
CONSTRUCTION
PROGRAM MANAGEMENT

- MARLTON, NJ
- BOSTON, MA
- NEW YORK, NY
- NORTH BRUNSWICK, NJ
- PITTSBURGH, PA
- ROCHESTER, NY
- SCHENECTADY, NY
- SOUTHBOROUGH, MA
- WALTHAM, MA
- WEST CHESTER, PA
- WILMINGTON, DE
- WOODBRIDGE, NJ
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REVISIONS

REV	DATE	COMMENT	DRAWN BY / REVIEW BY
1	06/12/2019	REV. PER CLIENT COMMENTS	AJH / CRD

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PROTECT YOURSELF
A PHONE CALL CAN BE YOUR INSURANCE POLICY
CALL 1-800-272-1000 (NJ) 1-800-272-1000 (PA)
WHAT'S BELOW? WHO'S CHECKING? WHY CHECK? YOU, THE STATE OF NEW JERSEY REQUIRES YOU TO CALL 1-800-272-1000 (NJ) 1-800-272-1000 (PA) BEFORE YOU DIG, DRILL OR BLAST TO ASCERTAIN THE LOCATION OF UNDERGROUND UTILITIES IN THE AREA OF YOUR PROPOSED EXCAVATION.

PROJECT No.	JM170508
DRAWN BY:	SMC
CHECKED BY:	SLM
DATE:	11/00/2017
SCALE:	AS SHOWN
CAD I.D.	JM170508-UTL-1A

PROJECT:

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT

NUSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HO-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RHB)
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
BOHLER ENGINEERING LLC
10000 MIDLANTIC DRIVE, SUITE 410W
MOUNT LAUREL, NJ 08054
Phone (856) 330-4000
Fax (856) 330-4001
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D.F. WISOTSKY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 42951
CONNECTICUT LICENSE No. 22098
NEW YORK LICENSE No. 073745

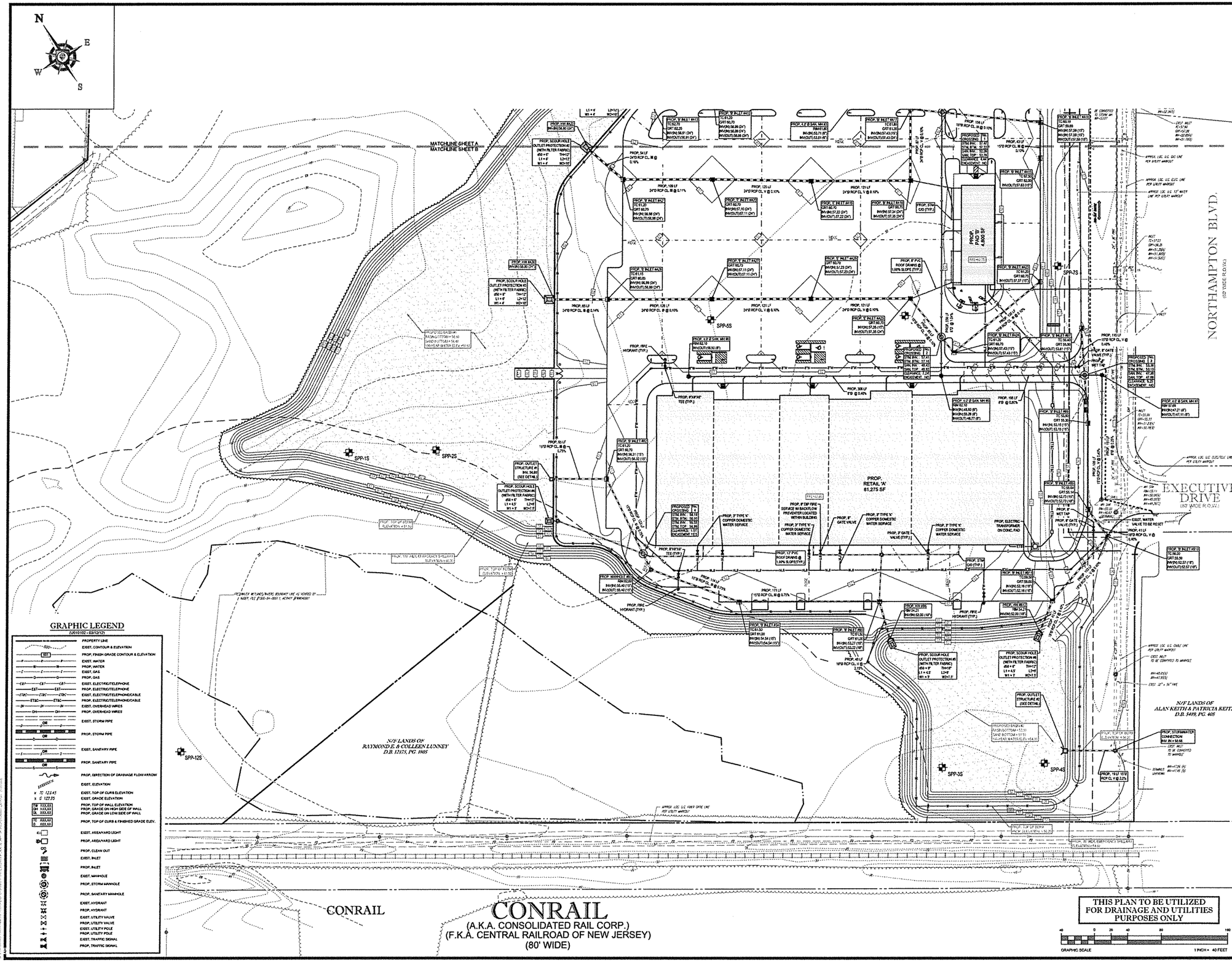
SHEET TITLE:

DRAINAGE & UTILITY PLAN 'A'

SHEET NUMBER:

C-10
OF 22

REVISION 1 - 06/12/2019



GRAPHIC LEGEND

(07/01/02 - 03/12/12)

- PROPERTY LINE
- EXIST. CONTOUR & ELEVATION
- PROP. FINISH GRADE CONTOUR & ELEVATION
- EXIST. WATER
- PROP. WATER
- EXIST. GAS
- PROP. GAS
- EXIST. ELECTRIC/TELEPHONE
- PROP. ELECTRIC/TELEPHONE
- EXIST. ELECTRIC/TELEPHONE/CABLE
- PROP. ELECTRIC/TELEPHONE/CABLE
- EXIST. OVERHEAD WIRES
- PROP. OVERHEAD WIRES
- EXIST. STORM PIPE
- PROP. STORM PIPE
- EXIST. SANITARY PIPE
- PROP. SANITARY PIPE
- PROP. DIRECTION OF DRAINAGE FLOW ARROW
- EXIST. ELEVATION
- EXIST. TOP OF CURB ELEVATION
- EXIST. GRADE ELEVATION
- PROP. TOP OF WALL ELEVATION
- PROP. GRADE ON HIGH SIDE OF WALL
- PROP. GRADE ON LOW SIDE OF WALL
- PROP. TOP OF CURB & FINISHED GRADE ELEV.
- EXIST. AREA/YARD LIGHT
- PROP. AREA/YARD LIGHT
- PROP. CLEAN OUT
- EXIST. INLET
- PROP. INLET
- EXIST. MANHOLE
- PROP. STORM MANHOLE
- PROP. SANITARY MANHOLE
- EXIST. HYDRANT
- PROP. HYDRANT
- EXIST. UTILITY VALVE
- PROP. UTILITY VALVE
- EXIST. UTILITY POLE
- PROP. UTILITY POLE
- EXIST. TRAFFIC SIGNAL
- PROP. TRAFFIC SIGNAL

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1	05/12/2019	REV. FOR CLIENT COMMENTS	AJH / DFS

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PROTECT YOURSELF
A PHONE CALL CAN BE YOUR INSURANCE POLICY
WHAT YOU DIGHT KNOW CAN HURT YOU.
THE NEW JERSEY ONE CALL SYSTEM, INC. REQUIRES NOTICE OF EXCAVATION DESIGNED BY OR PERFORM PROPERTIES TO BE GIVEN TWO WORKING DAYS BEFORE YOU DIG.

PROJECT No.	JN1170508
DRAWN BY:	SMC
CHECKED BY:	SLM
DATE:	11/30/2017
SCALE:	AS SHOWN
CAD I.D.	JN1170508-UTL-1A

PROJECT:

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT
NUSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, 6 & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HO-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
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OCEAN COUNTY, NEW JERSEY

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10000 MIDLANTIC DRIVE, SUITE 410W
MOUNT LAUREL, NJ 08054
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Fax: (856) 930-4001
www.BohlerEngineering.com
NJ DEPT. OF AUTHORIZED SIGNAL: 24GA27161200

D.F. WISOTSKY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 42951
CONNECTICUT LICENSE No. 22094
NEW YORK LICENSE No. 072745

SHEET TITLE

DRAINAGE & UTILITY PLAN 'B'

SHEET NUMBER

C-11

OF 22

REVISION 1 - 05/12/2019

LUMINAIRE SCHEDULE

SYMBOL	QTY	LABEL	MTG. HT.	DESCRIPTION	ARRNGMNT.	LUMENS	LLF	IES FILENAME	CATALOG #
	6	A-1	30'	PHILIPS GARDCO ECOFORM GEN 2 SERIES SMALL LED AREA LIGHT	BACK-TO-BACK	25,577 (X2)	0.900	ECF-5-64L-1A-NW-G2-AR-SW-XXX-XX3-XXX-XXX-XX3-RPA-BK	
	5	A-2	30'	PHILIPS GARDCO ECOFORM GEN 2 SERIES SMALL LED AREA LIGHT	SINGLE	25,577	0.900	ECF-5-64L-1A-NW-G2-AR-SW-XXX-XX3-XXX-XXX-XX3-RPA-BK	
	5	A-3 IS	30'	PHILIPS GARDCO ECOFORM GEN 2 SERIES SMALL LED AREA LIGHT W/ INTERNAL HOUSE SIDE SHIELD	SINGLE	19,068	0.900	ECF-5-64L-1A-NW-G2-3-3-HS.IES	ECF-5-64L-1A-NW-G2-AR-3-XXX-XXX-XXX-XXX-XXX-RPA-BK-HIS
	6	A-4 IS	30'	PHILIPS GARDCO ECOFORM GEN 2 SERIES SMALL LED AREA LIGHT W/ INTERNAL HOUSE SIDE SHIELD	SINGLE	19,637	0.900	ECF-5-64L-1A-NW-G2-A-4-HS.IES	ECF-5-64L-1A-NW-G2-AR-4-XXX-XXX-XXX-XXX-XXX-RPA-BK-HIS
	1	A-6 IS	30'	PHILIPS GARDCO ECOFORM GEN 2 SERIES SMALL LED AREA LIGHT W/ INTERNAL HOUSE SIDE SHIELD	SINGLE	10,003	0.900	ECF-5-32L-1A-NW-G2-A-HS.IES	ECF-5-32L-1A-NW-G2-AR-4-XXX-XXX-XXX-XXX-XXX-RPA-BK-HIS
	2	A-10	30'	PHILIPS GARDCO ECOFORM GEN 2 SERIES SMALL LED AREA LIGHT	SINGLE	12,194	0.900	ECF-5-32L-1A-NW-G2-3.IES	ECF-5-32L-1A-NW-G2-AR-3-XXX-XXX-XXX-XXX-XXX-RPA-BK
	11	W-1	20'	PHILIPS GARDCO 121 SERIES LED WALL SCONCE	SINGLE	9,371	0.950	121-32L-1000-NW-G3-4.IES	121-32L-1000-NW-G3-4-EBPC-XXX-XXX-XXX-BK

NOTES 1. ANY PROPOSED ARCHITECTURAL BUILDING MOUNTED LIGHTS HAVE NOT BEEN MODELED FOR THIS DESIGN.
2. ANY EXISTING STREET LIGHTS HAVE NOT BEEN MODELED FOR THIS DESIGN.

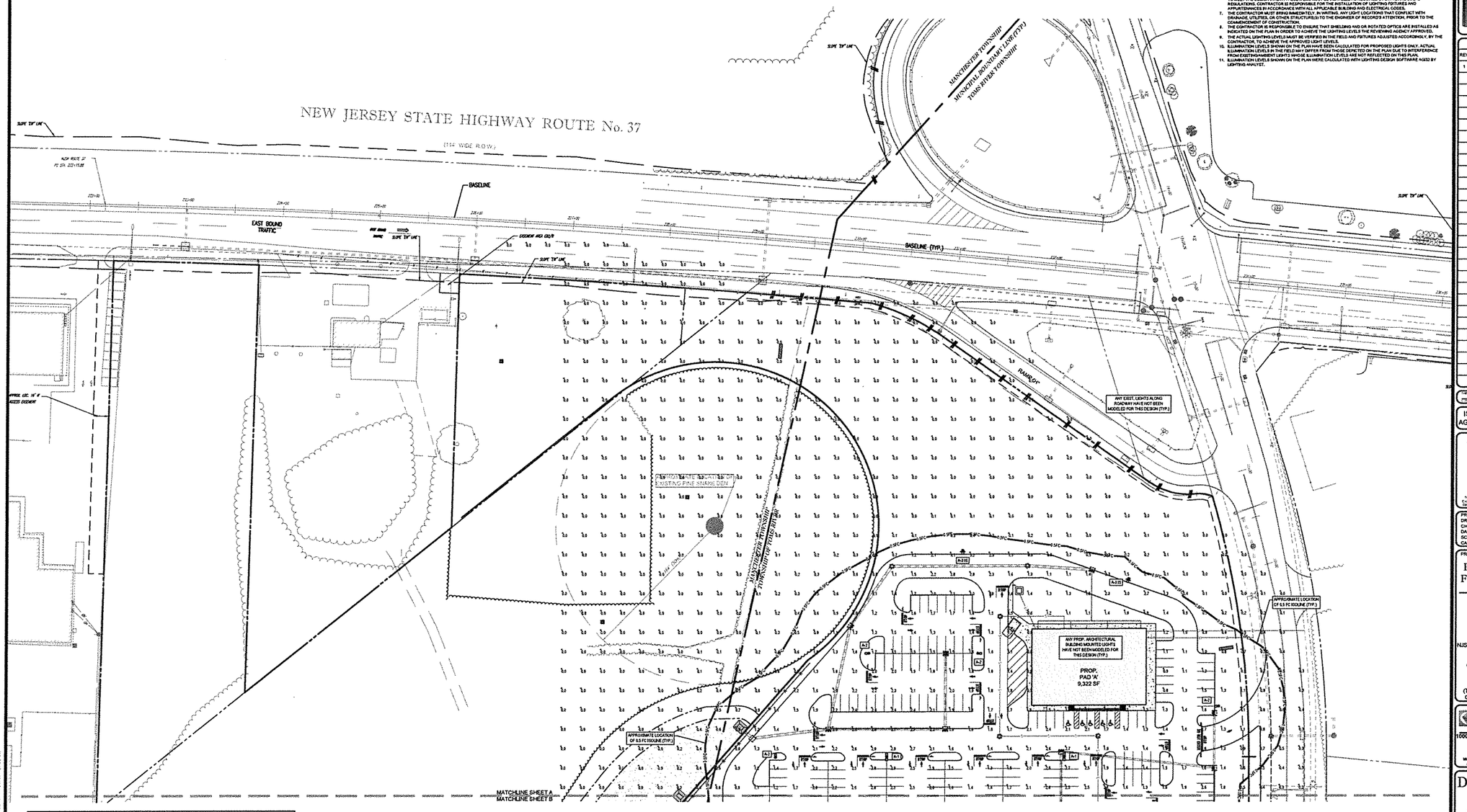
PHILIPS GARDCO ECOFORM GEN 2 SERIES SMALL LED AREA LIGHT (A-1, A-2, A-3 IS, A-4 IS, A-6 IS & A-10)
NOT TO SCALE

PHILIPS GARDCO 121 SERIES LED WALL SCONCE (W-1)
NOT TO SCALE

LIGHTING NOTES

(Rev. 4/2018)

1. THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS. THE GENERAL NOTES ARE REFERENCED HEREIN, AND THE CONTRACTOR MUST REFER TO THEM AND FULLY COMPLY WITH THESE NOTES, IN THEIR ENTIRETY. THE CONTRACTOR MUST BE FAMILIAR WITH AND ACKNOWLEDGE FAMILIARITY WITH ALL OF THE GENERAL NOTES AND ALL OF THE PLANS' SPECIFIC NOTES.
2. THE LIGHTING CONTRACTOR MUST COMPLY WITH ALL APPLICABLE CONTRACTOR REQUIREMENTS INDICATED IN THE PLANS, INCLUDING BUT NOT LIMITED TO GENERAL NOTES, DRAWING AND UTILITY NOTES, SITE SAFETY, AND ALL AGENCY AND GOVERNMENTAL REGULATIONS.
3. THE LIGHTING PLAN DEPICTS PROPOSED, SUSTAINED ILLUMINATION LEVELS CALCULATED USING DATA PROVIDED BY THE NOTED MANUFACTURER. ACTUAL SUSTAINED SITE ILLUMINATION LEVELS AND PERFORMANCE OF LUMINAIRES MAY VARY DUE TO VARIATIONS BY WEATHER, ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, THE SERVICE LIFE OF EQUIPMENT AND LUMINAIRES AND OTHER RELATED HUMAN & FIELD CONDITIONS.
4. ILLUMINATION LEVELS SHOWN ON THE PLAN ARE INITIAL LIGHT LEVELS IN FOOT-CANDLES (FC) ON HORIZONTAL GEOMETRIC PLANE AT GROUND LEVEL UNLESS OTHERWISE NOTED. ILLUMINATION LEVELS ARE SHOWN IN FOOT-CANDLES (FC).
5. THE LUMINAIRES, LAMPS AND LENSES MUST BE REGULARLY INSPECTED/MAINTAINED TO ENSURE THAT THEY FUNCTION PROPERLY. THIS WORK SHOULD INCLUDE, BUT IS NOT LIMITED TO, VISUAL OBSERVATION, CLEANING OF LENSES, LAMPS AND FITTINGS ACCORDING TO MANUFACTURER RECOMMENDATIONS. FAILURE TO FOLLOW THE LIGHTING SYSTEM GUIDELINES MAY RESULT IN IMPROPER LIGHT DISTRIBUTION AND FAILURE TO COMPLY WITH THE APPROVED DESIGN. UPON COMPLETION AND OWNER'S ACCEPTANCE OF THE WORK, THE ABOVE RESPONSIBILITIES BECOMES SOLELY THE OWNER'S.
6. THE LIGHTING PLAN IS INTENDED TO SHOW THE LOCATIONS AND TYPE OF LUMINAIRES, POWER SYSTEM, CONDUITS, WIRING AND OTHER ELECTRICAL COMPONENTS ARE SOLELY THE ARCHITECT'S, MECHANICAL ENGINEER'S AND/OR LIGHTING CONTRACTOR'S RESPONSIBILITY. AS INDICATED IN THE CONSTRUCTION DOCUMENTS, THE ARCHITECT, MECHANICAL ENGINEER AND/OR LIGHTING CONTRACTOR SHALL ENGAGE AND/OR ELECTRICAL ENGINEER FOR HIRING ANY AND ALL POWER SOURCES AND TIMING DEVICES NECESSARY TO MEET THE DESIGN INTENT. THESE ITEMS MUST BE INSTALLED AS REQUIRED BY STATE AND LOCAL REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF LIGHTING FIXTURES AND APPURTENANCES IN ACCORDANCE WITH ALL APPLICABLE BUILDING AND ELECTRICAL CODES.
7. THE CONTRACTOR MUST BRING IMMEDIATELY, IN WRITING, ANY LIGHT LOCATIONS THAT CONFLICT WITH DRAINAGE, UTILITIES, OR OTHER STRUCTURES TO THE ENGINEER OF RECORD'S ATTENTION, PRIOR TO THE INSTALLATION OF THE LIGHTING.
8. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT SHIELDING AND OR ROTATED OPTICS ARE INSTALLED AS INDICATED ON THE PLAN IN ORDER TO ACHIEVE THE LIGHTING LEVELS THE REVIEWING AGENCY APPROVED.
9. THE ACTUAL LIGHTING LEVELS MUST BE VERIFIED IN THE FIELD AND FIXTURES ADJUSTED ACCORDINGLY, BY THE CONTRACTOR, TO ACHIEVE THE APPROVED LIGHT LEVELS.
10. ILLUMINATION LEVELS SHOWN ON THE PLAN HAVE BEEN CALCULATED FOR PROPOSED LIGHTS ONLY. ACTUAL ILLUMINATION LEVELS IN THE FIELD MAY DIFFER FROM THOSE DEPICTED ON THE PLAN DUE TO INTERFERENCE FROM EXISTING LIGHTS NOT MODELED IN THE LIGHTING ANALYSIS.
11. ILLUMINATION LEVELS SHOWN ON THE PLAN WERE CALCULATED WITH LIGHTING DESIGN SOFTWARE AGI32 BY LIGHTING ANALYST.



TOWNSHIP LIGHTING REQUIREMENTS

PER SECTIONS: 348-5.31. L. & 348-8.20 J.(6)

LOCATION	REQUIRED	PROPOSED
MAXIMUM FIXTURE HEIGHT	NOT SPECIFIED	NOT APPLICABLE
POLE SPACING	NOT SPECIFIED	NOT APPLICABLE
MINIMUM FOOTCANDLE IN PARKING AREAS AND ACCESS DRIVES	0.5 FC	0.7 FC (COMPLIES)
MAXIMUM FOOTCANDLE BEYOND PROPERTY LINE	0.5 FC	1.6 FC* (WAIVER)

*VALUE OCCURS ALONG NORTHAMPTON BOULEVARD.

THIS PLAN TO BE UTILIZED FOR LIGHTING PURPOSES ONLY

REFER TO DETAIL SHEET FOR LIGHT POLE FOUNDATION DETAIL

REFER TO LIGHTING PLAN 'B' FOR LIGHT POLE SPECIFICATION

40 0 20 40 80 160
GRAPHIC SCALE 1 INCH = 40 FEET

BOHLER ENGINEERING
FREE CITY, AND CONSULTING ENGINEERING
LICENSED BUSINESS ENTITY
PROFESSIONAL ARCHITECTURE
LANDSCAPE ARCHITECTURE
PROFESSIONAL PLANNING
LAND SURVEYING
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2. CHICAGO, IL
3. DENVER, CO
4. FORT LAUDERDALE, FL
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6. KANSAS CITY, MO
7. LAS VEGAS, NV
8. MINNEAPOLIS, MN
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10. PHOENIX, AZ
11. PITTSBURGH, PA
12. RALEIGH, NC
13. SACRAMENTO, CA
14. SAN DIEGO, CA
15. SEATTLE, WA
16. TAMPA, FL
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18. WHITE PLAINS, NY
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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHKD BY
1	06/12/2019	REV. PER CLIENT COMMENTS	AJH / DJD

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

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A PHONE CALL CAN BE YOUR INSURANCE POLICY
WHAT YOU DON'T KNOW CAN HURT YOU.
THE STATE OF NEW JERSEY REQUIRES NOTIFICATION OF EXCAVATION OPERATIONS BY ANY PERSON PREPARING TO DISTURB THE SURFACE OF THE EARTH IN NEW JERSEY.

PROJECT No.:	JM17050B
DRAWN BY:	SMC
CHECKED BY:	SLM
DATE:	11/30/2017
SCALE:	AS SHOWN
CAD ID:	JM17050B-LGT-1A

PROJECT:

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT
NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HO-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RH6)
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
NEW JERSEY BUSINESS NO. 3.1.3
10000 MIDLANTIC DRIVE, SUITE 410W
MOUNT LAUREL, NJ 08054
Phone: (856) 933-4000
Fax: (856) 933-4001
www.BohlerEngineering.com
NJ CERT. OF AUTHORIZATION NO. 24GA28001600

D.F. WISOTSKY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 43951
CONNECTICUT LICENSE No. 22098
NEW YORK LICENSE No. 073745

SHEET TITLE:

LIGHTING PLAN 'A'

SHEET NUMBER:

C-12
OF 22

REVISION 1 - 06/12/2019

Job:
Type:
Notes:

Poles

Page 1 of 4

Straight Round Steel

The Philips Gardco SRS straight round steel pole consists of a one-section design fabricated steel tubing circumferentially welded to a structural quality hot rolled carbon steel plate. The poles are finished with an environmentally applied, thermally cured TGIC polyester powder-coat. All poles include anchor bolts, full base cover, hand hole, ground lug and top cap.

PREFIX	HEIGHT	SIZE	DRILLING	FINISH	OPTIONS

Enter the order code into the appropriate box above. Philips Gardco reserves the right to refuse a configuration. Not all combinations and configurations are valid. Refer to notes below for exclusions and limitations. For questions or concerns, please consult the factory.

PREFIX	HEIGHT	SIZE	DRILLING
SRS	10'	3"	D1 1 Way
	12'	4"	D2 2 Way
	14'	5"	D2@90 2 Way at 90°
	20'		D3 3 Way
	25', 25H		D3@120 3 Way at 120°
	30', 30H		D4 4 Way
			T2 2 3/8" OD Tenon
			T4 4" OD Tenon

† Refer to notes storage: round or anti-twist flatten, or 1-Piece.

FINISH	
PP	Prime Painted
BRP	Bronze Paint
BLP	Black Paint
WP	White Paint
NP	Natural Aluminum Paint
GV	Galvanized (No Paint)
FPGV	Finished Paint over Galvanized (specify color)
OC	Optional Color Paint Specify RAL equivalent or QP-MILTEX
SC	Special Color Paint Specify Must supply color chip

OPTIONS	
FES	Fusion Outlet
AHH	Additional Hand Hole

For Fusion Outlet and Additional Hand Holes indicate height above base and orientation in degrees from base. See Pole Dimension Information on Page 4.

Coatings

Indicate type (LP, LP-24, FT, FT-24, FT-10) if uniform heights above base and orientation in hand hole. See Pole Dimension Information on Page 4.

CL Coupling + Internal Shroud

Single Phase Bullhorn Brackets

Indicate height above base and orientation in hand hole. See Pole Dimension Information on Page 4.

GM-080-18 Single - 1.9" OD
GM-080-24 Single - 2.4" OD

Motion Response Provisions

GMR Provision for Gardco HID Motion Response System

Maximum Pole Height is 18' includes a (typical base) type with 1.2" coupling placed at the base plate. (18' in the hand hole, 17' above the base plate)

GMH Provision for Gardco HID Motion Response System

Maximum Pole Height is 18' includes a (typical base) type with 1.2" coupling placed at the base plate. (18' in the hand hole, 17' above the base plate)

MSM Motion Sensor Mounting Provision for LED Luminaires available with Motion Response

Maximum Pole Height is 18' includes a (typical base) type with 1.2" coupling placed at the base plate. (18' in the hand hole, 17' above the base plate)

Refer to Street Pole Accessories sheet TPA13-2A for additional accessories.

CONTRACTOR TO COORDINATE LIGHT POLE SPECIFICS W/ MANUFACTURER
LIGHT POLE COLOR TO MATCH FIXTURE: BLACK

1611 Chem-Barker Road, San Marcos, TX 78666
(800) 237-4958 (512) 753-1900 FAX (512) 753-7855 sales@philips.com
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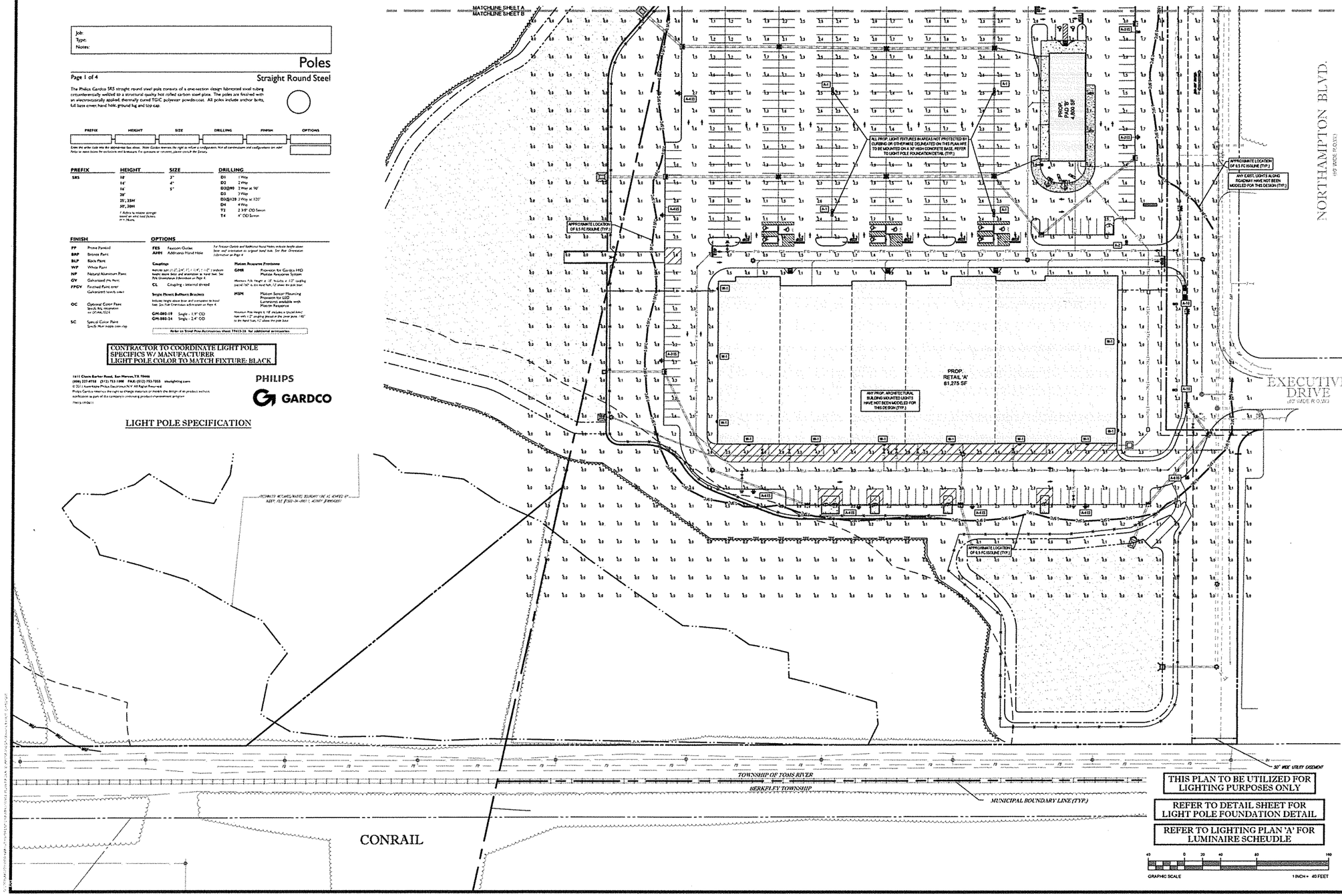
Philips Gardco reserves the right to change materials or modify the design of its product without notification as part of the company's continuing product improvement program.
TPA13-1R-04.11

PHILIPS
GARDCO

LIGHT POLE SPECIFICATION



THIS PLAN TO BE UTILIZED FOR LIGHTING PURPOSES ONLY

REFER TO DETAIL SHEET FOR LIGHT POLE FOUNDATION DETAIL

REFER TO LIGHTING PLAN 'A' FOR LUMINAIRE SCHEUDLE

GRAPHIC SCALE 1 INCH = 40 FEET

BOHLER ENGINEERING

BOHLER ENGINEERING
BOHLER ENGINEERING NJ, LLC
10000 ATLANTIC DRIVE, SUITE 410W
MOUNT LAUREL, NJ 08054
Phone: (856) 930-4000
Fax: (856) 930-4001
www.BohlerEngineering.com
NO CERT. OF AUTHORIZATION REQUIRED, SUBMITTED NOTE

D.F. WISOTSKY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 42951
CONNECTICUT LICENSE No. 22098
NEW YORK LICENSE No. 072745

REVISIONS

REV.	DATE	COMMENT	BY
1	06/12/2019	REV. PER CLIENT COMMENTS	AJH GRD

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PROTECT YOURSELF
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NEW JERSEY 1-800-272-1000
CONNECTICUT 1-800-922-4455
NEW YORK 1-800-962-7962
NEW JERSEY 811
WHAT'S BELOW? DIGGING CAN HURT YOU.
THE STATE LAW REQUIRES 48 HOURS NOTICE FOR ALL DIGGING, BLASTING, TUNNELING, OR WRECKING. CALL 1-800-272-1000 OR 1-800-962-7962 OR 811 FOR THE CENTRAL STATES REPORT OF INTENT TO DIG.

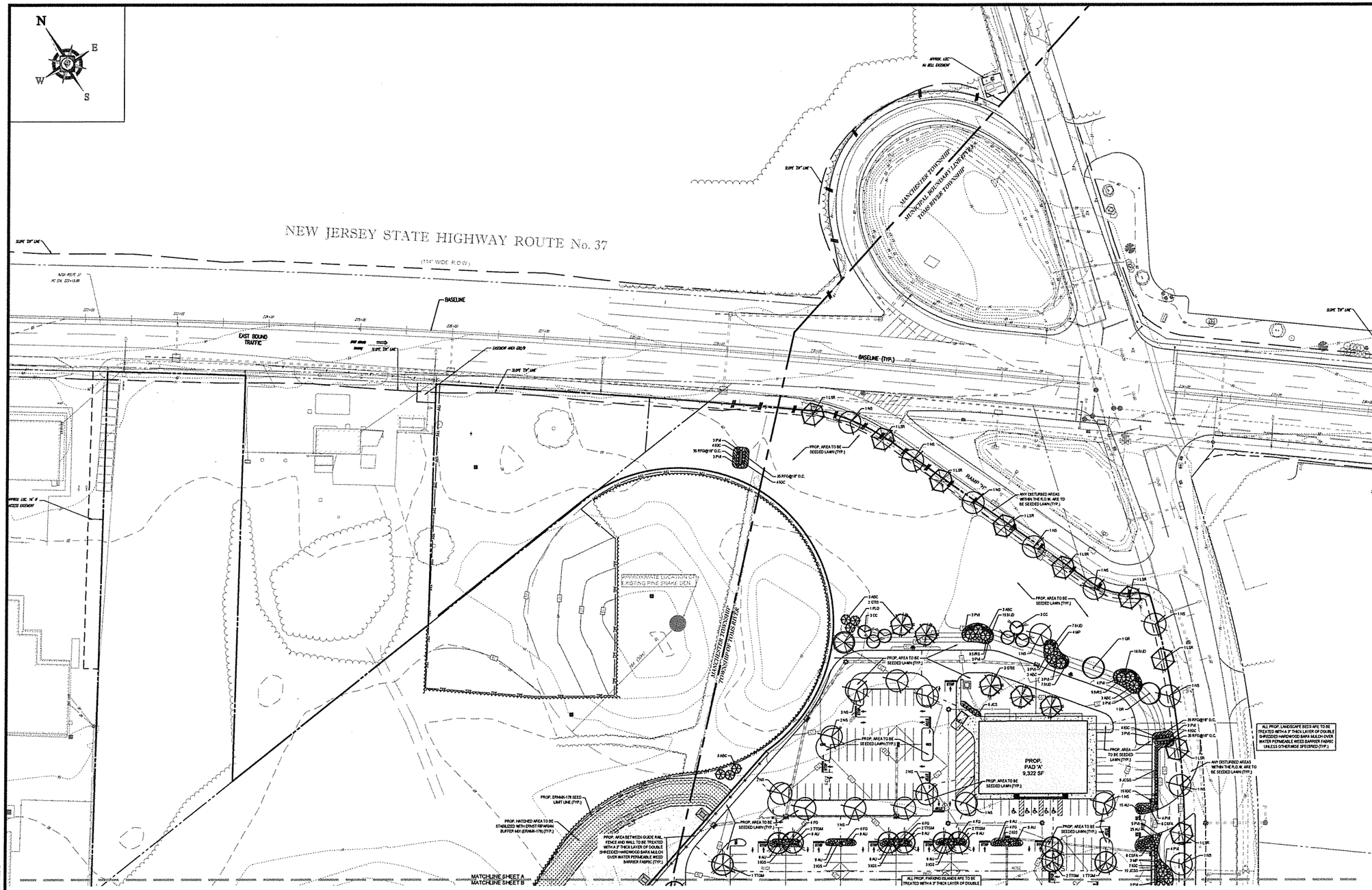
PROJECT No.	JM170508
DRAWN BY:	SMC
CHECKED BY:	ELM
DATE:	11/02/2017
SCALE:	AS SHOWN
CAD I.D.:	JM170508-LGT-1A

PROJECT:
PRELIMINARY & FINAL SITE PLAN
FOR
GRUNIN PROPERTIES
PROPOSED RETAIL DEVELOPMENT
NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, 6 & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HD-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RHB)
OCEAN COUNTY, NEW JERSEY

SHEET TITLE
LIGHTING PLAN 'B'

SHEET NUMBER
C-13
OF 22

REVISION 1 - 06/12/2019



REFER TO LANDSCAPE PLAN 'B' FOR LANDSCAPE SCHEDULE

REFER TO LANDSCAPE NOTES & DETAILS SHEET FOR TOWNSHIP REQUIREMENTS, LANDSCAPE DETAILS & SPECIFICATIONS

THIS PLAN TO BE UTILIZED FOR LANDSCAPE PURPOSES ONLY

BOHLER ENGINEERING

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• DOVER, DE
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• BUFFALO, NY
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REVISIONS

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1	06/12/2019	REV. PER CLIENT COMMENTS	AJH	GSD

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THE SITE PLAN VIEW (ETCH) REFLECTS NOTHING TO ALL OF THE UTILITIES (SEWERS) OR ANY PERSON THEREABOUTS DEPICTED ON THE ACTUAL SURVEYED SITE PLAN.

PROJECT No.	JM172508
DRAWN BY:	SMC
CHECKED BY:	SLM
DATE:	11/02/2017
SCALE:	AS SHOWN
CAD I.D.	JM172508-LAD-1A

PROJECT
PRELIMINARY & FINAL SITE PLAN
FOR
GRUNIN PROPERTIES
PROPOSED RETAIL DEVELOPMENT
NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS: 7.02, 8, & 9, ZONE HO-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RHB)
OCEAN COUNTY, NEW JERSEY

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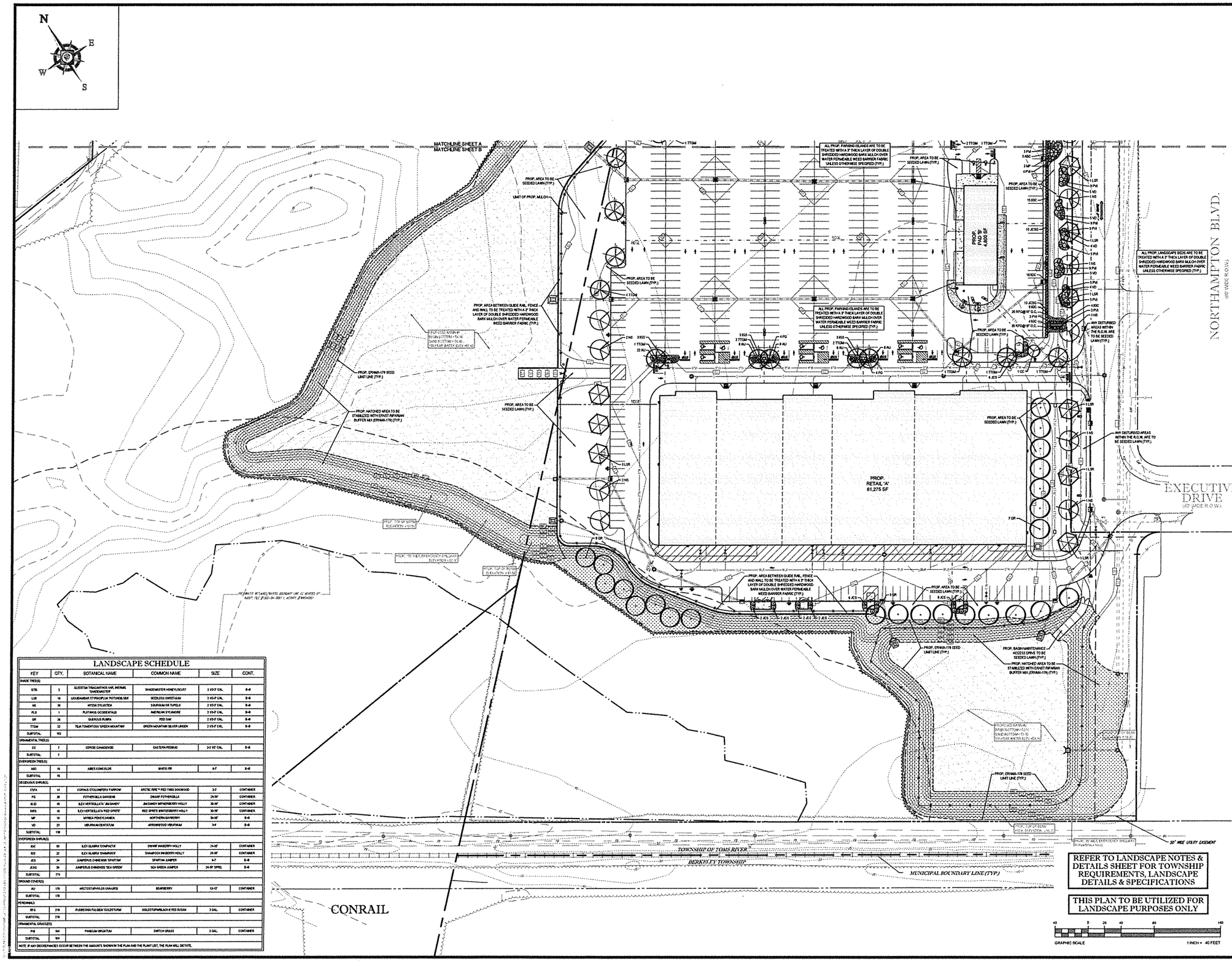
NJ DEPT. OF AUTHORIZATION NO. 24GA28016100

G.S. DiBONA
LICENSED LANDSCAPE ARCHITECT
NEW JERSEY LICENSE No. 21A5001132200

SHEET TITLE:
LANDSCAPE PLAN 'A'

SHEET NUMBER:
C-14
OF 22

REVISION 1 - 06/12/2019



LANDSCAPE SCHEDULE

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	CONT.
SHADE TREES:					
GTS	5	GLEDITSIA TRIACANTHOS VAR. INERMIS 'SHADEMASTER'	SHADEMASTER HONEYLOCUST	3 1/2-3" CAL.	B-B
LSR	14	LIQUIDAMBAR STYRACIFLUA 'PROTOTYPE'	SEEDLESS SWEETGUM	3 1/2-3" CAL.	B-B
NS	34	NYSSA SYLVATICA	SLIPPERY GUM TUPELO	3 1/2-3" CAL.	B-B
PLO	1	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	3 1/2-3" CAL.	B-B
QR	26	QUERCUS RUBRA	RED OAK	3 1/2-3" CAL.	B-B
TTGM	22	TILIA TOMENTOSA 'GREEN MOUNTAIN'	GREEN MOUNTAIN SILVER LINDEN	3 1/2-3" CAL.	B-B
SUBTOTAL	102				
ORNAMENTAL TREES:					
CC	7	CERCIS CANADENSIS	EASTERN REDBUD	2-2 1/2" CAL.	B-B
SUBTOTAL	7				
EVERGREEN TREES:					
ABC	15	ABIES CONCOLOR	WHITE FIR	6-7'	B-B
SUBTOTAL	15				
DECIDUOUS SHRUBS:					
CVA	14	CORNUS STOLONIFERA 'FARROW'	ARCTIC FIRE ® RED TWIG DOGWOOD	3-3'	CONTAINER
FG	38	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	24-30"	CONTAINER
ILO	45	ILEX VERTICILLATA 'JIM DANDY'	JIM DANDY WINTERBERRY HOLLY	30-36"	CONTAINER
IMS	15	ILEX VERTICILLATA 'RED SPIRIT'	RED SPIRIT WINTERBERRY HOLLY	30-36"	CONTAINER
NP	18	MYRICA PENSYLVANICA	NORTHERN BAYBERRY	36-60"	B-B
VO	23	VIBURNUM OPULUS VAR.	AMERICAN CRANBERRYBUSH VIBURNUM	3-4'	B-B
SUBTOTAL	158				
EVERGREEN SHRUBS:					
IGC	85	ILEX GLABRA 'COMPACTA'	DWARF INKBERRY HOLLY	24-30"	CONTAINER
IGS	22	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY HOLLY	24-30"	CONTAINER
JCS	34	JUNIPERUS CHINENSIS 'SPARTAN'	SPARTAN JUNIPER	6-7'	B-B
JCSG	36	JUNIPERUS CHINENSIS 'SEA GREEN'	SEA GREEN JUNIPER	24-30" SPRD.	B-B
SUBTOTAL	174				
GROUND COVERS:					
AU	170	ARCTOSTAPHYLOS UVA-URSI	BEARBERRY	12-18"	CONTAINER
SUBTOTAL	170				
PERENNIALS:					
RFG	214	RUDBECKIA FULGIDA 'GOLDSTURM'	GOLDSTURM BLACK-EYED SUSAN	1 GAL.	CONTAINER
SUBTOTAL	214				
ORNAMENTAL GRASSES:					
PVG	164	PANICUM VIRGATUM	SWITCH GRASS	1 GAL.	CONTAINER
SUBTOTAL	164				

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN THE AMOUNTS SHOWN IN THE PLAN AND THE PLANT LIST, THE PLAN WILL DEFAULT.

BOHLER ENGINEERING

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7 DENVER, CO
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10 DALLAS, TX

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NEBRASKA
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REVISIONS

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1	06/12/2019	REV. PER CLIENT COMMENTS	AJR GSD

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THE STATE OF NEW JERSEY REQUIRES NOTIFICATION OF ANY EXCAVATION OR DEMOLITION WITHIN 1,000 FEET OF ANY STATE HIGHWAY OR FREEWAY. CALL 1-800-272-1000 AT LEAST THREE BUSINESS DAYS BEFORE YOU DIG.

PROJECT No.	JM170506
DRAWN BY:	SMC
CHECKED BY:	BLM
DATE:	11/20/2017
SCALE:	AS SHOWN
CAD I.D.	JM170506-LND-14

PROJECT:

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT
NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HD-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE R-6B)
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
BOHLER ENGINEERING NJ LLC
14000 MIDLANTIC DRIVE, SUITE 410W
MOUNT LAUREL, NJ 08054
Phone: (856) 330-6200
Fax: (856) 330-6201
www.BohlerEngineering.com
NJ CERT. OF AUTHORIZATION No. 24GA28000300

G.S. DiBONA
LICENSED LANDSCAPE ARCHITECT
NEW JERSEY LICENSE No. 21A5001112200

SHEET TITLE:

LANDSCAPE PLAN 'B'

SHEET NUMBER:

C-15
OF 22

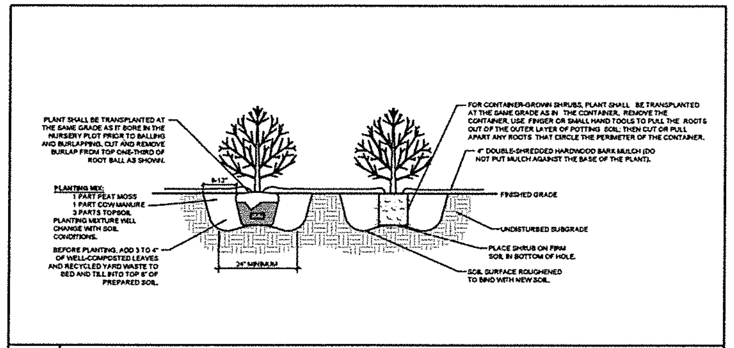
REVISION 1 - 06/12/2019

TOWNSHIP OF TOMS RIVER COMPLIANCE CHART

SECTION	REQUIREMENT	CALCULATIONS	COMPLIANCE
[illegible]	[illegible]	[illegible]	[illegible]

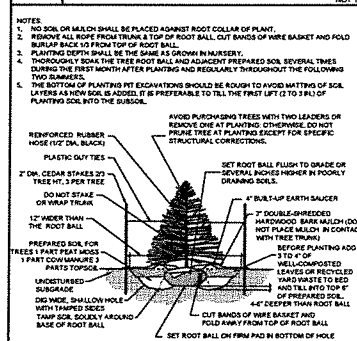
TOWNSHIP OF MANCHESTER COMPLIANCE CHART

SECTION	REQUIREMENT	CALCULATIONS	COMPLIANCE
[illegible]	[illegible]	[illegible]	[illegible]



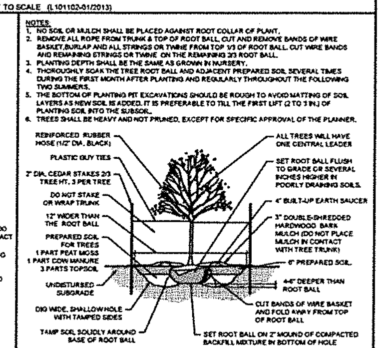
1 — DECIDUOUS AND EVERGREEN SHRUB PLANTING DETAIL

NOT TO SCALE (L101103-01/2013)



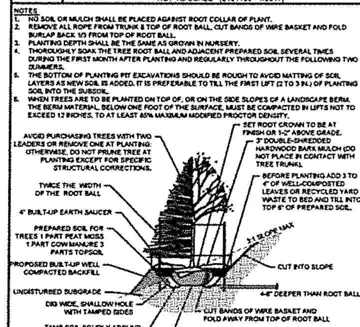
2 — EVERGREEN TREE PLANTING DETAIL W/ STAKES

NOT TO SCALE (L101105-1/2017)



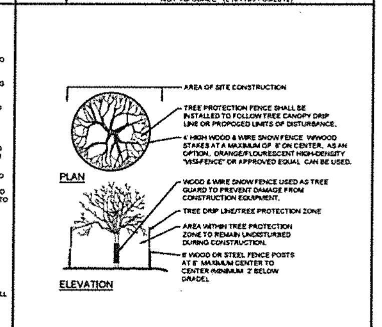
3 — DECIDUOUS TREE PLANTING DETAIL W/ STAKES

NOT TO SCALE (L101106-06/2012)



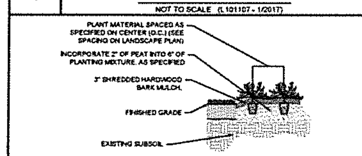
4 — TREE PLANTING ON SLOPE DETAIL

NOT TO SCALE (L101107-1/2017)



5 — TREE PROTECTION DURING SITE CONSTRUCTION DETAIL

NOT TO SCALE (L109001-01/2013)



6 — PERENNIAL/GROUND COVER PLANTING DETAIL

NOT TO SCALE (L101101-01/2013)

SEEDING SPECIFICATIONS:

1. PRIOR TO SEEDING, AREA IS TO BE TOPSOILED, FINE GRADED, AND RAKED OF ALL DEBRIS LARGER THAN 2" DIAMETER.

2. PRIOR TO SEEDING, CONSULT MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.

3. SEEDING RATES:

PERENNIAL RYEGRASS	1/2 LB/1,000 SQ FT
KENTUCKY BLUEGRASS	1 LB/1,000 SQ FT
RED FESCUE	1 1/2 LBS/1,000 SQ FT
SPREADING FESCUE	1 1/2 LBS/1,000 SQ FT
FERTILIZER (20:10:10)	14 LBS/1,000 SQ FT
MULCH	90 LBS/1,000 SQ FT

4. GERMINATION RATES WILL VARY AS TO TIME OF YEAR FOR SOWING. CONTRACTOR TO IRRIGATE SEEDED AREA UNTIL AN ACCEPTABLE STAND OF COVER IS ESTABLISHED BY OWNER.

ERNST SEED CO. RIPARIAN BUFFER MIX (ERNMX-178):

BOTANICAL NAME	COMMON NAME	%
ELYMUS VIRGINICUS	VIRGINIA WILDRYE	20%
SORGHASTRUM NUTANS	INDIANGRASS	16%
PANICUM CLANDESTINUM 'TIOGA'	DEERTONGUE 'TIOGA'	15%
ANDROPOGON GERARDII 'NIAGARA'	BIG BLUESTEM 'NIAGARA'	12.5%
PANICUM VIRGATUM 'CARTHAGE'	SWITCHGRASS 'CARTHAGE'	8%
CHAMAECRISTA FASCICULATA	PARTRIDGE PEA	5%
AGROSTIS PERENNANS	AUTUMN BENTGRASS	4%
VERBENA HASTATA	BLUE VERVAIN	4%
RUDBECKIA HIRTA	BLACKEYED SUSAN	3%
HELIOPSIS HELIANTHOIDES	OXEYE SUNFLOWER	3%
ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	2.3%
JUNCUS EFFUSUS	SOFT RUSH	2%
EUPATORIUM PERFOLIATUM	BONESET	1%
EUPATORIUM FISTULOSUM	JOE PYE WEED	1%
BAPTISIA AUSTRALIS	BLUE FALSE INDIGO	1%
VERNONIA NOVEBORACENSIS	NEW YORK IRONWEED	1%
LOBELIA SIPHILITICA	GREAT BLUE LOBELIA	0.5%
MONARDA FISTULOSA	WILD BERGAMOT	0.5%
EUTHAMIA GRAMINIFOLIA	GRASSLEAF GOLDENROD	0.2%

1. SEEDING RATE: 20 LB PER ACRE WITH A COVER CROP AT 30 LB PER ACRE.

LANDSCAPE SPECIFICATIONS:

[illegible]

IRRIGATION NOTE:

CONTRACTOR TO PROVIDE AN IRRIGATION DESIGN FOR BOTH LAWN AND BED AREAS. DESIGN IS TO BE SUBMITTED TO THE PROJECT LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL. CONTRACTOR TO VERIFY STATIC PRESSURE PRIOR TO DESIGN. CONTRACTOR IS ALSO RESPONSIBLE FOR ANY PRESSURE REDUCING DEVICES REQUIRED TO MEET MAXIMUM PRESSURE REQUIREMENT. SYSTEM DESIGN IS TO SHOW ALL VALVES, PIPING, HEADS, BACKFLOW PREVENTION, METERS AND CONTROLLERS. ALL SLEEVES IN PAVEMENT AREAS MUST BE SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BACKFLOW PREVENTION DEVICE INSTALLATION AND PERMITTING.

THIS PLAN TO BE UTILIZED FOR LANDSCAPE PURPOSES ONLY

OWNER MAINTENANCE RESPONSIBILITIES

UPON OWNER'S (OR OWNER CONTRACTOR'S) COMPLETION OF LANDSCAPING WORK, THE OWNER IS FULLY RESPONSIBLE FOR ALL FUTURE MAINTENANCE, CARE, UPKEEP, WATERING, AND TRIMMING OF ALL INSTALLED VEGETATION, PLANTS, TREE, BUSHES, SHRUBS, GRASSES, GRASS, ORNAMENTAL PLANTS AND FLOWERS, FLOWERS, GROUND COVER, AND LANDSCAPING, INCLUDING ALL LANDSCAPE ISLANDS AND AREAS ADJACENT OR PART OF THE LANDSCAPED AREAS. THIS RESPONSIBILITY INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

- TREES ADJACENT TO WALKWAYS AND AREAS OF PEDESTRIAN TRAFFIC MUST BE MAINTAINED TO ASSURE THAT ANY BRANCHES MUST BE LIMBED UP TO A CLEARANCE HEIGHT OF 7 FT. (FROM ALL PEDESTRIAN SURFACES) OR PRUNED BACK TO AVOID ANY INTERFERENCE WITH THE TYPICAL PATH OF TRAVEL.
- TREES WITHIN VEHICULAR SIGHT LINES, AS ILLUSTRATED ON THE LANDSCAPE PLAN, ARE TO BE TRIMMED TO A CLEARANCE HEIGHT OF 7 FT. (FROM ALL PAVED, TRAVELED SURFACES), OR AS OTHERWISE INDICATED ON THE PLANS.
- VEGETATIVE GROUND COVER, SHRUBS AND ORNAMENTAL PLANTS AND GRASSES MUST BE TRIMMED SO THAT NO PORTION OF THE PLANT EXCEEDS 30 INCHES ABOVE GRADE (OF ALL PAVED, TRAVEL SURFACES) ALONG AND WITHIN THE SIGHT LINES OF PARKING LOTS AND INGRESS-EGRESS WAYS.
- FALLEN PLANT FLOWERS, FRUIT, SEEDS AND DEBRIS DROPPINGS ARE TO BE REMOVED IMMEDIATELY FROM VEHICULAR AND PEDESTRIAN TRAFFIC AREAS TO PREVENT TRIPPING, SLIPPING OR ANY OTHER HAZARDS.

THESE REQUIREMENTS DO NOT AFFECT THE PLANT LIFE GUARANTEES THE LANDSCAPE CONTRACTOR IS REQUIRED TO PROVIDE.

BOHLER ENGINEERING

REVISIONS

REV	DATE	COMMENT	BY
1	06/12/2019	REV. PER CLIENT COMMENTS	AJH / GSD

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PROJECT No.:	JM170508
DRAWN BY:	SMC
CHECKED BY:	SLM
DATE:	11/30/2017
SCALE:	AS SHOWN
CAD I.D.:	JM170508-LND-1A

PROJECT:

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT

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OCEAN COUNTY, NEW JERSEY

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G.S. DiBONA
LICENSED LANDSCAPE ARCHITECT
NEW JERSEY LICENSE No. 21AS00112200

SHEET TITLE:

LANDSCAPE NOTES & DETAILS

SHEET NUMBER:

C-16 OF 22

REVISION 1 - 06/12/2019

LEGEND

SOIL EROSION CONSTRUCTION MEASURES

—— LOD ——	LIMIT OF DISTURBANCE
—— SF ——	SILTFENCE
(symbol)	HAYBALE
(symbol)	INLET FILTER
(symbol)	STABILIZED CONSTRUCTION ENTRANCE

OCEAN COUNTY SCD NOTES:

(6/2019)

1. THE OCEAN COUNTY SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY LAND DISTURBANCE.
2. ALL WORK IS TO BE DONE IN ACCORDANCE WITH THE STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
3. 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.
4. 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. THE REVISED PLANS MUST MEET ALL CURRENT "THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY, 7TH EDITION, JANUARY 2014, REVISED JULY 2017. LINK TO 2014 STANDARDS: HTTP://WWW.STATE.NJ.US/AGRICULTURE/DIVISIONS/ANR/NRC/NJEROSION.HTML
5. N.J.S.A 4:24-39 ET SEQ. REQUIRES THAT NO CERTIFICATES OF OCCUPANCY BE ISSUED BEFORE THERE HAS BEEN COMPLIANCE WITH PROVISIONS OF A CERTIFIED PLAN FOR PERMANENT MEASURES. ALL SITE WORK, AND ALL WORK AROUND INDIVIDUAL LOTS IN SUBDIVISIONS, MUST BE COMPLETED PRIOR TO THE DISTRICT ISSUING A REPORT OF COMPLIANCE FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE MUNICIPALITY.
6. 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 WITHIN 14 DAYS, AT A RATE OF 2 TO 2 ½ TONS PER ACRE, ACCORDING TO STATE STANDARD FOR STABILIZATION WITH MULCH ONLY.
7. 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 ½ TO 2 TONS PER ACRE, ACCORDING TO STATE STANDARDS.
8. 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 SUB-BASE SHALL BE INSTALLED WITHIN FIFTEEN (15) DAYS OF THE PRELIMINARY GRADING.
9. ANY STEEP SLOPES (3:1 OR GREATER) OR ANY EXISTING ROADWAYS RECEIVING PIPELINE INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION CONTINUES.
10. THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS REQUIRES THE INSTALLATION OF A STONE PAD USING CLEAN CRUSHED ANGULAR STONE (ASTM C-33, SIZE NO. 2 OR 3) AT ALL CONSTRUCTION DRIVEWAYS WHERE VEHICLES WILL ACCESS PAVED ROADWAYS FROM UNPAVED AREAS OF THE SITE.
11. ALL SEDIMENT WASHED, DROPPED, SPILLED, OR TRACKED ONTO ROADWAYS (PUBLIC OR PRIVATE) OR OTHER IMPERVIOUS SURFACES WILL BE REMOVED IMMEDIATELY.
12. PERMANENT VEGETATION IS TO BE SEEDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING. AT THE TIME OF THE FINAL INSPECTION, YOU ARE REQUIRED TO PROVIDE CONFIRMATION THAT THE PROPER TYPE AND AMOUNT OF SEED, LIME AND FERTILIZER HAVE BEEN USED FOR PERMANENT STABILIZATION WORK. STRAW MULCH IS REQUIRED ON ALL SEEDING.
13. AT THE TIME THAT 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 IT 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.
14. 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.
15. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL. CONDUIT OUTLET PROTECTION IS NOT REQUIRED IN BASINS ACTING AS SEDIMENT BASINS DURING CONSTRUCTION.
16. UNFILTERED DEWATERING IS NOT PERMITTED. NECESSARY PRECAUTIONS MUST BE TAKEN DURING ALL DEWATERING OPERATIONS TO MINIMIZE SEDIMENT TRANSFER. ANY DEWATERING METHODS USED MUST BE IN ACCORDANCE WITH THE STANDARD FOR DEWATERING.
17. 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 AS REQUIRED BY THE STANDARD FOR DUST CONTROL.
18. STOCKPILE AND STAGING LOCATIONS ESTABLISHED IN THE FIELD SHALL BE PLACED WITHIN THE LIMIT OF DISTURBANCE ACCORDING TO THE CERTIFIED PLAN. STAGING AND STOCKPILES NOT LOCATED WITHIN THE LIMIT OF DISTURBANCE WILL REQUIRE CERTIFICATION OF A REVISED SOIL EROSION AND SEDIMENT CONTROL PLAN. THE DISTRICT RESERVES THE RIGHT TO DETERMINE WHEN CERTIFICATION OF A NEW AND SEPARATE SOIL EROSION AND SEDIMENT CONTROL PLAN WILL BE REQUIRED FOR THESE ACTIVITIES.
19. ALL SOIL STOCKPILES ARE TO BE TEMPORARILY STABILIZED IN ACCORDANCE WITH SOIL EROSION AND SEDIMENT CONTROL NOTE #6. STOCKPILES SHOULD BE SITUATED SO AS TO NOT OBSTRUCT NATURAL DRAINAGE OR CAUSE OFF-SITE ENVIRONMENTAL DAMAGE.
20. 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.

BMP MAINTENANCE

(OCSCD/SRC)

ALL MEASURES STATED ON THIS SITE MAP, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR THE APPLICABLE PERMIT, WHICHEVER IS MORE STRINGENT, AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

1. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.
2. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.
3. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
4. THE CONSTRUCTION EXITS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION EXITS AS CONDITIONS DEMAND.
5. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AREA AS CONDITIONS DEMAND.
6. OUTLET STRUCTURES IN THE SEDIMENTATION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
7. PRIOR TO LEAVING THE SITE, ALL VEHICLES SHALL CLEANED OF DEBRIS. ANY DEBRIS AND/OR SEDIMENT REACHING THE PUBLIC STREET SHALL BE CLEANED IMMEDIATELY BY A METHOD OTHER THAN FLUSHING.

SEQUENCE OF CONSTRUCTION:

PHASE 1: INSTALL STONE ANTI-TRACKING PAD AND OTHER SOIL EROSION SEDIMENT CONTROL MEASURES INCLUDING DOWN SLOPE PERIMETER HAY BALES AND SILT FENCING. EXCAVATION, CONSTRUCTION, AND STABILIZATION OF SEDIMENT BASIN(S). (30 DAYS)

PHASE 2: CLEAR AND ROUGH GRADE FOR NEW BUILDING SITE AND OTHER STRUCTURES REQUIRING EXCAVATION. (15 DAYS)

PHASE 3: CONSTRUCT AND STABILIZED PROPOSED VERNAL POOL (30 DAYS)

PHASE 4: EXCAVATE AND INSTALL UNDERGROUND PIPING AND DRAINAGE STRUCTURES. (30 DAYS)

PHASE 5: EXCAVATE FOR BUILDING FOUNDATION. (15 DAYS)

PHASE 6: COMPLETE BUILDING CONSTRUCTION. (120 DAYS)

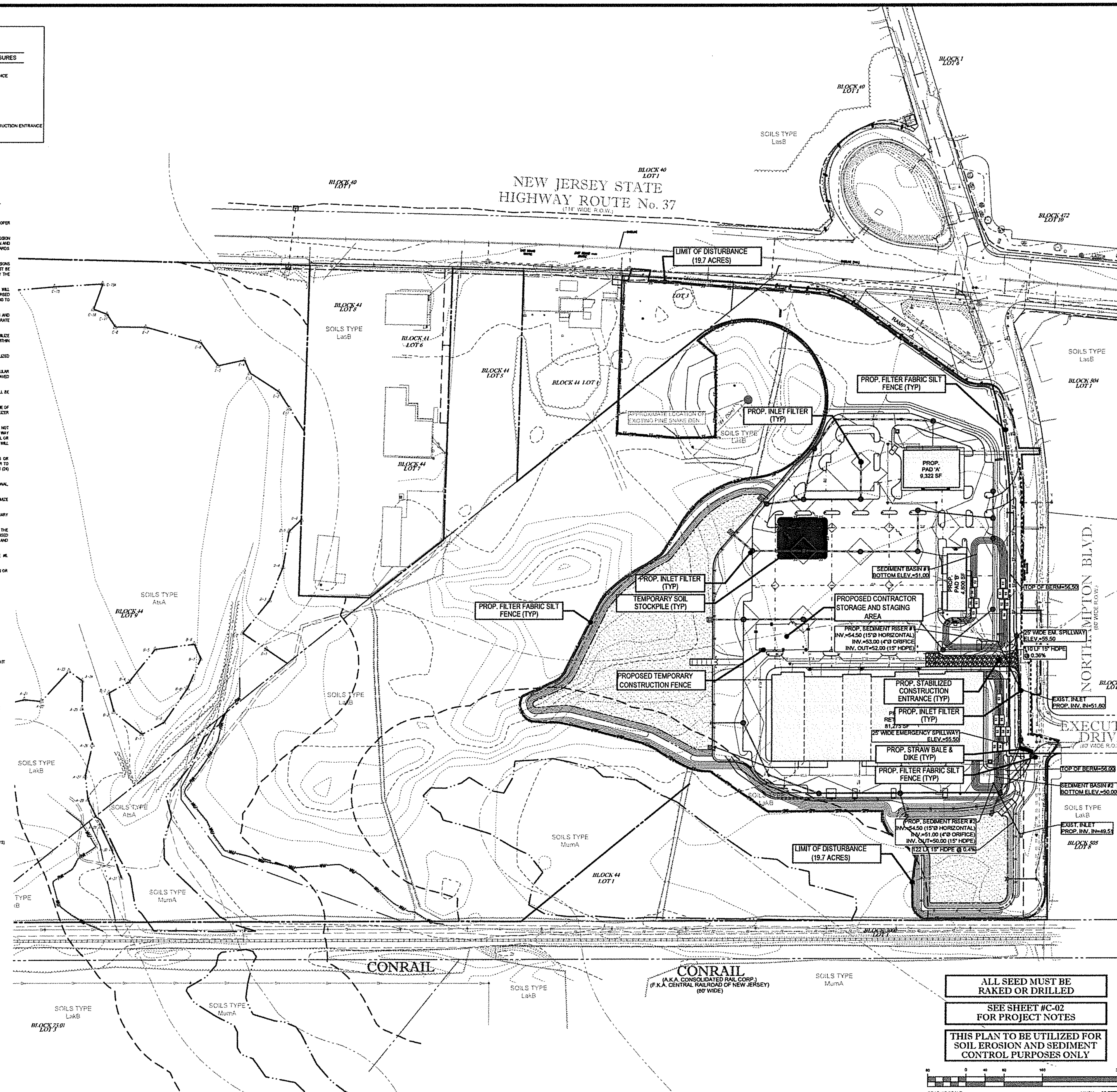
PHASE 7: ONCE UPSTREAM AREA HAS BEEN STABILIZED, CONSTRUCT THE PROPOSED BASINS (30 DAYS)

PHASE 8: EXCAVATE AND INSTALL ON SITE IMPROVEMENTS INCLUDING CURBING, UNDERGROUND PIPING, AND DRAINAGE STRUCTURES. (60 DAYS)

PHASE 9: FINAL GRADING ON SITE. (15 DAYS)

PHASE 10: INSTALL PAVING, CONCRETE, AND FINAL VEGETATION INCLUDING SEEDING AND LANDSCAPING. (30 DAYS)

A DETAILED SEQUENCE OF CONSTRUCTION TO BE PROVIDED TO OCEAN COUNTY SOIL CONSERVATION DISTRICT FOR REVIEW PRIOR TO CONSTRUCTION



ALL SEED MUST BE RAKED OR DRILLED

SEE SHEET #C-02 FOR PROJECT NOTES

THIS PLAN TO BE UTILIZED FOR SOIL EROSION AND SEDIMENT CONTROL PURPOSES ONLY

GRAPHIC SCALE 1 INCH = 80 FEET

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING · LAND SURVEYING · PROGRAM MANAGEMENT · LANDSCAPE ARCHITECTURE · SUSTAINABLE DESIGN · PERMITTING SERVICES · TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	06/12/2019	REV. PER CLIENT COMMENTS	A.H / GSD

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROTECT YOURSELF

PROJECT No.:	JM170508
DRAWN BY:	SMC
CHECKED BY:	SLM
DATE:	11/30/2017
SCALE:	AS SHOWN
CAD I.D.:	JM170508-SPP-1A

PROJECT:

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT

NJSH RT. 37 & NORTHAMPTON BLVD. BLOCK 44, LOTS 2, 3, 5, 6 & 9 MANCHESTER TOWNSHIP (TAX MAP SHEETS 7.02, 8, & 9, ZONE HD-3) BLOCK 505, LOTS 14 & 15 TOMS RIVER TOWNSHIP (TAX MAP SHEET 54, ZONE RHB) OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING NJ, LLC
10000 MIDLANTIC DRIVE, SUITE 410W
MOUNT LAUREL, NJ 08054
Phone (856) 930-4000
Fax (856) 930-4001
www.BohlerEngineering.com

D.F. WISOTSKY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 42951
CONNECTICUT LICENSE No. 22094
NEW YORK LICENSE No. 073745

SHEET TITLE:

SOIL EROSION & SEDIMENT CONTROL PLAN

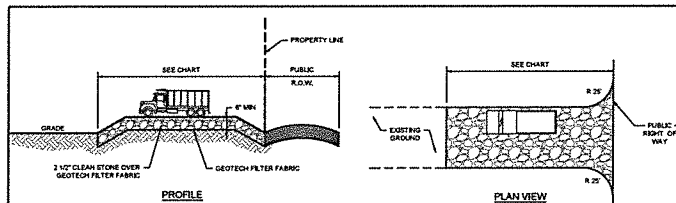
SHEET NUMBER:

C-17 OF 22

REVISION 1 - 06/12/2019

1 STABILIZED CONSTRUCTION ENTRANCE AND ANTI-TRACKING PAD DETAIL

NOT TO SCALE (O029901 - 1/2017)



CHART

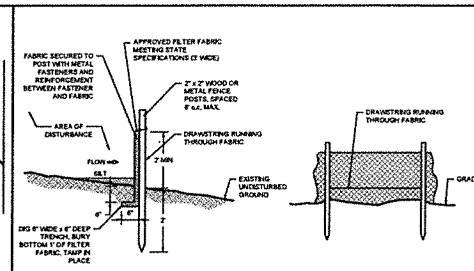
PERCENT SLOPE OF ROADWAY	LENGTH OF STONE REQUIREMENTS	
	COARSE GRAINED SOILS	FINE GRAINED SOILS
0% TO 2%	50 Ft	100 Ft
2% TO 5%	100 Ft	200 Ft
>5%	ENTIRE ENTRANCE STABILIZED WITH HOT MIX ASPHALT BASE COURSE, MIX I-2*	

* AS PRESCRIBED BY LOCAL ORDINANCE OR OTHER GOVERNING AUTHORITY.

NOTES:
1. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN THE ANTI-TRACKING PAD FOR THE DURATION OF THE PROJECT, SO THAT THE ROAD IS KEPT CLEAN.
2. PROVIDE APPROPRIATE TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND PUBLIC R.O.W.
3. CONTRACTOR SHALL APPLY TOP DRESSING WITH REPLACEMENT/ SUPPLEMENTAL STONE AS NECESSARY DURING THE PROJECT TO MAINTAIN ADEQUATE ANTI-TRACKING FUNCTION.

2 SILT FENCE DETAIL

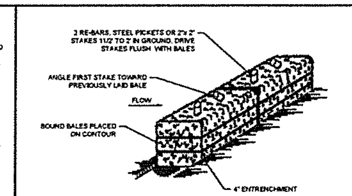
NOT TO SCALE (O039902 - 1/2017)



NOTES:
1. PLACE SILT FENCE AT LOCATIONS AS SHOWN ON THE SOIL EROSION AND SEDIMENT CONTROL PLAN.
2. THE SLOPE OF THE LAND FOR AT LEAST 30 FEET ADJACENT TO ANY SILT FENCE SHALL NOT EXCEED 5%.
3. SILT FENCE SHALL BE INSTALLED SO WATER CANNOT BYPASS THE FENCE AROUND THE SIDES.
4. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE AS PROMPTLY AS POSSIBLE.
5. SILT FENCE SHALL REMAIN IN PLACE FOR THE DURATION OF THE PROJECT UNLESS OTHERWISE INSTRUCTED BY THE MUNICIPAL ENGINEER OR SOIL CONSERVATION DISTRICT.
6. THE BARRIER SHALL BE REMOVED WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE AND ACCEPTED BY THE MUNICIPAL ENGINEER OR SOIL CONSERVATION DISTRICT.
7. FENCE POSTS SHALL BE SPACED 8 FEET CENTER-TO-CENTER OR CLOSER. THEY SHALL EXTEND AT LEAST 2 FEET INTO THE GROUND AND EXTEND AT LEAST 2 FEET ABOVE GROUND. POSTS SHALL BE CONSTRUCTED OF HARDWOOD A MIN. DIAMETER THICKNESS OF 1 1/2 INCHES.
8. A METAL FENCE WITH 6 INCH OR SMALLER OPENINGS AND AT LEAST 2 FEET HIGH MAY BE UTILIZED, FASTENED TO THE FENCE POSTS, TO PROVIDE REINFORCEMENT AND SUPPORT TO THE GEOTEXTILE FABRIC WHERE SPACE FOR OTHER PRACTICES IS LIMITED AND HEAVY SEDIMENT LOADING IS EXPECTED.
9. A GEOTEXTILE FABRIC, RECOMMENDED FOR SUCH USE BY THE MANUFACTURER, SHALL BE BURIED AT LEAST 6 INCHES DEEP IN THE GROUND. THE FABRIC SHALL EXTEND AT LEAST 2 FEET ABOVE GROUND. FABRIC MUST BE SECURELY FASTENED TO THE POSTS USING A SYSTEM CONSISTING OF METAL FASTENERS (NAILS OR STAPLES) AND HIGH STRENGTH REINFORCEMENT MATERIAL (NYLON WEBBING, GROMMETS, WASHERS ETC.) PLACED BETWEEN THE FASTENER AND THE GEOTEXTILE FABRIC. THE FASTENING SYSTEM SHALL RESIST TEARING AWAY FROM THE POST. THE FABRIC SHALL INCORPORATE A DRAWSTRING TO INDICATE LIMIT OF SILT ACCUMULATION. CONTRACTOR MUST CLEAR THE ACCUMULATED SILT WHEN LIMIT IS REACHED.

3 STRAW BALE & DIKE DETAIL

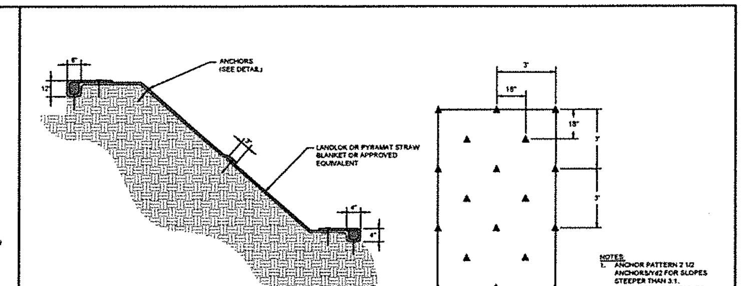
NOT TO SCALE (O059901-01/2013)



NOTES:
1. BALES SHALL BE PLACED AT THE TOP OF A SLOPE OR ON THE CONTOUR AND IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE PLACED SO THE BINDINGS ARE HORIZONTAL.
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
4. INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE PROMPTLY AS NEEDED.
5. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
6. DRAINAGE AREA NO MORE THAN 1/4 AC. PER 100 FEET OF STRAW BALE DIKE FOR SLOPES LESS THAN 25%.

4 STRAW BLANKET & ANCHORING DETAIL

NOT TO SCALE (O999917 - 4/2017)

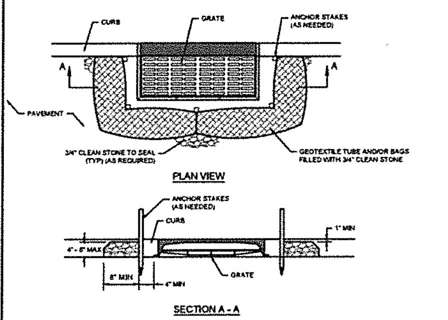


NOTES:
1. UTILIZE CORRECT ANCHOR PATTERN FOR SLOPE GRADIENT (SEE ANCHOR PATTERN DETAIL)
2. INSTALL LANDLOK OR PYRAMAT STRAW BLANKET OR PRE-APPROVED EQUIVALENT.

NOTES:
1. ANCHOR PATTERN 2 1/2 ANCHORS/SY(2 FOR SLOPES STEEPER THAN 3:1.
2. U - SHAPED WIRE STAPLES, METAL GEOTEXTILE PINS, TRIANGULAR WOODEN OR PLASTIC STAKES CAN BE USED TO ANCHOR STRAW BLANKET TO THE GROUND SURFACE.

5 INLET FILTER DETAIL

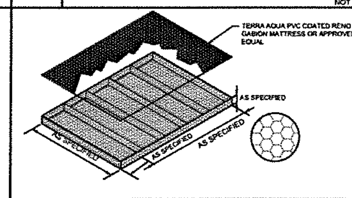
NOT TO SCALE (O049901-01/2013)



NOTES:
1. GEOTEXTILE TO BE WOVEN POLYPROPYLENE PRODUCT 117F, BY SYNTHETIC INDUSTRIES INC., OR TERRATEX SC, BY WESTEC INC., OR APPROVED EQUIVALENT.
2. 3/4" CLEAN STONE CORE SHALL BE COMPLETELY CONTAINED WITHIN GEOTEXTILE. SEAMS SHALL BE SEWN OR CLOSED BY SUITABLE MECHANICAL MEANS TO PREVENT LEAKAGE OF STONE.
3. ANCHOR STAKES OF WOOD OR METAL SHALL BE INSTALLED WHERE REQUIRED BY FIELD CONDITIONS TO PREVENT MOVEMENT OF BARRIER.
4. WHERE NO CURB IS PRESENT, BARRIER SHALL COMPLETELY ENCIRCLE THE DRAIN INLET.
5. INLET GRATE OPENING IS TO BE KEPT CLEAR OF OBSTRUCTIONS AT ALL TIMES.
6. THE PROTECTION DEVICE WILL BE DESIGNED TO CAPTURE OR FILTER RUNOFF FROM THE 1 YEAR, 24 HOUR STORM EVENT AND SHALL SAFELY CONVEY HIGHER FLOWS DIRECTLY INTO THE STORM SEWER SYSTEM. WHERE SLOPE REQUIRES, AN EARTHEN BERM SHALL BE INSTALLED TO DIRECT STORM FLOW INTO THE INLET, BUT NOT OVER THE CURB.
7. OTHER METHODS THAT ACCOMPLISH THE PURPOSE OF STORM SEWER INLET PROTECTION MAY BE USED IF APPROVED BY THE SOIL CONSERVATION DISTRICT.
8. INSPECTIONS SHALL BE FREQUENT, MAINTENANCE, REPAIR, AND REPLACEMENT SHALL BE MADE PROMPTLY, AS NEEDED. THE BARRIER SHALL BE REMOVED WHEN THE AREA DRAINING TOWARDS THE INLET HAS BEEN STABILIZED AND ACCEPTED BY THE MUNICIPAL ENGINEER AND/OR SOIL CONSERVATION DISTRICT.

6 GABION MATTRESS DETAIL

NOT TO SCALE (O999904-01/2013)

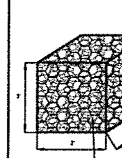


NOTE:
CONTRACTOR TO INSTALL PER MANUFACTURER'S REQUIREMENTS.

RENO MATTRESS UNIT SIZE	CAPACITY CUBIC YARD	NO. OF INTERNAL CELLS
6'x9'x6"	1	3
12'x6'x6"	1.333	4
6'x9'x9"	1.5	3
12'x6'x9"	2	4
9'x6'x12"	2	3
12'x6'x12"	2.666	4

7 GABION WALL DETAIL

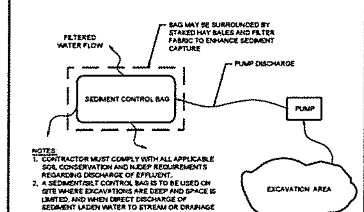
NOT TO SCALE



WIRE GABION BASKET, EPOXY COATED 12 GA. WIRE AS PROVIDED BY MACCAFERRI GABION MONTVALE, N.J. (201) 930-1441, OR APPROVED EQUAL BASKETS TO BE INSTALLED TO MANUFACTURERS SPECIFICATIONS

8 NJ SCD SEDIMENT CONTROL BAG FOR DEWATERING DETAIL

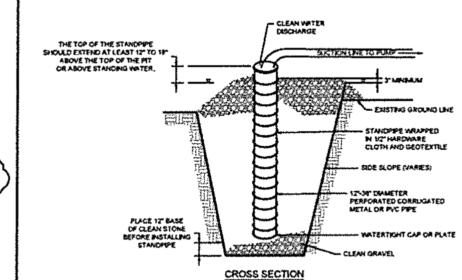
NOT TO SCALE (O069906-08/2015)



NOTES:
1. CONTRACTOR MUST COMPLY WITH ALL APPLICABLE SOIL CONSERVATION AND NJDEP REQUIREMENTS REGARDING DISCHARGE OF EFFLUENT.
2. A SEDIMENT/SILT CONTROL BAG IS TO BE USED ON SITE WHERE EXCAVATIONS ARE DEEP AND SPACE IS LIMITED, AND WHEN DIRECT DISCHARGE OF SEDIMENT LADEN WATER TO STREAM OR DRAINAGE SYSTEM IS TO BE AVOIDED.
3. BAG MUST BE LOCATED AWAY FROM RECEIVING WATERS AND/OR CONSTRUCTION ACTIVITIES.
4. BAGS MUST BE DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND FED.,STATE, AND LOCAL REGULATIONS. BAGS MAY NOT BE REUSED.
5. DISCHARGE HOSE FROM PUMP MUST BE PLACED IN A STABILIZED AREA DOWN SLOPE OF UNSTABILIZED AREAS TO PREVENT EROSION.
6. MAINTENANCE MUST BE PERFORMED BY THE CONTRACTOR WHEN THE PUMP RUNS DRY AND BACK UP WATER REMAINS.

9 SUMP PIT DETAIL

NOT TO SCALE (O999907-01/2013)

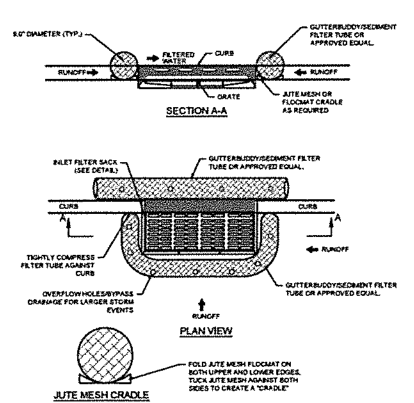


CONSTRUCTION SPECIFICATIONS
1. PIT DIMENSIONS ARE VARIABLE, WITH THE MINIMUM DIAMETER BEING 2 TIMES THE STANDPIPE DIAMETER.
2. THE STANDPIPE SHOULD BE CONSTRUCTED BY PERFORATING A 12" TO 24" DIAMETER CORRUGATED OR PVC PIPE. THEN WRAPPING WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE PERFORATIONS SHALL BE 1/2" x 6" SLITS OR 1" DIAMETER HOLES.
3. A BASE OF FILTER MATERIAL CONSISTING OF CLEAN GRAVEL OR ASTM C33 STONE SHOULD BE PLACED IN THE PIT TO A DEPTH OF 12". AFTER INSTALLING THE STANDPIPE, THE PIT SURROUNDING THE STANDPIPE SHOULD THEN BE BACKFILLED WITH THE SAME FILTER MATERIAL.
4. THE STANDPIPE SHOULD EXTEND 12" TO 18" ABOVE THE LIP OF THE PIT OR THE RISER CREST ELEVATION (BASIN DEWATERING ONLY) AND THE FILTER MATERIAL SHOULD EXTEND 3" MINIMUM ABOVE THE ANTICIPATED STANDING WATER ELEVATION.

10 INLET FILTER DETAIL

NOT TO SCALE (O049910- 1/2017)

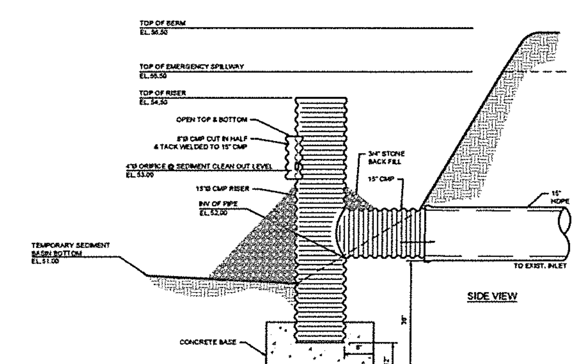
NOTES:
1. FOR LOCATIONS WHERE GUTTERBUDDY OR SEDIMENT FILTER TUBE WILL BE PLACED IN CONCENTRATED FLOWS, BED THE TUBE IN A JUTE MESH OF (FLOCMAT) CRADLE. TUBE MUST BE INSTALLED WHERE THE HANDLES WILL BE POSITIONED AT THE VERY TOP OF THE BAG.
2. GEOTEXTILE TO BE WOVEN POLYPROPYLENE PRODUCT 117F, BY SYNTHETIC INDUSTRIES INC., OR TERRATEX SC, BY WESTEC INC., OR APPROVED EQUIVALENT.
3. 3/4" CLEAN STONE CORE SHALL BE COMPLETELY CONTAINED WITHIN GEOTEXTILE. SEAMS SHALL BE SEWN OR CLOSED BY SUITABLE MECHANICAL MEANS TO PREVENT LEAKAGE OF STONE.
4. MAINTENANCE MUST BE PERFORMED AS NOTED IN THE SWPPP. DEPTH OF ACCUMULATED SEDIMENTS IS NOT TO EXCEED ONE-HALF THE HEIGHT OF THE FABRIC. MAINTENANCE CLEANOUT MUST BE CONDUCTED REGULARLY TO PREVENT ACCUMULATED SEDIMENTS FROM REACHING ONE-HALF THE HEIGHT OF THE EROSION TUBE.
5. INLET GRATE OPENING IS TO BE KEPT CLEAR OF OBSTRUCTIONS AT ALL TIMES.
6. THE PROTECTION DEVICE IS DESIGNED TO CAPTURE OR FILTER RUNOFF FROM THE 1 YEAR, 24 HOUR STORM EVENT AND IS INTENDED TO SAFELY CONVEY HIGHER FLOWS DIRECTLY INTO THE STORM SEWER SYSTEM. FILTER TUBE MUST BE EQUIP WITH AN OVERFLOW PROTECTION TO HANDLE HIGHER FLOW RATES DURING LARGER STORM EVENTS.
7. OTHER METHODS THAT ACCOMPLISH THE PURPOSE OF STORM SEWER INLET PROTECTION MAY BE USED IF PRE-APPROVED BY THE LOCAL SOIL CONSERVATION DISTRICT.
8. INSPECTIONS MUST BE FREQUENT, MAINTENANCE, REPAIR, AND REPLACEMENT MUST BE MADE PROMPTLY, AS NEEDED. THE BARRIER IS TO BE REMOVED WHEN THE AREA DRAINING TOWARDS THE INLET HAS BEEN STABILIZED AND ACCEPTED BY THE MUNICIPAL ENGINEER AND/OR SOIL CONSERVATION DISTRICT.
9. ALL INLETS ARE TO BE FIT WITH AN INLET FILTER SACK, AS INDICATED ON THE PLANS. SEE INLET FILTER SACK DETAIL FOR ADDITIONAL INFORMATION.



11 TEMPORARY SEDIMENT CONTROL RISER #1 DETAIL

NOT TO SCALE (O069903 - 1/2017) (MOD.)

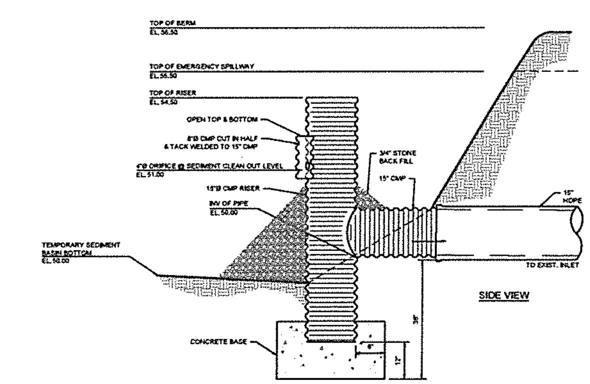
NOTES:
1. ALL OUTLET CONTROL OPENINGS BELOW SEDIMENT STORAGE ELEVATION TO BE TEMPORARILY BLOCKED OR PLUGGED UNTIL BASIN NO LONGER USED AS A TEMPORARY SEDIMENT BASIN. (N/A)
2. THE TEMPORARY STANDPIPE RISERS IS TO BE INSTALLED IMMEDIATELY AFTER THE CONSTRUCTION OF THE POND AND REMAIN IN PLACE UNTIL ALL CONTRIBUTING DRAINAGE AREAS ARE STABILIZED, AND THERE REMOVAL IS AUTHORIZED BY THE SOIL CONSERVATION DISTRICT.
3. ALL SEDIMENT BASINS SHALL BE CLEANED OUT AS REQUIRED.
4. UPON COMPLETION OF USE AS SEDIMENT BASIN OPENING FOR TEMPORARY SEDIMENT DISCHARGE PIPE, TO BE SEALED UP AS NECESSARY TO ACT AS PERMANENT OUTLET CONTROL STRUCTURE. (N/A)



12 TEMPORARY SEDIMENT CONTROL RISER #2 DETAIL

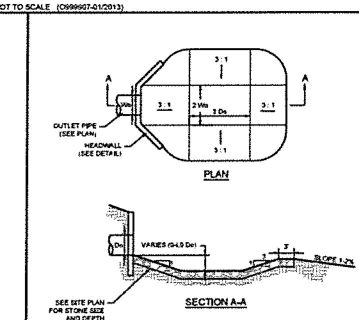
NOT TO SCALE (O069903 - 1/2017) (MOD.)

NOTES:
1. ALL OUTLET CONTROL OPENINGS BELOW SEDIMENT STORAGE ELEVATION TO BE TEMPORARILY BLOCKED OR PLUGGED UNTIL BASIN NO LONGER USED AS A TEMPORARY SEDIMENT BASIN. (N/A)
2. THE TEMPORARY STANDPIPE RISERS IS TO BE INSTALLED IMMEDIATELY AFTER THE CONSTRUCTION OF THE POND AND REMAIN IN PLACE UNTIL ALL CONTRIBUTING DRAINAGE AREAS ARE STABILIZED, AND THERE REMOVAL IS AUTHORIZED BY THE SOIL CONSERVATION DISTRICT.
3. ALL SEDIMENT BASINS SHALL BE CLEANED OUT AS REQUIRED.
4. UPON COMPLETION OF USE AS SEDIMENT BASIN OPENING FOR TEMPORARY SEDIMENT DISCHARGE PIPE, TO BE SEALED UP AS NECESSARY TO ACT AS PERMANENT OUTLET CONTROL STRUCTURE. (N/A)



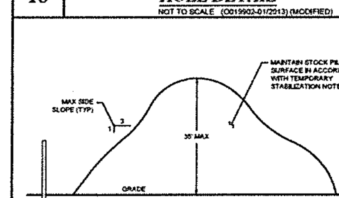
13 PREFORMED SCOUR HOLE DETAIL

NOT TO SCALE (O019902-01/2013) (MODIFIED)



14 TEMPORARY SOIL STOCKPILE DETAIL

NOT TO SCALE (O079901 - 1/2017)



NOTES:
1. CONTRACTOR SHALL SEPARATE TOP SOIL AND GENERAL EXCAVATED MATERIAL INTO SEPARATE STOCKPILES.
2. CONTRACTOR SHALL PROTECT EXCAVATED REUSABLE SOILS FROM SOILS CONTAMINATED WITH DELETERIOUS MATERIAL.

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	06/12/2019	REV. PER CLIENT COMMENTS	AJH / GSD

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROTECT YOURSELF

PROJECT No.:	JM170508
DRAWN BY:	SMC
CHECKED BY:	SLM
DATE:	11/30/2017
SCALE:	AS SHOWN
CAD I.D.:	JM170508-DTL-1A

PROJECT:

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT
NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HD-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RHB)
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
10000 MIDLANTIC DRIVE, SUITE 410W
MOUNT LAUREL, NJ 08054
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D.F. WISOTSKY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 42951
CONNECTICUT LICENSE No. 22096
NEW YORK LICENSE No. 073745

SHEET TITLE:

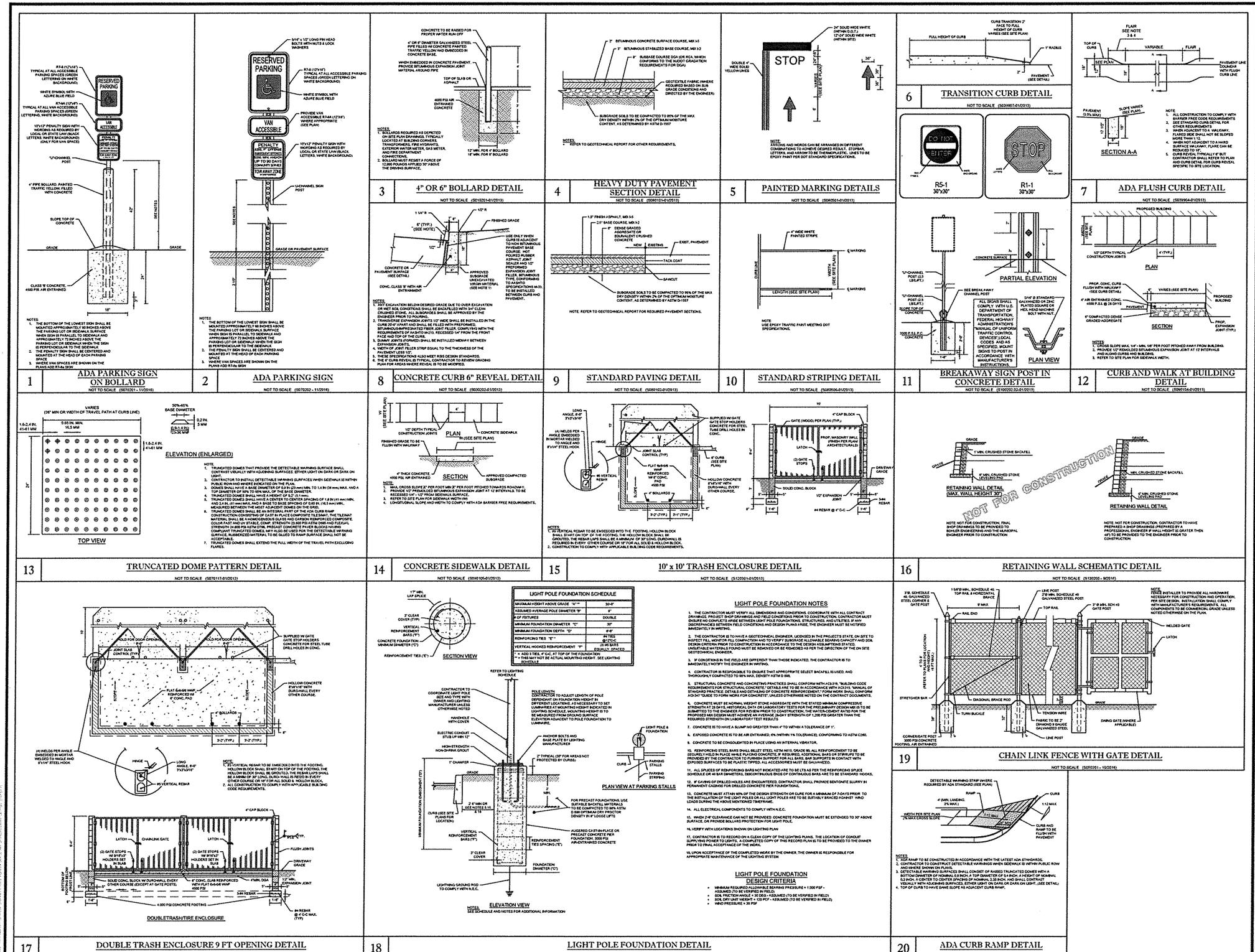
SOIL EROSION CONTROL DETAIL SHEET

SHEET NUMBER:

C-18

OF 22

REVISION 1 - 06/12/2019



BOHLER ENGINEERING

REVISIONS

REV	DATE	COMMENT	
1	06/12/2019	REV. PER CURRENT COMMENTS	AJH GSD

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROJECT YOURSELF

PROJECT No.	JM170508
DRAWN BY:	SMR
CHECKED BY:	SLM
DATE:	11/09/2017
SCALE:	AS SHOWN
CAD I.D.	JM170508-DTL-14

PROJECT:

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT

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BLOCK 44, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
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NEW YORK LICENSE No. 073745

SHEET TITLE:

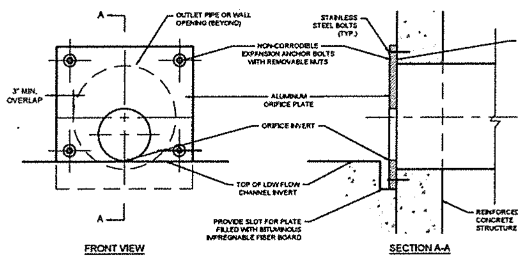
DETAIL SHEET

SHEET NUMBER:

C-19

OF 22

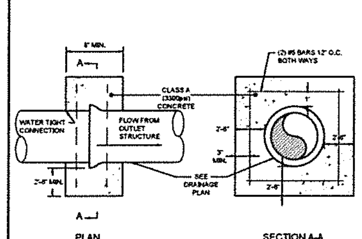
REVISION 1 - 06/12/2019



NOTES:
1. PLATES GENERALLY NOT REQUIRED FOR ORIFICE DIAMETERS OR WEIR WIDTH GREATER THAN 12".
2. ALTERNATIVE MATERIALS MAY BE UTILIZED AS APPROVED BY ENGINEER OF RECORD PRIOR TO FABRICATION.

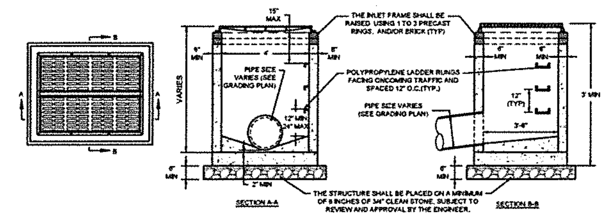
1 ORIFICE PLATE DETAILS

NOT TO SCALE (G020506 - 10/2016)



2 ANTI-SEEP COLLAR DETAIL

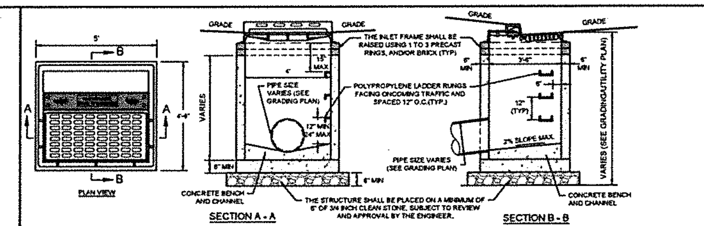
NOT TO SCALE (G029901-07/2015)



NOTES:
1. THE TYPE E INLET CONCRETE STRUCTURE SHALL BE PRECAST CONCRETE TO MEET A MINIMUM OF H-25 LOADING. ALL UNITS SHALL BE CONSTRUCTED AND REINFORCED IN ACCORDANCE WITH THE APPROPRIATE ASTM, ACI, NJPDES, AND AASHTO STANDARDS. ALL PRECAST SECTIONS SHALL BE JOINED USING A GASKET AND CEMENT GROUT TO PRODUCE A "LEAK-PROOF" JOINT.
2. THE INLET GRATE SHALL BE BICYCLE SAFE AS DEFINED BY CAMPBELL FOUNDRY COMPANY PATTERN NO. 3425, OR EQUIVALENT. CONTRACTOR TO VERIFY WITH MUNICIPALITY IF AN "ECO" MESSAGE SHALL BE INCORPORATED INTO THE CASTING.
3. THE INLET FRAME AND GRATE/COVER SHALL BE FABRICATED TO MEET A MINIMUM OF H-25 LOADING, UNLESS PRE-APPROVED IN WRITING BY THE ENGINEER, OR UNLESS NOTED ON THE INDIVIDUAL STRUCTURE NOTES.
4. ALL PIPES SHALL EXTEND NO MORE THAN 1 INCH INTO THE STRUCTURE.
5. A 3000 PSI MIN. CONCRETE PIPE FLOW CHANNEL SHALL BE INSTALLED IN THE STRUCTURE BOTTOM, AFTER ALL THE PIPES ARE INSTALLED, OR THE FLOW CHANNELS CAN BE PRECAST WITH THE BASE.
6. DETAIL IS FOR CAST IRON CLASS 30B ONLY. ANY OTHER CLASS OF CAST IRON OR TYPE OF MATERIAL MUST BE ON THE BUREAU OF MATERIALS APPROVED PRODUCTS LIST OR NEW TECHNOLOGY'S AND PRODUCTS APPROVED PRODUCTS LIST.
7. LADDER RUNGS SHOULD NOT BE INSTALLED OVER PIPE OPENINGS.

3 TYPE 'E' INLET DETAIL

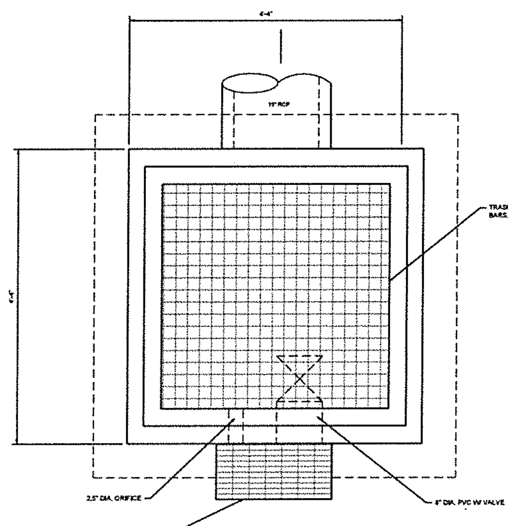
NOT TO SCALE (G020310-01/2013)



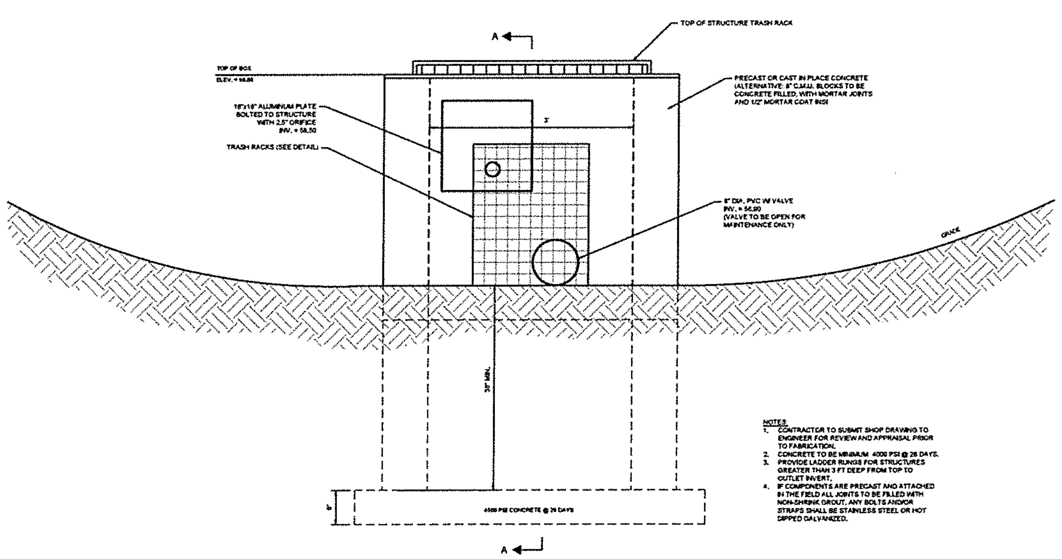
NOTES:
1. THE TYPE B INLET CONCRETE STRUCTURE SHALL BE PRECAST CONCRETE TO MEET A MINIMUM OF H-25 LOADING. ALL UNITS SHALL BE CONSTRUCTED AND REINFORCED IN ACCORDANCE WITH THE APPROPRIATE ASTM, ACI, NJPDES, AND AASHTO STANDARDS. ALL PRECAST SECTIONS SHALL BE JOINED USING A GASKET AND CEMENT GROUT TO PRODUCE A "LEAK-PROOF" JOINT.
2. THE INLET GRATE SHALL BE BICYCLE SAFE WITH A CURB PIECE OF TYPE "N-ECO" AS DEFINED BY CAMPBELL FOUNDRY COMPANY PATTERN NO. 2618, OR EQUIVALENT. CONTRACTOR TO VERIFY WITH MUNICIPALITY THE TYPE OF ECO CURB PIECE AND GRATE TO BE USED.
3. THE INLET FRAME AND GRATE/COVER SHALL BE FABRICATED TO MEET A MINIMUM OF H-25 LOADING, UNLESS PRE-APPROVED IN WRITING BY THE ENGINEER, OR UNLESS NOTED ON THE INDIVIDUAL STRUCTURE NOTES.
4. ALL PIPES SHALL EXTEND NO MORE THAN 1 INCH INTO THE STRUCTURE.
5. A 3000 PSI MIN. CONCRETE PIPE FLOW CHANNEL SHALL BE INSTALLED IN THE STRUCTURE BOTTOM AFTER ALL THE PIPES ARE INSTALLED, OR THE FLOW CHANNELS CAN BE PRECAST WITH THE BASE.
6. THE CLEAR SPACE IN THE CURB OPENING (OR EACH INDIVIDUAL CLEAR SPACE, IF THE CURB OPENING HAS 2 OR MORE CLEAR SPACES) MUST HAVE AN AREA OF NO MORE THAN 7 SQUARE INCHES OR BE NO GREATER THAN 2 INCHES ACROSS THE SMALLEST DIMENSION.
7. STORM DRAIN INLET LABEL SHOULD READ "DUMP NO WASTE, DRAINS TO WATERWAYS" OR OTHERWISE APPROVED BY THE ENGINEER. FISH LOGOS SHALL ALSO BE INCLUDED ON BOTH SIDES OF THE LABEL.
8. DETAIL IS FOR CAST IRON CLASS 30B ONLY. ANY OTHER CLASS OF CAST IRON OR TYPE OF MATERIAL MUST BE ON THE BUREAU OF MATERIALS APPROVED PRODUCTS LIST OR NEW TECHNOLOGY'S AND PRODUCTS APPROVED PRODUCTS LIST.
9. LADDER RUNGS SHOULD NOT BE INSTALLED OVER PIPE OPENINGS.
10. INSIDE DIMENSIONS ARE NOMINAL AND ARE SUBJECT TO MODIFICATION BY PRE CASTER AS NECESSARY TO ACCOMMODATE ACTUAL PIPE SIZES AND ALIGNMENT. STRUCTURES LARGER THAN THAT SHOWN SHALL HAVE A SLAB TOP WHICH SHALL MEET THE SAME LOADING REQUIREMENTS.

4 TYPE 'B' INLET WITH ECO CURB PIECE DETAIL

NOT TO SCALE (G020308.01-01/2013)

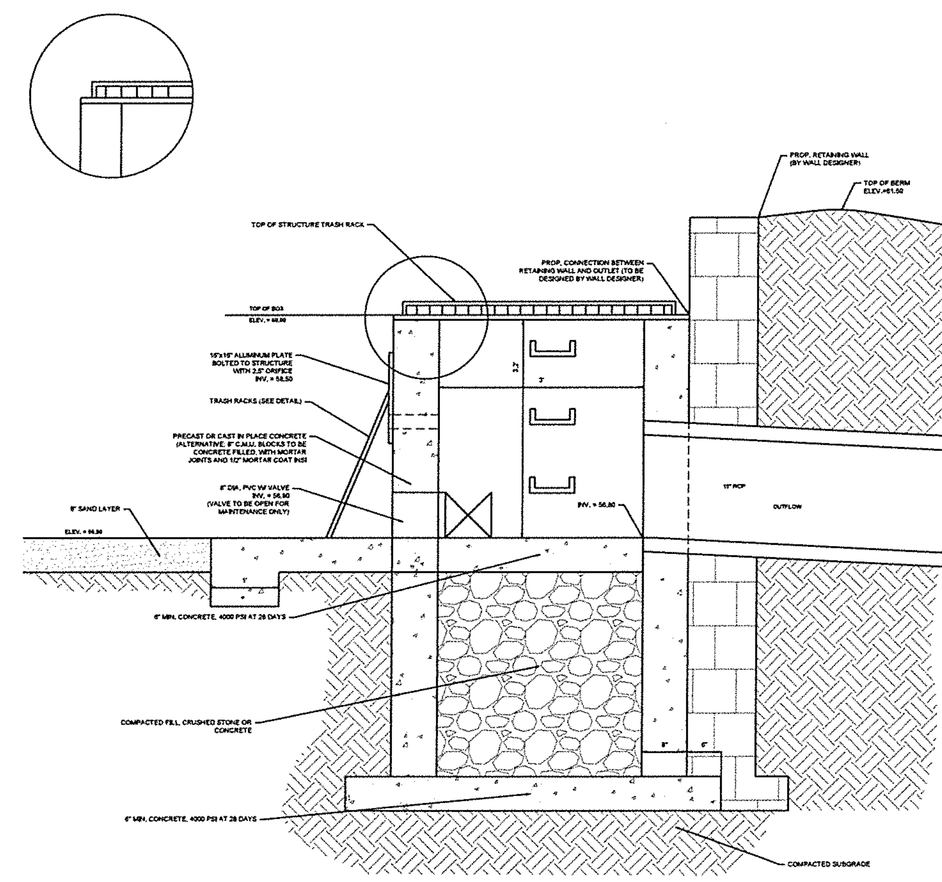


PLAN VIEW



FRONT ELEVATION

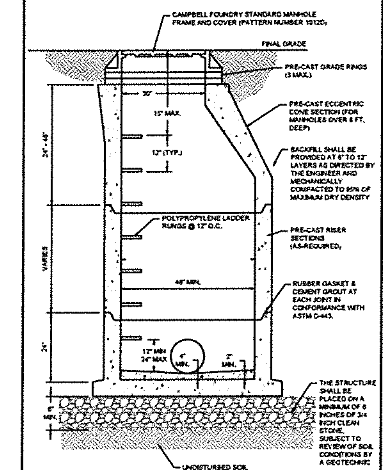
NOTES:
1. CONTRACTOR TO SUBMIT SHOP DRAWING TO ENGINEER FOR REVIEW AND APPRAISAL PRIOR TO FABRICATION.
2. CONCRETE TO BE MINIMUM 4000 PSI @ 28 DAYS.
3. PROVIDE LADDER RUNGS FOR STRUCTURES GREATER THAN 3 FT DEEP FROM TOP TO OUTLET INVERT.
4. IF COMPONENTS ARE PRECAST AND ATTACHED IN THE FIELD ALL JOINTS TO BE FILLED WITH NON-SHRINK GROUT, ANY BOLTS AND/OR STRAPS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED.



SECTION A-A

5 OUTLET STRUCTURE #1 FOR BASIN #1 DETAIL

SCALE: 1"= 1' (G020504-01/2013)



NOTES:

1. THE STORM MANHOLE CONCRETE STRUCTURE SHALL BE PRECAST CONCRETE TO MEET A MINIMUM OF HS-25 LOADING. ALL UNITS SHALL BE CONSTRUCTED AND REINFORCED IN ACCORDANCE WITH THE APPROPRIATE ASTM, ACI, AND AASHTO STANDARDS. ALL PRECAST SECTIONS SHALL BE JOINED USING A GASKET AND CEMENT GROUT TO PRODUCE A LEAK-PROOF JOINT.

2. THE INLET FRAME AND GRATE/COVER SHALL BE CAMPBELL FOUNDRY PATTERN NO. 1012D, OR APPROVED EQUAL.

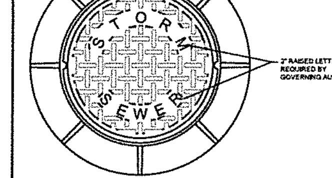
3. ALL PIPES SHALL EXTEND NO MORE THAN 1 INCH INTO THE STRUCTURE.

4. SUITABLE EXCAVATED SOIL MAY BE USED AS BACKFILL IN NON-STRUCTURALLY SUPPORTING AREAS OR AS DIRECTED BY THE MUNICIPAL ENGINEER. AREAS SUPPORTING ANY STRUCTURE SHALL BE BACKFILLED USING DENSE GRADED AGGREGATE OR AS DIRECTED BY THE ENGINEER.

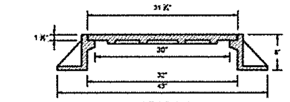
5. THE INSIDE DIAMETER IS A MINIMUM DIMENSION. INSIDE DIAMETER TO BE ADJUSTED AS NECESSARY TO ACCOMMODATE STORM PIPE SIZES AND ALIGNMENT.

6 STORM MANHOLE DETAIL

NOT TO SCALE (G020407-01/2013)



PLAN



SECTION

NOTES:
1. STANDARD MANHOLE FRAMES & COVERS SHALL BE USED ON ALL MANHOLES NOT LOCATED WITHIN EASEMENTS UNLESS DIRECTED OTHERWISE BY THE ENGINEER OR SEWER AUTHORITY.
2. STANDARD MANHOLE FRAME & COVER SHALL BE CAMPBELL FOUNDRY PATTERN #1012B, OR APPROVED EQUAL, WITH NON-PENETRATING PICK HOLES.

7 STORM MANHOLE FRAME & COVER DETAIL

NOT TO SCALE (G020410-01/2013)

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REVISIONS

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PROTECT YOURSELF

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DATE:	11/30/2017
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CAD I.D.:	JM170509-DTL-1A

PROJECT:

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NEW JERSEY LICENSE No. 42951
CONNECTICUT LICENSE No. 22094
NEW YORK LICENSE No. 073745

SHEET TITLE:

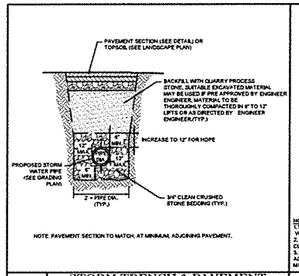
DETAIL SHEET

SHEET NUMBER:

C-20

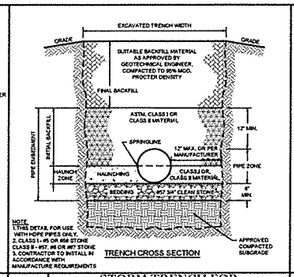
OF 22

REVISION 1 - 06/12/2019



1 STORM TRENCH & PAVEMENT RESTORATION DETAIL

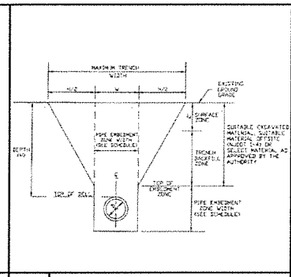
NOT TO SCALE (G0259012-01/2013)



TRENCH CROSS SECTION

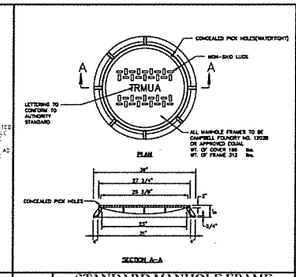
2 STORM TRENCH FOR HDPE PIPE DETAIL

NOT TO SCALE (G0259011-01/2013)



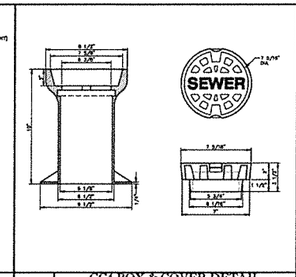
3 TRENCH DETAIL

NOT TO SCALE SOURCE: TRIMUA (DATE 11/22/2017)



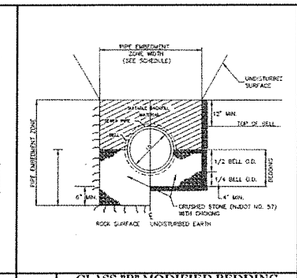
4 STANDARD MANHOLE FRAME AND COVER DETAIL

NOT TO SCALE SOURCE: TRIMUA (DATE: 11/22/2017)



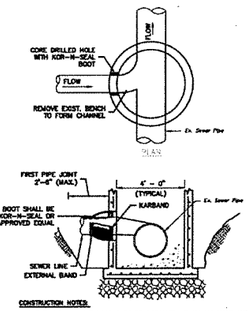
5 CC4 BOX & COVER DETAIL (FOR ALL CURB CLEANOUTS)

NOT TO SCALE SOURCE TRIMUA (DATE 11/22/2017)



6 CLASS "B" MODIFIED BEDDING CHOKED CRUSHED STONE DETAIL

NOT TO SCALE SOURCE TRIMUA (DATE 11/22/2017)

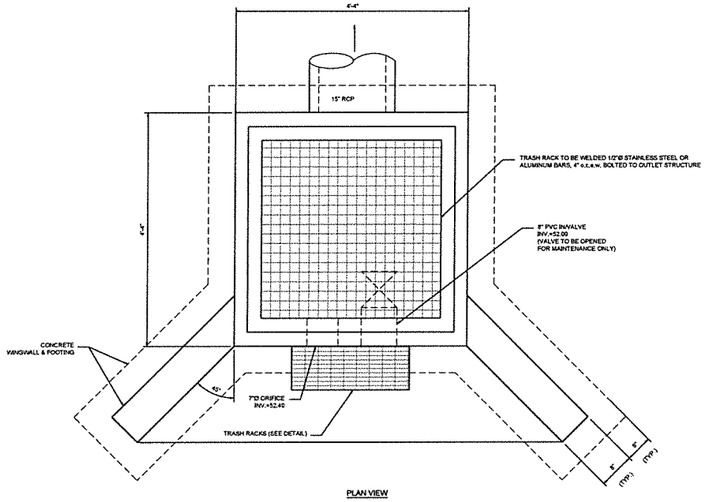


CONSTRUCTION NOTES:

1. A FLEXIBLE MANHOLE BOOT IS TO BE INSTALLED AT ALL MANHOLE AND PIPE CONNECTIONS.
2. FLEXIBLE BOOTS ARE TO BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
3. RECONSTRUCT BENCH AS DIRECTED BY TRIMUA INSPECTOR, TO PROVIDE SMOOTH FLOW THROUGH MANHOLE.
4. ALL EXISTING MANHOLES SHALL BE REHABILITATED AS DETERMINED BY THE ENGINEER.
5. INVERT OF PROPOSED PIPE NOT TO BE BELOW SPRINGLINE OF EXISTING PIPE.

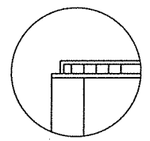
8 CONNECTION TO EXISTING MANHOLE DETAIL

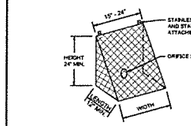
NOT TO SCALE SOURCE TRIMUA (DATE 11/22/2017)



PLAN VIEW

NOTES:
1. CONTRACTOR TO SUBMIT SHOP DRAWING TO ENGINEER FOR REVIEW AND APPRAISAL PRIOR TO FABRICATION.
2. CONCRETE TO BE MINIMUM 4000 PSI @ 28 DAYS.
3. PROVIDE LADDER RUNGS FOR STRUCTURES GREATER THAN 3 FT DEEP FROM TOP TO OUTLET INVERT.
4. IF COMPONENTS ARE PRECAST AND ATTACHED IN THE FIELD ALL JOINTS TO BE FILLED WITH NON-SHRINK GROUT, ANY BOLTS AND/OR STRAPS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED.

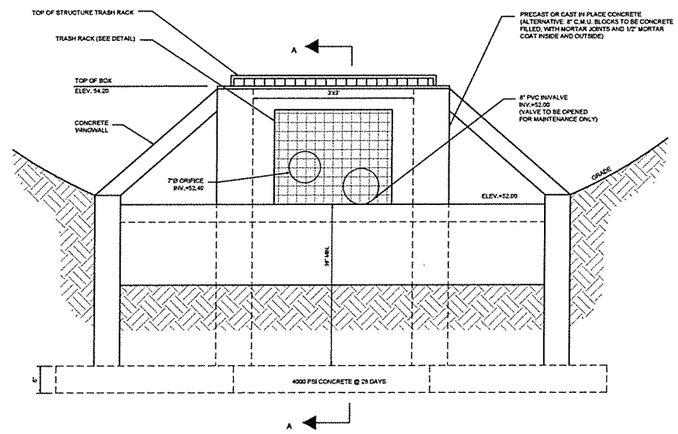




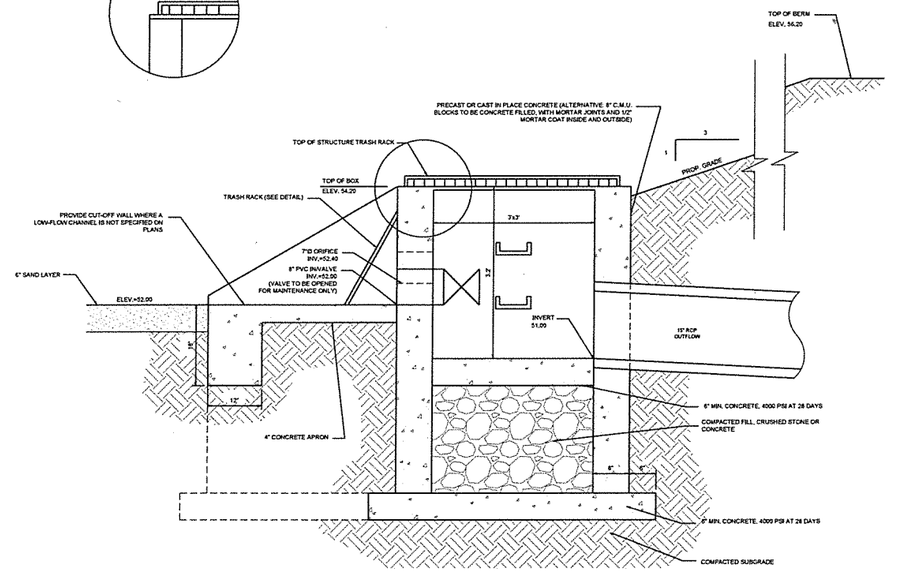
NOTES:
1. MAX. GRATE SPACING = 2"
2. CORROSIVE RESISTANT MATERIALS REQUIRED (ALUMINUM OR STAINLESS STEEL)
3. RACK MUST BE HINGED OR REMOVABLE FOR ACCESS
4. RACK MUST COMPLETELY SURROUND ORIFICE AREA
5. MINIMUM WIDTH = 2" + DIAMETER OF ORIFICE (MIN. 12")
MINIMUM HEIGHT 2" + DIAMETER OF ORIFICE (MIN. 24)
LENGTH 8" + DIAMETER OF ORIFICE, (MIN. 12")
6. LENGTH = HEIGHT

9 TRASH RACK DETAIL

NOT TO SCALE (G0203056-01/2013)



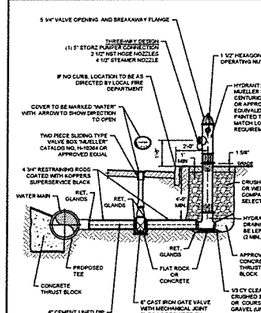
FRONT ELEVATION



SECTION A-A

7 OUTLET STRUCTURE #2 FOR BASIN #2

SCALE 1"= 1' (G0259005-01/2013)



NOTES:

1. CONTRACTOR TO CONFIRM TYPE OF HYDRANT TO USE WITH LOCAL WATER PURVEYOR AND LOCAL FIRE DEPT. PRIOR TO ORDERING HYDRANT AND APPURTENANCES.
2. CONTRACTOR TO READ AND REVIEW THE LOCAL FIRE CODE FOR VALVES/HYDRANT SPECIFICATIONS PRIOR TO THE PURCHASE OR INSTALLATION OF ANY EQUIPMENT. ANY QUESTION OF MATERIAL OR REQUIREMENTS TO BE RESOLVED WITH LOCAL FIRE MARSHAL.
3. UNLESS SUPERSEDED BY LOCAL REQUIREMENTS, SIZE, TYPE, AND INSTALLATION OF HYDRANTS SHALL CONFORM TO THE FOLLOWING SPECIFICATION, INCORPORATED HEREIN BY REFERENCE AS APPROPRIATE.
4. SIZE, TYPE, AND INSTALLATION OF HYDRANTS SHOULD BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MUNICIPALITY OR THE WATER PURVEYOR, OR SHALL CONFORM TO THE AWWA STANDARD FOR DRY-BARREL FIRE HYDRANTS, AMERIAWWA C502. HYDRANTS SHALL HAVE AT LEAST THREE (3) OUTLETS: ONE OUTLET SHALL BE A PUMPER OUTLET, THE OTHER OUTLETS SHALL BE AT LEAST TWO AND ONE-HALF (2½) INCH NOMINAL SIZE. THE PUMPER OUTLET SHALL BE FACING THE ROAD, UNLESS OTHERWISE DIRECTED BY THE LOCAL FIRE OFFICIAL. THE PUMPER OUTLET SHALL BE AT LEAST SIX INCHES (6") ABOVE THE FINISHED GRADE. WHEN A CONCRETE SLAB IS PROVIDED AROUND THE HYDRANT RISER, THE FLANGE WHERE THE HYDRANT CONNECTS TO THE RISER SHALL BE AT LEAST TWO INCHES ABOVE THE ADJACENT GRADE. STREET MAIN CONNECTIONS SHALL NOT BE LESS THAN SIX INCHES IN DIAMETER. HOSE THREADS ON OUTLETS SHALL BE COMPATIBLE WITH EXISTING MUNICIPAL FIRE HOSE COUPLINGS AND SHALL CONFORM TO THE NATIONAL STANDARD THREAD FOR FIRE FIGHTING PURPOSES. A VALVE SHALL BE PROVIDED ON CONNECTIONS BETWEEN HYDRANTS AND STREET MAINS. ALL PIPES, FITTINGS, AND APPURTENANCES SUPPLYING FIRE HYDRANTS SHALL BE AWWA OR ASTM APPROVED. (R22)
5. ALL FIRE HYDRANTS SHALL CONFORM TO NFPA STANDARD 291.
6. DISTANCE FROM CURB IS TYPICAL, HOWEVER CONTRACTOR MUST REFER TO UTILITY PLAN FOR HYDRANT LOCATION

10 FIRE HYDRANT DETAIL

NOT TO SCALE (L5249001-01/2017)

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1	06/12/2019	REV. PER CLIENT COMMENTS	AJH / GSD

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PROTECT YOURSELF
A PHONE CALL COST LESS THAN ANY INSURANCE POLICY

WHO YOU DON'T KNOW CAN HURT YOU.
THE LOCATION OF UNDERGROUND UTILITIES SHOWN ON THIS PLAN WERE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS. DETAILS THE EXISTING SURFACE INFORMATION IN THE STATE

PROJECT No.:	JM170508
DRAWN BY:	SMC
CHECKED BY:	GLM
DATE:	11/22/2017
SCALE:	AS SHOWN
CAD I.D.:	JM170508-DTL-1.8

PROJECT:

PRELIMINARY & FINAL SITE PLAN
FOR
GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT
NUSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HO-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RH8)
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
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10000 MIDLANTIC DRIVE, SUITE 410W
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NJ DEPT. OF AUTHORIZATION NO. 24GA28019700

D.F. WISOTSKY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 42951
CONNECTICUT LICENSE No. 22058
NEW YORK LICENSE No. 072745

SHEET TITLE

DETAIL SHEET

SHEET NUMBER
C-21
OF 22

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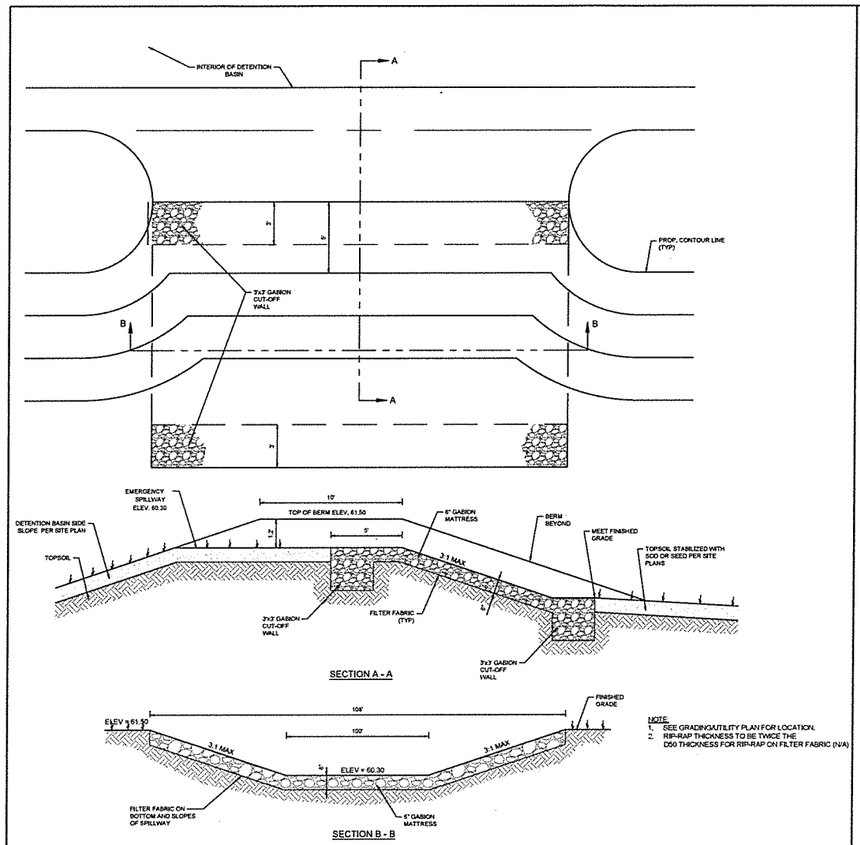

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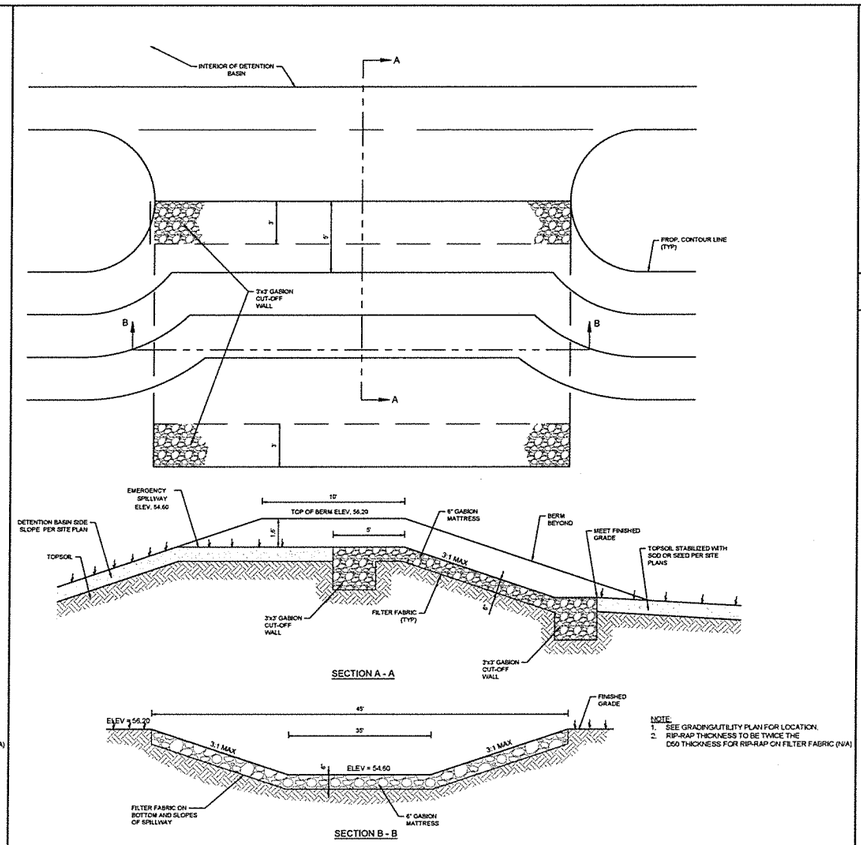
NOT TO SCALE (DO/010/03-01/2013)



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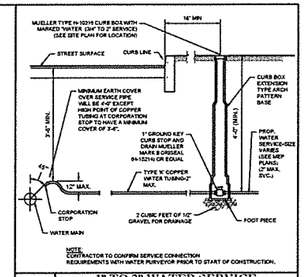
NOT TO SCALE (DO/010/03-01/2013)



X 1" TO 2" WATER SERVICE CONNECTION DETAIL

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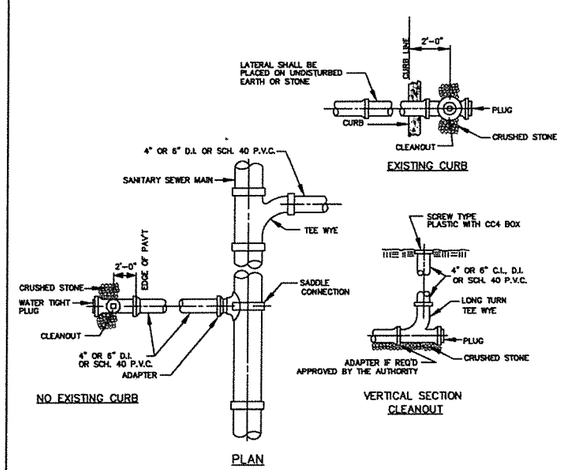

3 TYPICAL HOUSE CONNECTION INSTALLATION DETAIL

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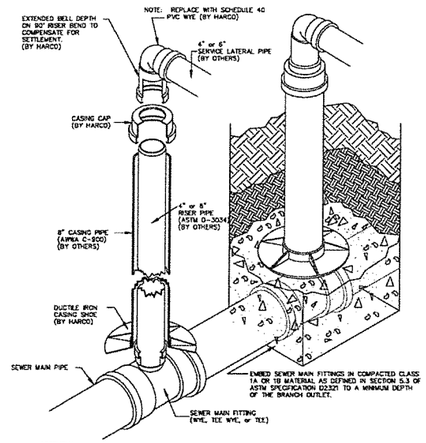

4 DEEP HOUSE CONNECTION DETAIL

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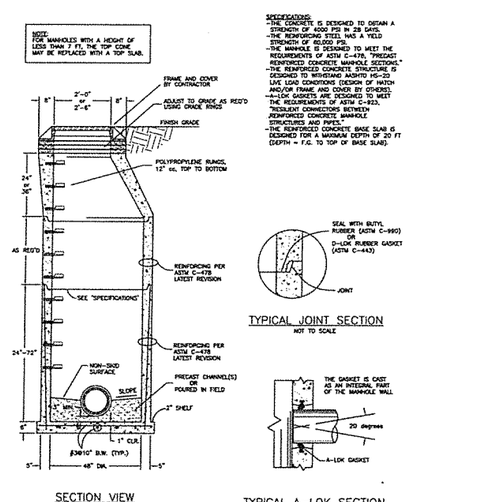

5 MANHOLE DETAIL

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PROTECT YOURSELF
A PHONE CALL CAN BE YOUR MINIMUM POLICY

WHAT'S YOU DON'T KNOW CAN HURT YOU.
THE STATE LAW REQUIRES YOU TO CALL TWO WORKING DAYS BEFORE YOU DIG TO HAVE UNDERGROUND UTILITIES MARKED IN THE STATE.

PROJECT No.	JM170508
DRAWN BY:	SMC
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DATE:	11/20/2017
SCALE:	AS SHOWN
CAD I.D.	JM170508-DTL-15

PROJECT

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT

NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, 6 & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HD-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RHB)
OCEAN COUNTY, NEW JERSEY

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NJ CERT. OF AUTHORIZATION No. 24GA28019700

D.F. WISOTSKY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 42661
CONNECTICUT LICENSE No. 22058
NEW YORK LICENSE No. 073745

SHEET TITLE:

DETAIL SHEET

SHEET NUMBER:

C-22
OF 22

REVISION 1 - 06/12/2019

STORMWATER MANAGEMENT FACILITY OPERATIONS & MAINTENANCE MANUAL

for

PROPOSED RETAIL DEVELOPMENT
Block 44 Lots 2, 3, 5, & 9
N.J.S.H. Route 37 & Northampton Boulevard
Manchester Township
Ocean County, New Jersey

&
Block 505 Lots 14 & 15
N.J.S.H. Route 37 & Northampton Boulevard
Toms River Township
Ocean County, New Jersey

Prepared by:

BOHLER ENGINEERING

10000 Midlantic Drive, Suite 410W
Mt. Laurel, New Jersey 08054
(856) 930-4000

David Wisotsky, P.E.
New Jersey Professional Engineer License No. 42951

November 2017
Last Revised June 2019

BENJ File #JM170508

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Appendix

1. "Maintenance Work Order and Checklist" – a comprehensive form outlining both required and completed maintenance work.
2. "Maintenance Log" – a summary table for recording of all maintenance work at the site.
3. "Inspection Log" – a summary table for recording the results of all inspections of the basins.

1.0 PROJECT DETAILS

1.1 Introduction and Description of Facilities:

The project site has frontage on New Jersey State Highway Route 37 and Northampton Boulevard and is situated within both Toms River and Manchester, New Jersey. The subject site is more specifically defined as Block 505 Lots 14 & 15 (to be consolidated to Lot 14.01) within Toms River Township and Block 44 Lots 2, 3, 5, & 9 (to be consolidated to Lot 2.01) within Manchester Township. The existing site is a wooded area containing wetland areas, state open waters, and Northern Pine Snake Habitat with minimal site improvements. Proposed improvements on-site include a 81,275+/- SF split retail building, a 9,322 SF retail building, and one 4,800 SF restaurant with drive-thru. Additional site improvements include parking, landscaping, access drives, stormwater management basins etc. In addition, off-site traffic improvements are required along portions of New Jersey State Highway Route 37 and Northampton Boulevard.

The total site consists of approximately 71.7 acres, with approximately 20.8 acres mostly within Manchester Township preserved for a Northern Pine Snake found on the site. In addition, a snake barrier will be located around the perimeter of the preserved area to prevent the snake from entering the developed portion of the site. Site runoff will be collected and conveyed to several proposed basins on-site via a stormwater conveyance system. Stormwater will be conveyed to basins scattered throughout the site. Basins #1 and #2 are detention/infiltration basins. Stormwater runoff is to infiltrate into ground via these basins, and Basins #1 and #2 will eventually flow to Sunken Branch of Wrangle Brook.

This manual consists of three parts. The first part includes the introduction, project description and a list of project contacts. The second part provides the operation and maintenance instructions for the facilities and equipment. The third part (Appendix) provides information regarding the inspection and maintenance activities.

1.2 Project Contacts:

Toms River Township Engineer:
Address: 33 Washington Street, Toms River, NJ 08753
Tel. (732) 341-1000
Attn: Robert J. Chankalian, PE, CME

Toms River Dept. of Public Works:
Address: 1672 Church Road, Toms River, NJ 08753
Tel. (732) 255-1000
Attn: Louis Amoruso, Director

Manchester Township Engineer:
Address: 1 Colonial Drive, Manchester, NJ 08759
Tel. (732) 657-8121 ext. 3901
Attn: Robert Mullin, PE

Manchester Township Dept. of Public Works:
Address: 1 Colonial Drive, Manchester, NJ 08759
Tel. (732) 657-8121 ext. 3300

Toms River Municipal Utilities Authority:

Address: 340 West Water Street, Toms River, NJ 08753
Tel. (732) 240-3500
Attn: Nicholas Otten, PE – Authority Engineer

Site Design Engineer:

Bohler Engineering
Address: 10000 Midlantic Drive, Suite 410W
Mount Laurel, NJ 08054
Tel. (856) 930-4000
Fax. (856) 930-4001
Attn: Gregory DiBona, LLA

Party Responsible for Maintaining Stormwater Management Facility:

TBD

2.0 INSPECTION AND MAINTENANCE:

2.1 Routine Inspection and Maintenance of the Stormwater Management Facilities:

All stormwater management basins have been designed to control degradation of water quality. Without proper routine inspection and maintenance, the basins may lose some or all of their capability to function to their full capacity. Lack of adequate maintenance at these facilities could lead to system failures.

Regularly scheduled maintenance inspections of the stormwater facilities should be performed at least four (4) times each year. The primary purpose of these inspections is to ascertain the operational condition and safety of the facilities, particularly the condition of embankments, outlet structures, sedimentation and other safety-related aspects. Inspections will also provide information on the effectiveness of regularly scheduled Preventative and Aesthetic Maintenance Procedures, and will help to identify where changes in the extent and scheduling of the procedures are warranted. Finally, the facility inspections should also be used to determine the need for and timing of Corrective Maintenance procedures.

Routine maintenance of these facilities should be separated into two (2) basic types: Functional Maintenance and Aesthetic Maintenance. Functional Maintenance is further broken down into two (2) categories: Preventative and Corrective. Aesthetic Maintenance, which is necessary to maintain the visual appeal and aesthetic quality of these facilities, should be incorporated on the same schedule as the preventative maintenance efforts. Listed below are the Preventative, Corrective and Aesthetic Maintenance Procedures to be performed on a routine basis:

2.1.1 Preventative Maintenance Procedures:

The purpose of Preventative Maintenance is to maximize the effectiveness of the stormwater management aspects of the basins so that they remain operational and safe and to minimize the need for potential emergency or extensive corrective maintenance. These procedures are as follows:

a) *Weed Growth:*

Weeds associated with detention basins typically fall into three (3) categories: submergent, floating and emergent. All three (3) are typically found, to some extent, in a stormwater management system. However, excessive growth of any of these weeds can lead to problems.

The basins should be evaluated regularly to determine whether excessive invasive plant growth is evident. If it occurs, this situation can be corrected by appropriate application of fertilizers and weed killers. Weeds which have become a problem can be cleared through manual removal by professional pond maintenance technicians, in the case of the small wet pond, and by mowing for dry detention basins.

b) *Maintenance of Adjacent Areas:*

Grass areas, trees, and shrubs adjacent to the basins and conveyance swales require periodic routine maintenance to include fertilizing, de-thatching and soil conditioning in order to maintain healthy growth and to provide bank stabilization. The application of fertilizers should follow manufacturer's instructions to reduce run-off of these compounds into the basins. Additionally, provisions should be made to re-seed and re-establish grass cover in areas damaged by sediment accumulation, stormwater flow, or other causes. These tasks should be performed, or at least evaluated, on a quarterly basis. Lawn areas should be mowed at least once a month during the growing season. Vegetated areas must be inspected at least annually for erosion and scour as well as unwanted growth, which should be removed with minimum disruption to the remaining vegetation.

Note: All use of fertilizers, mechanical treatments, pesticides and other means to ensure optimum vegetation health must not compromise the intended purpose of the stormwater management facility. All vegetation deficiencies should be addressed without the use of fertilizers and pesticides whenever possible and if necessary, the minimum amount practical.

c) *Removal and Disposal of Trash/Debris and Sediment:*

All stormwater management components expected to receive and/or trap debris and sediment must be inspected for clogging and excessive debris and sediment accumulation at least four times annually as well as after every storm exceeding one inch of rainfall in 24 hours. Such components should include basin and swale bottoms and low flow channels, trash racks and inflow (headwall) points.

Removal of trash and debris will prevent possible damage to vegetated areas and minimize potential mosquito breeding habitats. Debris and trash must be properly hauled off the site and transferred to an approved disposal site.

The forebay and main basins should also be evaluated for excessive deposition of sediment. The forebay is intended to capture debris, trash and sediment and therefore maintenance of the forebay should occur more frequently than the main basin with regard to these materials. Accumulated sediment should be removed before it threatens the

storage volume of the basin. Before de-sedimentation activities are performed, consideration should be given to evacuating all standing water from the basins. Disposal of discharged water and sediment must comply with all local, county, state and federal regulations. Only suitable disposal sites should be utilized. If stable soil conditions exist around the basin, sediment deposition should not be an excessive maintenance issue. Should a recurrent stabilization situation develop, the inspector should identify the upstream sources of sediment and recommend required stabilization measures.

d) Elimination of Potential Mosquito Breeding Habitats:

The most effective mosquito control program is one that eliminates potential breeding habitats. Almost any stagnant pool of water can be attractive to mosquitoes, and may become the source of a large mosquito population. A maintenance program dedicated to eliminating potential breeding areas is preferable to chemical means of controlling mosquitoes. The most important maintenance functions, is removal of all obstructions to natural flow patterns before stagnant water conditions can develop.

e) Specific Maintenance of Underground Detention Basin Pipes& Chambers:

The basin pipes and chambers are to be evaluated for excessive deposition of sediment and debris in pipe and chamber inverts. The ground and paved parking lots above and adjacent to the underground detention basins shall be evaluated for excessive settlement.

f) Parking lot maintenance:

This management measure involves employing pavement cleaning practices, such as parking lot sweeping on a regular basis, to minimize pollutant export to the stormwater conveyance system/ detention basins and eventually the receiving waters. These cleaning practices are designed to remove sediment, debris, and other pollutants from access drive and parking lot surfaces that are a potential source of pollution impacting urban waterways. Mechanical machines that use vacuum assisted dry sweeping to remove particulate matter shall be utilized as these have the ability to remove finer sediment particles. Parking lots and access drives shall be swept/ vacuumed at least semi-annually or more often as conditions warrant. The disposal of the swept material must be properly hauled off the site and transferred to an approved disposal site. Other parking lot maintenance features include the use of on-site trash receptacle. These receptacles should be located in strategic areas where the majority of the pedestrian traffic occurs. These receptacles should be emptied weekly. The disposal of the solid waste must be properly hauled off the site and transferred to an approved disposal site.

2.1.2 Corrective Maintenance Procedures:

a) Removal of Debris and Sediment:

Sediment, debris and trash which threaten the discharge capacity of the basins should be removed immediately and properly disposed of. As noted previously, it is recommended

that all water be evacuated from the basins before any significant amount of sediment, settled debris or trash is removed from the basins.

b) *Structural Repairs:*

Structural damage to outlet and inlet structures, trash racks, access hatches, roadways and headwalls as a result of vandalism, flood events, settlement or other causes must be repaired promptly. The urgency of the repairs will depend upon the nature of the damage and its effects on the safety and operation of the facility. The analysis of structural damage if it occurs and the design and performance of structural repairs should only be undertaken by a Professional Engineer.

c) *Embankment and Slope Repairs:*

Damage to embankments, and side slopes must be repaired promptly. This damage can be the result of unusual rain or flood events, vandalism, animals, vehicles or neglect. Typical problems can include settlement, scouring, cracking, sloughing, seepage and rutting. The urgency of the repairs will depend upon the nature of the damage and its effect on safety and operational efficiency of the facility. The analysis of the damage and the design and performance of geotechnical repairs should only be undertaken by qualified personnel and under the direction of a consulting Professional Engineer. All basin embankments should be inspected quarterly and after each significant storm greater than one (1) inch of rainfall in 24 hours. Any damage or indication of erosion shall be immediately inspected by a Professional Engineer.

d) *Weed Harvesting:*

It may be necessary to remove congested weeds from the basin. Companies specializing in manual removal of weeds should be contacted to perform these operations. Note that such work does not usually, but may in some cases require the approval of various regulatory agencies.

e) *Extermination of Mosquitoes:*

If neglected, basins can become a potential mosquito breeding area. The extermination of mosquitoes will usually require the services of the County Mosquito Commission. If mosquito control in the facility becomes necessary, the preventative maintenance program should be re-evaluated, and more emphasis should be placed on control of mosquito breeding habitats.

f) *Erosion Repair:*

Vegetative cover or other protective measures are necessary to prevent the loss of soil due to the forces of wind and water. Where a re-seeding program has not been effective in maintaining a non-erosive vegetative cover, or other factors have exposed soils to erosion, corrective steps should be initiated to prevent further loss of soil that may result in danger to the stability of the facility. Soil loss can be controlled by a variety of

materials and methods, including rip-rap, gabion lining, geotextile fabrics, sod, seeding, concrete lining and re-grading.

g) Elimination of Trees, Brush, Roots and Animal Burrows:

The stability of embankments can be impaired by large roots and animal burrows. Additionally, burrows can present a safety hazard for maintenance personnel. Trees and brush with extensive, woody root systems should be completely removed to prevent destabilization and the creation of seepage routes. Regular mowing will prevent vegetation that can cause root problems. Roots should also be completely removed to prevent decomposition within the embankment. Root voids and burrows should be filled with material similar to the existing material, and capped just below grade with stone, concrete or other material. If the filling of the burrows does not discourage the animals from returning, further measures should be taken to either move the animal population or to make critical areas of the facility unattractive to them.

h) Snow and Ice Removal:

Accumulations of snow and ice can threaten the functioning of the inlets, outlets and emergency spillways. Provision of the equipment, material and personnel to monitor and remove snow and ice from critical areas will assure the function of the facility during the winter months.

2.1.3 Aesthetic Maintenance Procedures:

a) Graffiti Removal:

The timely removal of graffiti will restore the aesthetic quality of the basins. Removal can be accomplished by paint or other cover, or removal with scrapers, solvents or cleansers. Timely removal is important to discourage further graffiti and other acts of vandalism.

b) Grass Trimming/Landscape Maintenance:

The lawn areas around the basins shall be mowed on a regular basis as necessary to maintain the lawn at a height of 2 to 3-inches. These areas shall also be fertilized twice a year, once in the spring and once in the fall. Fertilizer for lawn areas shall be 10-20-10 applied at a rate of 11 lbs. per 1,000 sf. or as determined by a soil test. Any bare, dead or damaged lawn areas shall be re-seeded in accordance with the original procedures as outlined in the Soil Erosion and Sediment Control Plans using the same mix and seeding rates. Stabilization of bare or damaged areas shall be done in a timely fashion so as to avoid exposing the soil to erosion.

If season prevents the re-establishment of turf cover, exposed areas should be stabilized with straw or salt hay mulch as described in the Soil Erosion and Sediment Control Plans until permanent seeding can be done. Seeding can be done between March 15th and June 15th and between September 15th and December 1st, only if adequate water is provided.

The shrubs around the basins should also be maintained in order to promote a neat appearance and healthy, vigorous growth. All shrubs should be allowed to grow together in masses as shown on the plans and not pruned into individual plants. The planting beds should be mulched with hardwood mulch every two (2) years in order to provide a suitable growing medium for the shrubbery and to retain moisture around the root zones.

Pruning of shrubs should also be done on a regular basis to maintain the shape and appearance of the shrub masses. The height of the shrubs may vary according to the plants natural growth habits, but should not exceed 6-feet. Pruning should be done as necessary throughout the year to remove dead branches and to control new growth. Any pruning, other than the removal of dead branches, should be done in either late winter/early spring or after the shrub has flowered in the spring.

In the event that a shrub should experience more than 2/3 die back, it should be replaced in kind as soon as possible in either the spring or fall planting season. The replacement shrub should be the same species as the original and installed at the size and condition as specified on the original landscape plans. If, for any reason, a substitution of species or size must be made, it shall be subject to the approval of the project Landscape Architect.

The trees surrounding the basin areas shall be maintained regularly to ensure good health and exhibit an attractive appearance. Their maintenance should include fertilization twice annually, with one application in the spring and another in early fall. The trees shall be pruned in the late winter or early spring. However, dead branches should be removed as soon as they are noticed. Care should be taken to avoid cutting off the central leader of a tree if one is present.

If a tree is severely damaged or experiences more than 2/3 die back, it should be replaced in either the spring or fall planting season, whichever comes first. The only exception to this is if the replacement tree has a fall transplanting hazard. Replacement trees should be planted at the same size and condition as specified on the landscape plans. Any tree or shrub maintenance, tree pruning or plant material substitution of species or size shall be subject to the approval of the project Landscape Architect.

c) Control of Weeds:

Although a regular grass maintenance program will minimize weed intrusion, some weeds will appear. Periodic weeding, either chemically or mechanically, will help to maintain a healthy turf, and keep grassed areas looking attractive. Application of chemicals should be minimized and monitored closely so as not to affect the ecosystems within the detention basin. Excessive growth of weeds within the basin can be controlled mechanically as discussed in the previous section.

The recording of all maintenance work and inspections provide valuable data on the facility's condition. Review of this information will also help to establish more efficient and beneficial maintenance procedures and practices. As the owner is ultimately responsible for site maintenance, all recorded information should be directed to the

owners of the basins for review and subsequent follow-up on recommendations. Data obtained from informal inspections should be retained; however, under current regulations, this data does not have to be submitted to NJDEP.

2.1.4 Summary of Maintenance Procedures:

Preventative Maintenance

a) Weed Growth
b) Maintenance of Adjacent Areas
c) Removal and Disposal of Trash/Debris and Sediment
d) Elimination of Potential Mosquito Breeding Habitats
e) Specific Maintenance of Underground Detention Basin Pipes & Chambers
f) Maintenance of Woodland Swales
g) Parking Lot Maintenance

Corrective Maintenance

a) Removal of Debris and Sediment
b) Structural Repairs
c) Embankment and Slope Repairs
d) Weed Harvesting
e) Extermination of Mosquitoes
f) Erosion Repair
g) Elimination of Trees, Brush, Roots and Animal Burrows
h) Snow and Ice Removal

Aesthetic Maintenance

a) Graffiti Removal
b) Grass Trimming/Landscape Maintenance
c) Control of Weeds

2.1.5 Maintenance Equipment and Materials

Note: Only light equipment is allowed to be used within open basins to prevent compaction.

Grass Maintenance Equipment

a) Riding Mowers
b) Hand Mowers
c) Gas Powered Trimmers
d) Gas Powered Edgers
e) Seed Spreaders
f) Fertilizer Spreaders
g) De-Thatching Equipment
h) Pesticide and Herbicide Application Equipment
i) Grass Clipping and Leaf Collection Equipment

Vegetative Maintenance Equipment

a) Saws

b) Pruning Shears
c) Hedge Trimmers
d) Aquatic Weed Harvester (owned/operated by subcontractor)

Transportation Equipment

Debris, Trash and Sediment Removal Equipment

a) Loader (not to be used in the bottom of basins)
b) Backhoe (not to be used in the bottom of the basins)
c) Grader (not to be used in the bottom of the basins)
d) Dredging Equipment (not to be used in the bottom of the basins)
e) Portable Pump for Dewatering
f) Jet Vac Equipment for removal of sediment in underground pipe & chamber basins

Miscellaneous Equipment

a) Shovels
b) Wheel Barrows
c) Gloves
d) Hand Pushed Tilling Machine
e) Brooms

Standard Mechanics Tools

Tools for Maintenance of Equipment

Materials

a) Topsoil
b) Fill
c) Seed
d) Soil Amenities (Fertilizer, Lime, etc.)
e) Chemicals (Pesticides, Herbicides, etc.)
f) Mulch
g) Paint Removers
h) Spare Parts for Equipment

Parking Maintenance Equipment

a) Sweeping/Vacuuming Equipment
b) Trash Receptacles
c) Snow Plowing Equipment
d) Snow Shovels

2.1.6 Checklists and Logs

Appendix of this report contains sample checklists and logs regarding various aspects of the basin maintenance and inspection. A brief description of the use of each form is listed below:

1. "Maintenance Work Order and Checklist" – a comprehensive form outlining both required and completed maintenance work.

2. "Maintenance Log" – a summary table for recording of all maintenance work at the site.

3. "Inspection Log" – a summary table for recording the results of all inspections of the basins.

A P P E N D I X

MAINTENANCE WORK ORDER
&
CHECKLIST FOR STORMWATER MANAGEMENT FACILITIES

MAINTENANCE WORK ORDER AND CHECKLIST
FOR STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY _____
LOCATION _____ DATE _____
CREW _____ WORK STARTED _____
EQUIPMENT _____ WORK COMPLETED _____
WEATHER _____ TOTAL MANPOWER OF WORK _____

A. PREVENTATIVE MAINTENANCE

WORK ITEMS	ITEMS REQUIRED	ITEMS DONE	COMMENTS AND SPECIAL INSTRUCTIONS
1. GRASS CUTTING			
A. BOTTOMS			
B. EMBANKMENTS AND SIDE SLOPES			
C. PERIMETER AREAS			
D. ACCESS AREAS AND ROADS			
E. OTHERS			
2. GRASS MAINTENANCE			
A. FERTILIZING			
B. RE-SEEDING			
C. DE-THATCHING			
D. PEST CONTROL			
E. OTHERS			
3. VEGETATIVE COVER			
A. FERTILIZING			
B. PRUNING			
C. PEST CONTROL			
D. OTHERS			
4. TRASH AND DEBRIS REMOVAL			
A. BOTTOMS			
B. EMBANKMENTS AND SIDE SLOPES			
C. PERIMETER AREAS			
D. ACCESS AREAS AND ROADS			
E. INLETS			
F. OUTLETS AND TRASH RACKS			
G. OTHERS			
5. SEDIMENT REMOVAL			
A. INLETS			
B. OUTLETS AND TRASH RACKS			
C. BOTTOM			
D. OTHERS			
6. ELIMINATION OF POTENTIAL MOSQUITO BREEDING HABITATS			
7. UNDERGROUND BASIN MAINTENANCE			
A. BOTTOMS			
B. OUTLETS AND TRASH RACKS			
C. ACCESS HATCHES			
D. OTHERS			
8. INFILTRATION BASIN - TILING BOTTOM SAND LAYER			
9. OTHER PREVENTIVE MAINTENANCE			
A. PARKING LOT SWEEPING			
B. EMPTYING TRASH RECEPTACLES			

MAINTENANCE WORK ORDER AND CHECKLIST
FOR STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY _____
LOCATION _____ DATE _____
CREW _____ WORK STARTED _____
EQUIPMENT _____ WORK COMPLETED _____
WEATHER _____ TOTAL MANPOWER OF WORK _____

B. CORRECTIVE MAINTENANCE

WORK ITEMS	ITEMS REQUIRED	ITEMS DONE	COMMENTS AND SPECIAL INSTRUCTIONS
1. REMOVAL OF DEBRIS AND SEDIMENT			
2. STRUCTURAL REPAIRS			
3. EMBANKMENTS AND SIDE SLOPES			
4. DEWATERING			
5. BASIN MAINTENANCE			
6. CONTROL OF MOSQUITOES			
7. EROSION REPAIR			
8. FENCE REPAIR			
9. SNOW AND ICE REMOVAL			
10. OTHER			

C. AESTHETIC MAINTENANCE

WORK ITEMS	ITEMS REQUIRED (X)	ITEMS DONE (X)	LOCATION AND COMMENTS
1. GRAFFITI REMOVAL			
2. GRASS TRIMMING			
3. WEEDING			
4. OTHERS			

REMARKS (REFER TO ITEM NO. IF APPLICABLE) _____

WORK ORDER PREPARED BY: _____

MAINTENANCE LOG FOR STORMWATER MANAGEMENT FACILITIES

MAINTENANCE LOG
FOR STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY _____
LOCATION _____ DATE _____
CREW _____ WORK STARTED _____
EQUIPMENT _____ WORK COMPLETED _____
WEATHER _____ TOTAL MANPOWER OF WORK _____

A. PREVENTATIVE MAINTENANCE

WORK ITEMS	ITEMS REQUIRED	DATE REQUIRED	ITEMS DONE	DATE DONE	COMMENTS AND SPECIAL INSTRUCTIONS
1. GRASS CUTTING					
A. BOTTOMS					
B. EMBANKMENTS AND SIDE SLOPES					
C. PERIMETER AREAS					
D. ACCESS AREAS AND ROADS					
E. OTHERS					
2. GRASS MAINTENANCE					
A. FERTILIZING					
B. RE-SEEDING					
C. DE-THATCHING					
D. PEST CONTROL					
E. OTHERS					
3. VEGETATIVE COVER					
A. FERTILIZING					
B. PRUNING					
C. PEST CONTROL					
D. OTHERS					
4. TRASH AND DEBRIS REMOVAL					
A. BOTTOMS					
B. EMBANKMENTS AND SIDE SLOPES					
C. PERIMETER AREAS					
D. ACCESS AREAS AND ROADS					
E. INLETS					
F. OUTLETS AND TRASH RACKS					
G. OTHERS					
5. SEDIMENT REMOVAL					
A. INLETS					
B. OUTLETS AND TRASH RACKS					
C. BOTTOM					
D. OTHERS					
6. ELIMINATION OF POTENTIAL MOSQUITO BREEDING HABITATS					
7. UNDERGROUND BASIN MAINTENANCE					
A. BOTTOMS					
B. OUTLETS AND TRASH RACKS					
C. ACCESS HATCHES					
D. OTHERS					
8. OTHER PREVENTIVE MAINTENANCE					
A. PARKING LOT SWEEPING					
B. EMPTYING TRASH RECEPTACLES					

MAINTENANCE LOG
FOR STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY _____
LOCATION _____ DATE _____
CREW _____ WORK STARTED _____
EQUIPMENT _____ WORK COMPLETED _____
WEATHER _____ TOTAL MANPOWER OF WORK _____

B. CORRECTIVE MAINTENANCE

WORK ITEMS	ITEMS REQUIRED	DATE REQUIRED	ITEMS DONE	DATE DONE	COMMENTS AND SPECIAL INSTRUCTIONS
1. REMOVAL OF DEBRIS AND SEDIMENT					
2. STRUCTURAL REPAIRS					
3. EMBANKMENTS AND SIDE SLOPES					
4. DEWATERING					
5. BASIN MAINTENANCE					
6. CONTROL OF MOSQUITOES					
7. EROSION REPAIR					
8. FENCE REPAIR					
9. SNOW AND ICE REMOVAL					
10. SAND LAYER REPLACEMENT					
11. OTHER					

C. AESTHETIC MAINTENANCE

WORK ITEMS	ITEMS REQUIRED	DATE REQUIRED	ITEMS DONE	DATE DONE	COMMENTS AND SPECIAL INSTRUCTIONS
1. GRAFFITI REMOVAL					
2. GRASS TRIMMING					
3. WEEDING					
4. OTHERS					

REMARKS (REFER TO ITEM NO. IF APPLICABLE) _____

WORK PERFORMED BY: _____

INSPECTION LOG FOR STORMWATER MANAGEMENT FACILITIES

INSPECTION LOG
FOR STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY _____
LOCATION _____
DATE _____
WEATHER _____

A. PREVENTIVE MAINTENANCE

FACILITY ITEM	ITEMS REQUIRED	ITEMS DONE	COMMENTS AND SPECIAL INSTRUCTION
1. GRASS CUTTING			
A. BOTTOMS			
B. EMBANKMENTS AND SIDE SLOPES			
C. PERIMETER AREAS			
D. ACCESS AREAS AND ROADS			
E. OTHERS			
2. GRASS MAINTENANCE			
A. FERTILIZING			
B. RE-SEEDING			
C. DE-THATCHING			
D. PEST CONTROL			
E. OTHERS			
3. VEGETATIVE COVER			
A. FERTILIZING			
B. PRUNING			
C. PEST CONTROL			
D. OTHERS			
4. TRASH AND DEBRIS REMOVAL			
A. BOTTOMS			
B. EMBANKMENTS AND SIDE SLOPES			
C. PERIMETER AREAS			
D. ACCESS AREAS AND ROADS			
E. INLETS			
F. OUTLETS AND TRASH RACKS			
G. OTHERS			
5. SEDIMENT REMOVAL			
A. INLETS			
B. OUTLETS AND TRASH RACKS			
C. BOTTOM			
D. VORTECHNIC UNITS			
E. OTHERS			
6. ELIMINATION OF POTENTIAL MOSQUITO			
7. OTHER PREVENTIVE MAINTENANCE			
A. PARKING LOT SWEEPING			
B. EMPTYING TRASH RECEPTACLES			

INSPECTION LOG
FOR STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY _____
LOCATION _____
DATE _____
WEATHER _____

B. CORRECTIVE MAINTENANCE

FACILITY ITEM	ITEMS REQUIRED	ITEMS DONE	COMMENTS AND SPECIAL INSTRUCTION
1. REMOVAL OF DEBRIS AND SEDIMENT			
2. STRUCTURAL REPAIRS			
3. EMBANKMENTS AND SIDE SLOPES			
4. BASIN MAINTENANCE			
5. CONTROL OF MOSQUITOES			
6. EROSION REPAIR			
7. FENCE REPAIR			
8. SNOW AND ICE REMOVAL			
9. BASIN DRAIN TIME			
10. OTHER			

C. AESTHETIC MAINTENANCE

FACILITY ITEM	ITEMS REQUIRED	ITEMS DONE	COMMENTS AND SPECIAL INSTRUCTION
1. GRASS TRIMMING			
2. WEEDING			
3. OTHERS			

REMARKS (REFER TO ITEM NO. IF APPLICABLE) _____

(1) ITEMS CHECKED ARE IN GOOD CONDITION, AND THE MAINTENANCE PROGRAM IS ADEQUATE.
(2) ITEMS CHECKED REQUIRE ATTENTION, BUT DOES NOT PRESENT AN IMMEDIATE THREAT TO THE FACILITY FUNCTION OR OTHER FACILITY COMPONENTS.
(3) THE ITEMS CHECKED REQUIRES IMMEDIATE ATTENTION TO KEEP THE FACILITY OPERATIONAL OR TO PREVENT DAMAGE TO OTHER FACILITY COMPONENTS.
(4) PROVIDE EXPLANATION AND DETAILS IF COLUMNS 2 OR 3 ARE CHECKED.
REMARKS (REFER TO ITEM NO. IF APPLICABLE)

INSPECTOR: _____

STORMWATER MANAGEMENT REPORT

For

PROPOSED RETAIL DEVELOPMENT

Prepared for:

Grunin Properties

Block 44, Lots 2, 3, 5 & 9
Township of Manchester

and

Block 505, Lots 14 & 15
Township of Toms River

NJ State Highway Route 37 & Northampton Blvd.
Ocean County, New Jersey

Prepared by:

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November 2017
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BENJ File No. JM170508

Stormwater Management Report – NJDEP Index Page

Project Name: Proposed Retail Development
Project Location: Manchester Township and Toms River Township, Ocean County, New Jersey

The following table summarizes typical additional information as requested by the New Jersey Department of Environmental Protection. Details can be found throughout this Stormwater Management Report, Appendices and Supplemental Reports as indicated.

NJDEP Information	Location of Information
Total Amount of Land Disturbed on Site – **20+/- acres**	Page 5
Acreage of New Impervious Surfaces within project site – **8 +/- acres**	Page 5
Type of Basin Proposed (e.g., infiltration, detention)	Page 7
Proof that Groundwater Recharge Standards are met	Page 13
Recharge Worksheet	Appendix B
Proof that Runoff Quantity Standards are met	Page 11 ~12 and Appendix A
Proof that Water Quality Standards are met	Appendix A
Low Impact Development Checklist	Appendix B
USGS and HUC-14 Site Location Map	Appendix C
Copy of the State Study Plan and Profile (N/A)	Appendix (N/A)
Permeability Test Locations	Geotechnical Report (Separate Document)
Permeability Test Results	Geotechnical Report (Separate Document)
Boring data at the proposed basin locations (if applicable)	Geotechnical Report (Separate Document)
Location of proposed basin in relation to depth of the seasonal high groundwater table	Page 10
Operations and Maintenance Manual	Operations and Maintenance Manual (Separate Document)

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A. Pre-Development and Post-Development Hydrographs

- Water Quality Storm Event
- 2-Year Storm Event
- 10-Year Storm Event
- 100-Year Storm Event

B. Design Calculations

- Emergency Spillway Calculations
- Infiltration Rate and Basin Drain Time Calculations
- Recharge Calculations
- Storm Drain Sizing Calculations
- Pipe Capacity Check for Underground Basin
- Scour Hole Design
- Township-Specific Requirements Evaluation
- Sediment Basin Design
- Low-Impact Development Checklist

C. Maps & Documentation

- Location Map
- USGS & HUC14 Location Map
- Soil Map
- Drainage Area Maps
  - Existing Drainage Area Map
  - Proposed Drainage Area Map

1. Introduction

The intention of this study is to analyze the stormwater drainage conditions that will occur as a result of the proposed retail development situated at the southwest corner of NJSH Route 37 and Northampton Boulevard within the townships of Manchester and Toms River, in Ocean County, New Jersey. The subject site is more specifically defined as Block 44, Lots 2, 3, 5 & 9 in the Township of Manchester, and Block 505, Lots 14 and 15 in the Township of Toms River. Said lots shall be referenced herein as the Site, and are located on the USGS map and Site Location Map within the Appendix of this report. The Site consists of approximately 72+/- acres. The Site is bordered to the northeast by NJSH Route 37 and a retail center with various businesses on the premises, a four-lane divided highway; to the southeast by Northampton Boulevard; to the southwest by a one-track railroad owned and operated by Conrail; and to the northwest by residential use.

The proposed development includes one (1) 81,275 SF retail building, one (1) 4,800 SF restaurant and one (1) 9,322 SF retail building. Additional improvements include parking and circulation areas, landscaping areas, stormwater management facilities, associated utilities, and related site improvements.

The scope of this study includes analysis of runoff generated by the proposed buildings, driveways, paved parking areas, and landscaped areas, as well as an analysis of the resulting stormwater collection system and the aboveground stormwater management basins as shown on the accompanying engineering drawings. The following items shall be addressed within this report:

- Narrative of pre- and post-development conditions with calculations to substantiate derived runoff coefficients and times of concentration.
- Analysis of pre-and post-development annual groundwater recharge.
- Calculations for water quality utilizing the NJDEP 1.25 inch/2-hour water quality design storm.
- Stormwater pollutant (TSS) removal.
- Calculations and comparisons of the peak runoff rates for the 2-, 10- and 100-year design storm events under pre- and post-development conditions.
- Calculations for the proposed aboveground infiltration basin system including inflow and outflow hydrographs, and a storage volume versus depth table.
- Calculations to substantiate capacity of the proposed stormwater conveyance system.

The primary design constraints for this project are based on the Township of Toms River and Township of Manchester Land Use Ordinances, the CAFRA Department of the New Jersey Department

of Environmental Protection (NJDEP) rules and regulations, and Ocean County design standards, as follows:

Township of Toms River:

- NJDEP requirements must be met regarding water quantity (peak runoff rate reduction), water quality (TSS removal), and groundwater recharge.
- For detention facilities, the design frequency shall be a 24-hour storm with return period not less than 50 years for the tributary area not exceeding 50 acres.
- For retention facilities, the required capacity must be doubled.

Township of Manchester:

- NJDEP requirements must be met regarding water quantity (peak runoff rate reduction), water quality (TSS removal), and groundwater recharge.
- Only one half (0.5) of the area devoted to the detention or retention facilities shall be considered non-impervious.
- Retention facilities shall be required to provide one-hundred percent (100%) storage capacity for the 50-year storm.

NJDEP – CAFRA (based on NJDEP Stormwater Management Regulations):

- NJDEP requirements must be met regarding water quantity (peak runoff rate reduction), water quality (TSS removal), and groundwater recharge.
- 100% of infiltration basin bottom area to be considered as impervious area per NJDEP comment.

NJDOT:

- Same requirements as NJDEP.

Note: The design of the NJDOT improvements associated with this site improvement will be prepared by the Project Traffic Engineers.

Ocean County:

- Post-development peak runoff rates for the Site will be reduced to below the pre-development stormwater runoff rates for the 2-, 10- and 100-year storms.
- Provide water quality.

Ocean County Soil Conservation District:

- Post-development peak runoff rates for the site will be reduced to below the pre-development stormwater runoff rates and will be required to meet the percent reductions for the 2- and 10-year design storm frequencies of 50% and 25%, respectively.

The stormwater management system proposed on the Site has been designed using the above requirements. Calculations documenting the design of the stormwater management system as illustrated on the accompanying engineering drawings prepared by Bohler Engineering are included within the appendices attached hereto.

2. Pre-Development Conditions

Under existing conditions, the property is primarily wooded with 2 +/- acres of impervious area along the Route 37 frontage that is being utilized by a gasoline service station facility.

2.1 Topography

The topography for the majority of the Site can be described as gentle, with slopes in the range of 1 to 5 percent. A few small areas within the center and rear of the property have steeper slopes of approximately 10 percent.

2.2 Freshwater Wetlands

Existing freshwater wetlands exist along the rear portion of the Site, with associated buffer as verified by the NJDEP (File No. 1500-04-0001.1, FWW 040001 and recently File No. 1500-04-0001.3 for Lot 9). The proposed development will fill a portion of the wetland buffer; however, additional wetland buffer will be provided on the same wetland to compensate the wetland buffer taken for the proposed development. The proposed wetland/buffer disturbance with associated compensation area will be submitted to NJDEP for approval.

2.3 100-Year Flood Elevation

A portion of the site is within the 100-year floodplain along the south western property line, and a Stream Encroachment Permit / delineation was obtained from NJDEP (File No. 1500-04-0001.1, FHA 04.0001.1). The proposed development is located at the eastern portion of the property, more than 400 feet (approximately) away from the stream encroachment line. The finished floor elevation (FFE) is set greater than six (6) feet above the 100-year flood elevation.

2.4 Pine Snake Habitat

A portion of the site has been classified as pine snake habitat, and is protected under the proposed development. More specifically, the current site development plan is limited to a portion of the property in question, and proposes a greatly reduced footprint of disturbance when compared with the previous

three (3) applications. Based on the current design drawings and several meetings with the NJDEP, it is our understanding that the NJDEP's intent to protect and preserve the pine snake habitat is achieved by the proposed development.

2.5 Drainage

Under existing conditions, the Site is divided into five (5) drainage areas defined as EDA-1, EDA-2, EDA-3, EDA-4 and EDA-5, more specifically described as follows:

- **EDA-1** (approximately 19.64 +/- acres) is located along the easterly side of the property and drains in a north to south direction. The majority of this drainage area is wooded with a very limited grass area. A portion of Northampton Boulevard is also included in the drainage area. The stormwater runoff from EDA-1 is tributary to the lower area at the southern corner of the property and eventually to the drainage ditch located near the southern property corner.
- **EDA-2** (approximately 3.74 +/- acres) is located along the northeast property line adjacent to NJSH Route 37. The stormwater runoff from EDA-2 is tributary to a local depression.
- **EDA-3** (approximately 4.85 +/- acres) is located at the northern property line along NJSH Route 37. The stormwater runoff from this drainage area is tributary to Block 44, Lot 7, of Manchester Township, and eventually to a stream located at the western side of the property.
- **EDA-4** (approximately 17.40+/- acres) is located along the southwest property line and represents the area between the two on-site wetlands where no development is anticipated, except for portions of the snake barrier requested by the NJDEP. The stormwater runoff from this area drains in an east to west direction and is tributary to the southwest wetland area and stream mentioned above.
- **EDA-5** (approximately 29.30 +/- acres) is located along the western property line and encompasses a large wooded area with existing wetlands and stream where no development is anticipated. The stormwater runoff from this area drains in a north to south direction and is tributary to the southwest wetland area and stream mentioned above.

Per the USGS map, all drainage areas are tributary to the Sunken Branch, a tributary of Wrangle Brook, and eventually drain into the Toms River bay.

2.6 Site Soils

The northeasterly portion of the site along Route 37 is depicted by the Ocean County Soil Survey as Lakewood sand (LasB). The majority of the southern portion of the site is depicted as Lakehurst sand

(LakB). Per *Urban Hydrology for Small Watersheds*, both soil series belong to hydrologic soil group "A". It should be noted that the entire proposed development is within the perimeter of these two soil series. For the remaining undeveloped portion of the Site, specifically in the area of the existing wetlands, the Ocean County Soil Survey depicts Atsion sand (AtsA) along the northwestern corner of the property, and Mullica sandy loam (MumA) at the southern portion of the property. Per *Urban Hydrology for Small Watersheds*, the Atsion series belongs to groups "A/D", while the Mullica sandy loam series belongs to group "D". Additional information on these soil types are contained in the Appendix of this report.

3. Post-Development Conditions

3.1 Post-Development Conditions

3.1.1 Surface Cover / Development:

As previously mentioned, under proposed conditions, one (1) 81,275 SF retail building, one (1) 4,800 SF restaurant and one (1) 9,322 SF retail building together with parking fields, driveways, landscaped areas, stormwater management facilities, associated utilities and related site improvements will be constructed. The total proposed land disturbance on site is approximately 20 +/- acres with approximately 8 +/- acres of new impervious area within the project site. A proposed stormwater conveyance system will collect the runoff from the proposed building and pavement areas, and redirect the stormwater to the proposed basins.

3.1.2 Drainage:

The stormwater management facilities for the proposed development have been designed to respect and maintain the natural, existing drainage patterns to the fullest extent possible, and to meet the governing agencies' requirements with respect to groundwater recharge, water quality, and peak flow reductions. Under post-development conditions, five major drainage areas are proposed as depicted on the accompanying engineering plans, as follows:

- **Drainage Area PDA-1** is further divided into three (3) sub-drainage areas, as follows:
  - **PDA-1A** – This area encompasses 10.37+/- acres and includes the majority of the front parking field and with portion of Retail "A" roof area. The stormwater runoff from the parking field and the roof area will be collected by a series of inlets and conveyance pipes, and discharged directly to the aboveground Basin #1.

- **PDA-1B** – This area encompasses 6.53+/- acres and includes the driveway at the back of the proposed retail "A", portion of retail "A" roof area, a portion of the Northampton Boulevard and the open space area to the north of the parking field. The stormwater runoff from these areas will be collected by the proposed inlets, and discharge directly to the aboveground Basin #2. Any outflow from Basin #2 will discharge to the existing drainage ditch located near the southern property corner.

- **PDA-1C** – This area encompasses 1.01+/- acres and includes the area which is not tributary to proposed Basins #1 and #2 due to elevation. The land cover for this area is primarily grass, and stormwater runoff from this area will travel via overland flow to the existing ditch located near the southern property corner.

- **Drainage Area PDA-2** encompasses 5.46+/- acres and includes the existing local depression surrounded by the proposed snake barrier. Stormwater runoff from this area is expected to drain to this local depression and eventually infiltrate into the ground.

- **Drainage Area PDA-3** is the same as area EDA-3 under existing conditions. The stormwater runoff from this area is expected to maintain the same characteristics as under existing conditions.

- **Drainage Area PDA-4** is the same as area EDA-4 under existing conditions, and will remain undeveloped. The stormwater runoff from this area is expected to maintain the same characteristics as under existing conditions.

- **Drainage Area PDA-5** is the same as area EDA-5 under existing conditions, and will remain undeveloped. The stormwater runoff from this area is expected to maintain the same characteristics as under existing conditions.

3.2 Non-Structural Stormwater Management Facilities

All of the non-structural strategies have been considered in the design of the proposed development. By protecting the wetlands and associated buffers, land disturbance has been minimized. No disturbance, including clearing and grubbing, will take place in those areas which encompass over forty (40) acres of natural wooded area (a portion of which is classified as pine snake habitat by the

NJDEP). An extensive landscaping plan has been incorporated which minimizes the use of lawn, fertilizers and pesticides. In addition, grass swales are proposed along the site access drive, which will convey stormwater runoff from portion of the pavement area via curb cut.

3.3 Structural Stormwater Management Facilities

3.3.1 Infiltration / Detention Basin

Proposed Basin #1 is an infiltration/detention basin and consists of two portions. The aboveground portion is located to the west of the front parking field and has a six-inch (6") sand layer at the basin bottom. The underground portion includes 24" RCP pipes under the front parking area with very flat slope. It has an outlet structure which discharges to proposed Basin #2. A valve is also proposed within this overflow structure so that the basin can be drained completely for maintenance purposes.

Proposed Basin #2 is an infiltration/detention basin similar to Basin #1, and has a six-inch (6") sand layer at the bottom. It has an outlet structure which discharges to the existing drainage ditch via an existing stormwater pipe located within Northampton Boulevard. A valve is proposed within this outlet structure as well so the basin can be drained completely for maintenance purposes.

3.4 Soil Erosion and Sediment Control Design

3.4.1 Sediment Basin

Two (2) temporary sediment basins are proposed during construction to prevent the sediment created during site construction from affecting downstream areas. Calculations for these sediment basins are included within Appendix B of this report.

Please note that in order to avoid sedimentation which may result in clogging and reduction of infiltration capacity, and to maintain maximum soil infiltration capacity during the course of construction, the use of heavy equipment will be minimized for the construction of the proposed detention/infiltration basins. In addition, a two-foot-thick natural soil buffer shall be maintained above the proposed basin bottom until the entire upstream area has been stabilized.

3.4.2 Other Soil Erosion and Sediment Control Measures

Other standard soil erosion and sediment control measures and BMPs will be employed during site construction such as silt fences, inlet protection, stabilized construction entrances, soil stockpiles, jute

matting, temporary diversion berms, etc. These details are also included within the accompanying site plan set.

4. Methodology

The stormwater management facilities have been designed in accordance with the local, county and state requirements mentioned above.

4.1 Calculation Software

The calculations included within this report were performed using hydrologic software, HydroCAD (Version 9.00) by HydroCAD Software Solutions, LLC. The HydroCAD software was used to develop runoff hydrographs, outlet structure configurations, and basin routings using the SCS TR-20 methodology. Time of concentration calculations for the pre and post-development calculations were generated utilizing the SCS Method. All storm runoff data for this project were generated using the DelMarva unit hydrographs.

4.2 Runoff "CN" Values

As described above, soil classifications for use with runoff curve numbers (CN) were taken from the Ocean County Soil Survey (see Appendix C). Evaluation of these maps indicates that soils within the proposed disturbed areas consists of hydrologic soil groups A and D as defined within the United State Soil Conservation Service Manual, *"Urban Hydrology for Small Watersheds"*, v. 1986.

Runoff CN values for the soil groups were assigned to various surfaces as follows:

	Soil Group:	**A**	**D**
Ground Cover	**CN Values:**		
Wooded Areas (good condition)		30	77
Landscaped/Lawn (good condition)		39	80
Impervious/Building Areas		98	98

Please note, under pre-developed conditions, all pervious areas (dirt path and grass area) are considered wooded areas in good condition. Under post-development conditions, 100% of the infiltration basin bottom area is considered as impervious area per NJDEP. Runoff CN value calculations for pre-

and post-developed conditions were generated using HydroCAD software and are included within the Appendix of this report.

4.3 Time of Concentration

The time of concentration (Tc) and travel time calculations have been completed in accordance with Chapter 3 of the SCS Technical Release 55 Manual. As required by NJDEP, the stormwater runoff from impervious and pervious areas is calculated separately. When Tc for impervious areas is less than 10 minutes, 10 minutes is used. This is true for the Tc used for impervious areas under pre-developed conditions, and the Tc used for both pervious and impervious areas within the limit of disturbance under post-development conditions. Please refer to the Existing and Proposed Drainage Area maps for travel path information for times of concentration other than 10 minutes.

4.4 Pipe Sizing

The majority of the stormwater pipes proposed under the main parking field are part of the detention facility, and the purpose of these pipes is more for storage than for conveyance. However, the pipe capacity is confirmed for the 100-year storm event to ensure that no ponding will occur on the pavement surface. In addition, inlet capacity is confirmed to ensure that no more than 4 cfs will be tributary to any of the proposed inlets, as per the ordinance of Toms River Township.

4.5 Infiltration Rates

Infiltration rates were based on field tests conducted at the proposed development by Whitestone Associates, Inc. in the areas of the proposed detention/infiltration basins. Please see the following table for a summary of permeability rate data used in the design. Basin drain time is estimated for all proposed basins. For the detention/infiltration basins, a factor of safety of three (3) was used for each tested permeability rate in conjunction with the Darcy Equation, Q = KIA, as indicated in the New Jersey Stormwater Best Management Practices Manual. Please note infiltration rate is used for calculating basin drain down time only, and is not used in the basin routing. Please refer to Appendix B for basin drain time calculations.

Test Pit #	Permeability (in/hr)	Proposed Basin Number
SPP-1S	4.7	1
SPP-2S	9.4	1

SPP-3S	>20.0	2
SPP-4S	11.8	2

4.6 Seasonal Groundwater

The seasonal high groundwater table was based on field tests conducted at the site by Whitestone Associates, Inc., in the area of the proposed infiltration basins. A two-foot minimum clearance has been maintained between the seasonal high groundwater elevation and the bottom of the infiltration basins (bottom of the 6" sand layer). See summary table below:

Test Pit #	SHGW	Proposed Basin #	Proposed Basin Bottom (*)	Separation
SPP-1S	54.1	1	56.4	>2’
SPP-2S	54.4	1	56.4	=2’
SPP-3S	49.5	2	51.5	=2’
SPP-4S	48.2	2	51.5	>2’

(*) For infiltration basins, the basin bottom (for calculating the separation to seasonal high groundwater proposed) is calculated as the bottom of the 6-inch sand layer.

4.7 Water Quality / TSS Removal

Water quality for the proposed development is achieved by storing and infiltrating the entire water quality design storm in the proposed detention/infiltration basins #1 and #2. Per the New Jersey Stormwater Best Management Practices Manual, the adopted TSS removal rate for infiltration basins is 80%, and the total phosphorous and total nitrogen removal rate for the infiltration basin is 60% and 50%, respectively. As a result, the proposed stormwater management system for the proposed development meets the NJDEP requirement regarding water quality.

4.8 Water Quantity

The quantity reduction for post-construction development as detailed in the NJDEP Stormwater Management Regulations includes a 50% reduction for the 2-year storm, a 25% reduction for the 10-year storm and 20% reduction for the 100-year storm per N.J.A.C. 7:8-5.4 (3)(iii).

The following tables show the comparison between the pre-development and the post-development stormwater runoff rates for various discharge points and demonstrate that the site design meets the quantity reduction (peak runoff rate reduction) requirement.

To Existing Drainage Ditch Located Near the Southern Property Corner

Pre-Development vs. Post-Development Peak Flow Rate Comparison

NJDEP EDA-1 VS PDA-1 (PDA-1A + PDA-1B + PDA-1C + PDA-1D)			
	2 YEAR	**10 YEAR**	**100 YEAR**
Pre-Development Flow Rate	1.45	2.30	3.96
NJDEP Reduction Rate	50%	25%	20%
Maximum Allowable Post-Development Flow Rate	0.72	1.72	3.16
Post Development Flow Rate	0.50	1.05	3.06
NJDEP Reduction Rate Achieved?	YES	YES	YES

To Existing Local Depression Area

Pre-Development vs. Post-Development Peak Flow Rate Comparison
EDA-2 vs. PDA-2

The local depression under existing conditions is large enough to hold the entire volume of the 100-year storm. Under proposed conditions, PDA-2 will have 1.06 acres less of impervious area and 2.78 acres of additional pervious area than EDA-2; therefore, the entire volume of the 100-year storm will be contained in the local depression as well. As a result, under both the pre- and post-development conditions, there is no increase in peak stormwater runoff rate in PDA-2 when compared with EDA-2.

To Block 44, Lot 7

EDA-3 vs. PDA-3

Due to the fact that no development is proposed within PDA-3, the drainage conditions will remain the same. There is no increase in the peak stormwater runoff rate in PDA-3 when compared with EDA-3.

To Existing Stream

EDA-4 vs. PDA-4

Due to the fact that no development is proposed within PDA-4, the drainage conditions will remain the same. There is no increase in the peak stormwater runoff rate in PDA-4 when compared with EDA-4.

To Existing Stream

EDA-5 vs. PDA-5

Due to the fact that no development is proposed within PDA-5, the drainage conditions will remain the same. There is no increase in the peak stormwater runoff rate in PDA-5 when compared with EDA-5.

4.9 Groundwater Recharge

Per the New Jersey Stormwater Best Management Practices Manual, the proposed development shall comply with one of the following two groundwater recharge requirements:

Requirement 1: That 100 percent of the Site's average annual pre-developed groundwater recharge volume be maintained after development; or

Requirement 2: That 100 percent of the difference between the Site's pre- and post-development 2-year runoff volumes be infiltrated.

For this development, as illustrated in the calculations, Requirement #1 is met to satisfy the groundwater recharge requirement. Please refer to the Groundwater Recharge Analysis located in Appendix B of this report.

5. Conclusions

In summary, the proposed stormwater management system illustrated on the drawings prepared by Bohler Engineering meets the requirements set forth by all reviewing jurisdictional agencies and the NJDEP Stormwater Regulations. Specifically, the design meets water quality, peak runoff rate reduction, and groundwater recharge requirements. In addition, the development proposes minimal disturbance to the wetland transition area and provides water quality for the stormwater runoff generated from a portion of Northampton Boulevard. No encroachment is proposed in the Flood Hazard Area, and it is anticipated that the pine snake habitat will be protected and preserved in accordance with NJDEP requirements. As a result, we would anticipate the proposed development will have no negative impact on the existing stormwater management system in the vicinity of the subject parcel.

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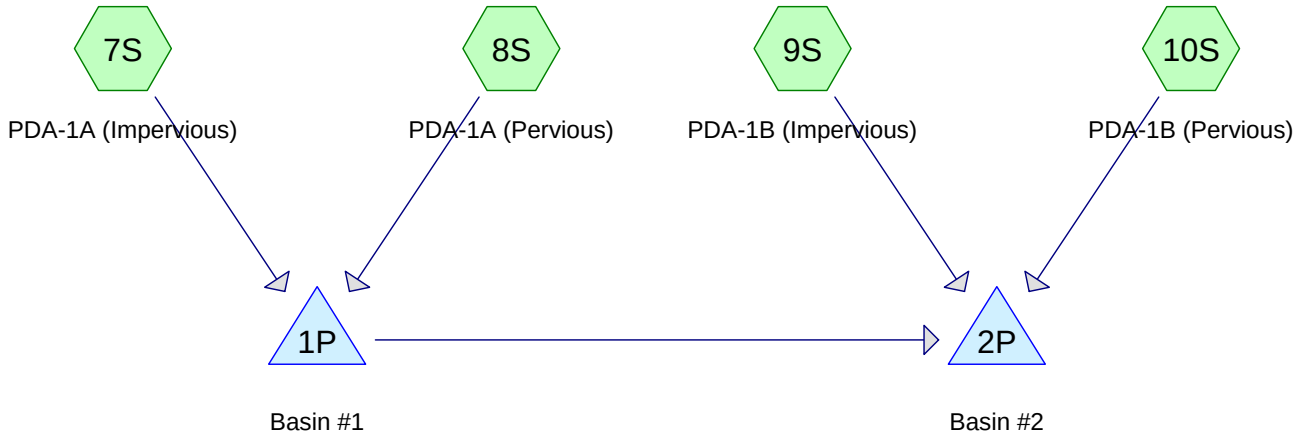
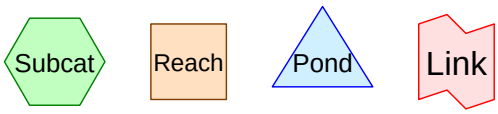
A. Pre-Development and Post-Development Hydrographs

- **Water Quality Storm Event**
- **2-Year Storm Event**
- **10-Year Storm Event**
- **100-Year Storm Event**

WATER QUALITY STORM EVENT





Routing Diagram for Ex-Pr
Prepared by Bohler Engineering NJ, LLC, Printed 6/26/2019
HydroCAD® 10.00-23 s/n 02612 © 2018 HydroCAD Software Solutions LLC

Summary for Subcatchment 7S: PDA-1A (Impervious)

Runoff = 15.68 cfs @ 1.17 hrs, Volume= 0.724 af, Depth= 1.03"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr Water Quality Rainfall=1.25"

	Area (ac)	CN	Description
	6.160	98	Paved parking, HSG A
*	2.240	98	Basin Bottom
	8.400	98	Weighted Average
	8.400	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment 8S: PDA-1A (Pervious)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr Water Quality Rainfall=1.25"

Area (ac)	CN	Description
0.490	30	Woods, Good, HSG A
1.480	39	>75% Grass cover, Good, HSG A
1.970	37	Weighted Average
1.970	37	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment 9S: PDA-1B (Impervious)

Runoff = 6.25 cfs @ 1.17 hrs, Volume= 0.289 af, Depth= 1.03"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr Water Quality Rainfall=1.25"

	Area (ac)	CN	Description
	2.610	98	Paved parking, HSG A
*	0.740	98	Basin bottom
	3.350	98	Weighted Average
	3.350	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment 10S: PDA-1B (Pervious)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NJ DEP 2-hr Water Quality Rainfall=1.25"

Area (ac)	CN	Description
3.180	39	>75% Grass cover, Good, HSG A
3.180	39	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Pond 1P: Basin #1

Inflow Area = 10.370 ac, 81.00% Impervious, Inflow Depth = 0.84" for Water Quality event
Inflow = 15.68 cfs @ 1.17 hrs, Volume= 0.724 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 57.22' @ 3.10 hrs Surf.Area= 99,490 sf Storage= 31,546 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	56.90'	432,566 cf	**Basin #1 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.90	97,675	0	0
57.00	98,767	9,822	9,822
58.00	102,067	100,417	110,239
59.00	105,401	103,734	213,973
60.00	108,770	107,086	321,059
61.00	114,245	111,508	432,566

Device	Routing	Invert	Outlet Devices
#1	Primary	56.80'	**15.0" Round Culvert** L= 12.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 56.80' / 56.68' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	58.50'	**2.5" Vert. Orifice/Grate** C= 0.600

#3	Device 1	60.00'	**36.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	60.30'	**100.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=56.90' TW=52.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.00 cfs of 0.04 cfs potential flow)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=56.90' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: Basin #2

Inflow Area =	16.900 ac, 69.53% Impervious, Inflow Depth = 0.21" for Water Quality event			
Inflow =	6.25 cfs @	1.17 hrs, Volume=	0.289 af	
Outflow =	0.00 cfs @	0.00 hrs, Volume=	0.000 af, Atten= 100%, Lag= 0.0 min	
Primary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	
Secondary =	0.00 cfs @	0.00 hrs, Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 52.39' @ 3.10 hrs Surf.Area= 33,055 sf Storage= 12,581 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	52.00'	149,696 cf	**Basin #2 (Prismatic)** Listed below (Recalc)

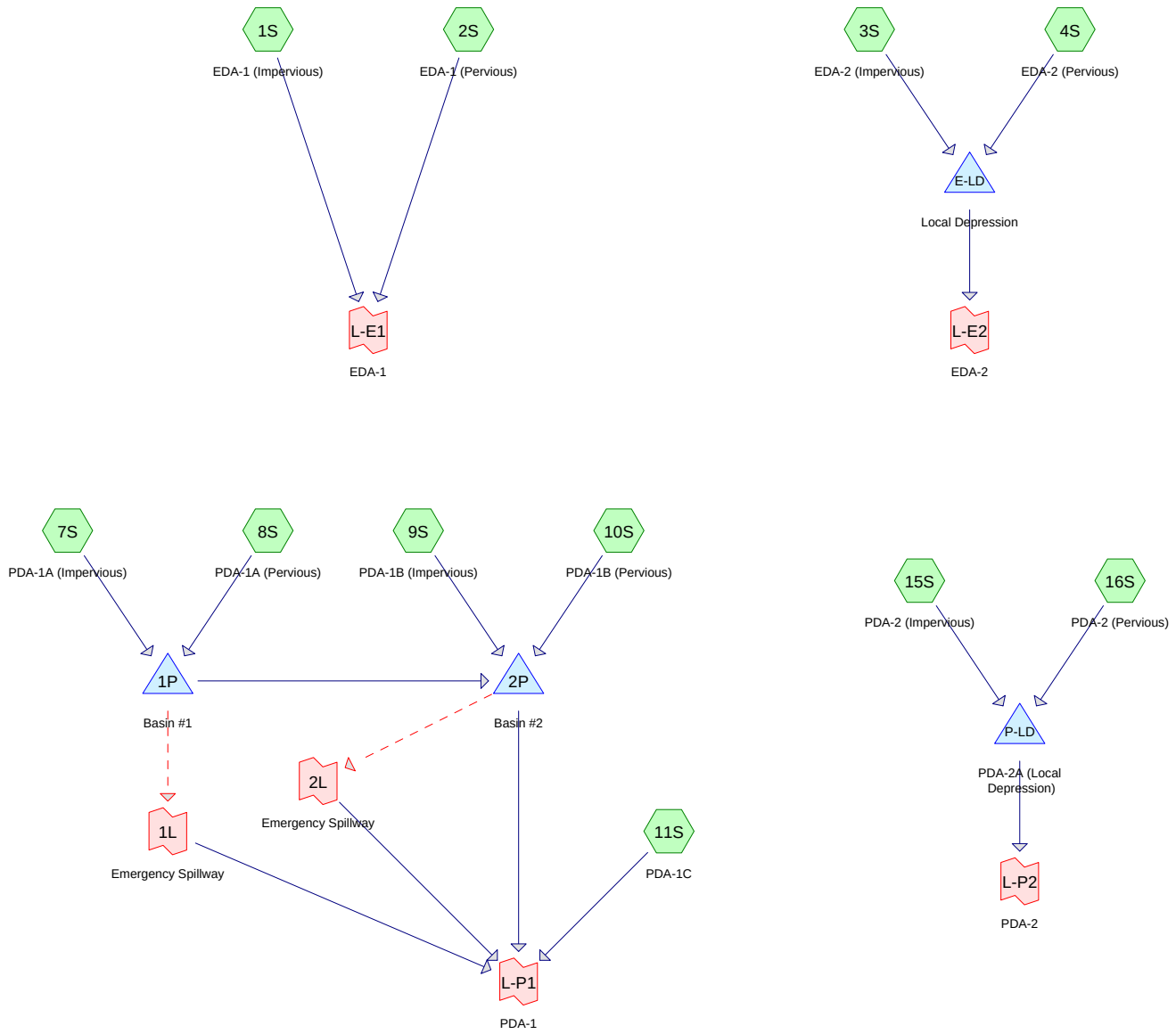
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
52.00	32,110	0	0
53.00	34,558	33,334	33,334
54.00	37,053	35,806	69,140
55.00	40,912	38,983	108,122
56.00	42,236	41,574	149,696

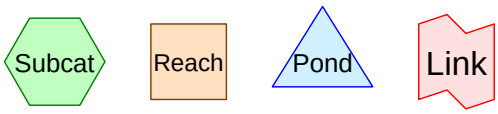
Device	Routing	Invert	Outlet Devices
#1	Primary	51.00'	**15.0" Round Culvert** L= 17.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 51.00' / 50.66' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	52.40'	**7.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	54.20'	**36.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	54.60'	**35.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=52.00' (Free Discharge)
└─**1=Culvert** (Passes 0.00 cfs of 3.81 cfs potential flow)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=52.00' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

2-YEAR STORM EVENT





Routing Diagram for Ex-Pr
Prepared by Bohler Engineering NJ, LLC, Printed 6/26/2019
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Summary for Subcatchment 1S: EDA-1 (Impervious)

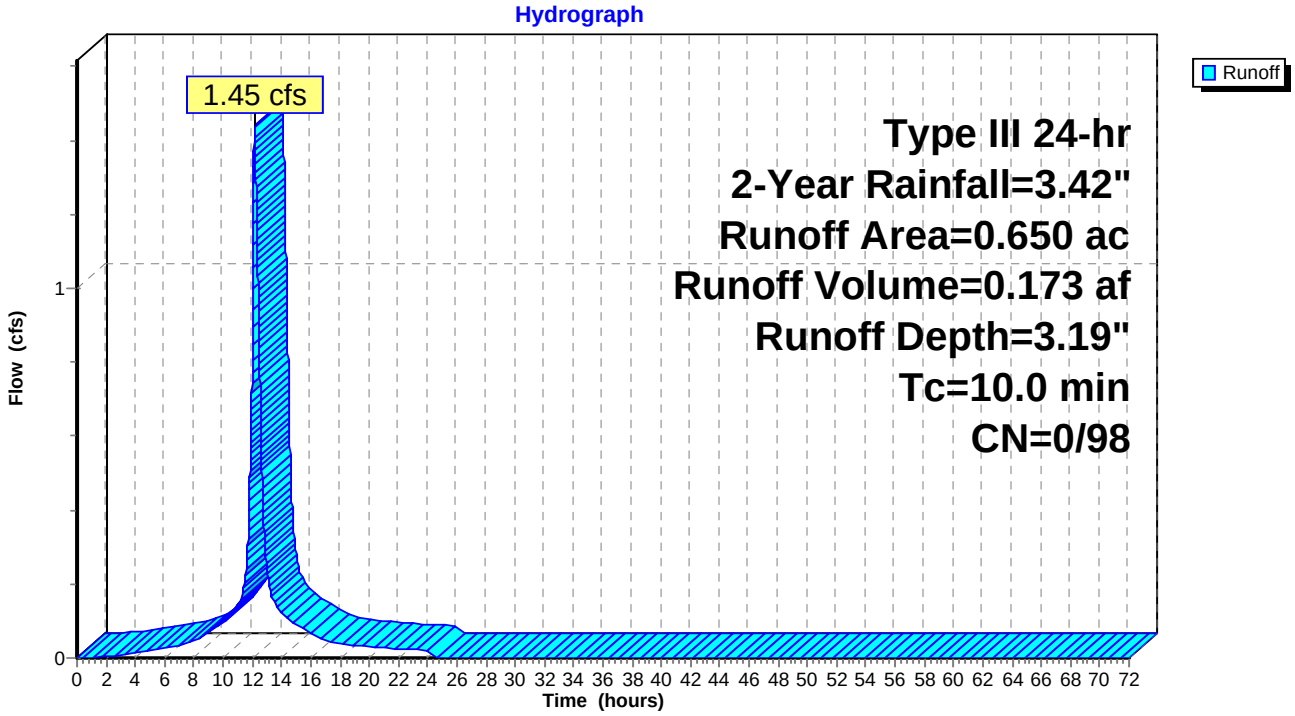
Runoff = 1.45 cfs @ 12.16 hrs, Volume= 0.173 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.42"

Area (ac)	CN	Description
0.650	98	Paved roads w/curbs & sewers, HSG A
0.650	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: EDA-1 (Impervious)



Summary for Subcatchment 2S: EDA-1 (Pervious)

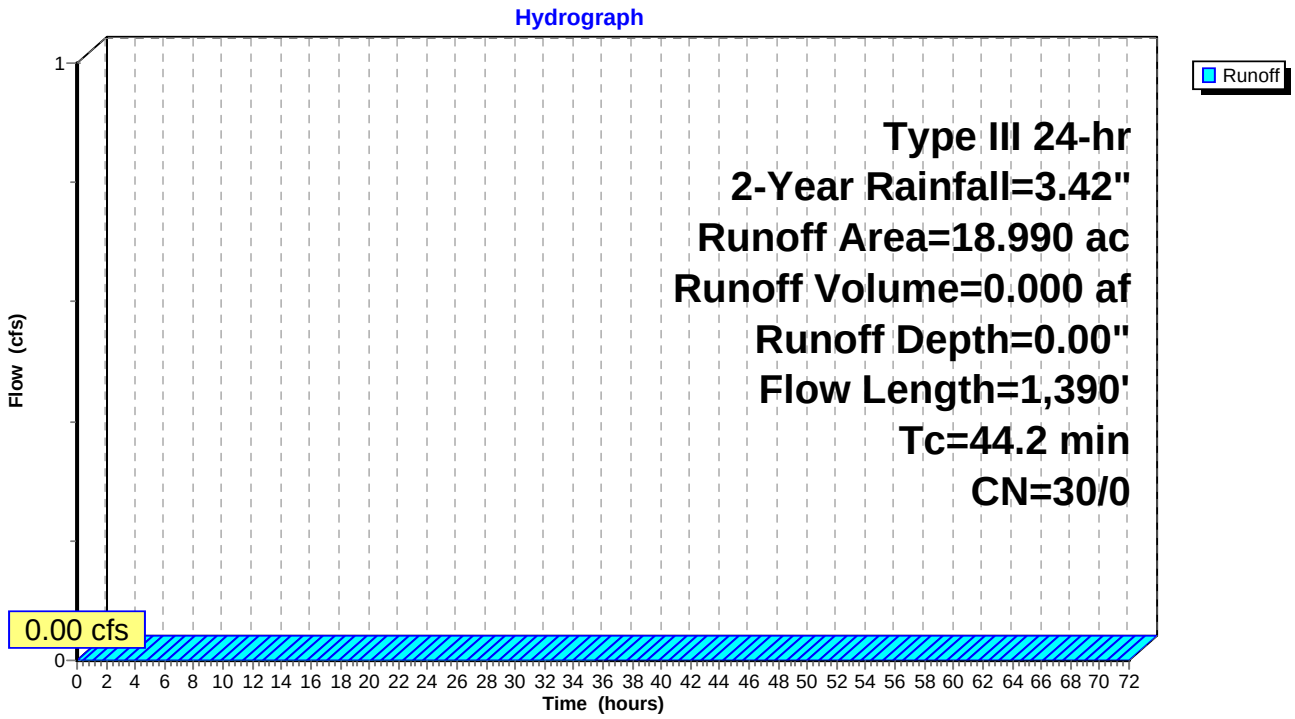
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.42"

Area (ac)	CN	Description
18.470	30	Woods, Good, HSG A
0.520	30	Woods, Good, HSG A
18.990	30	Weighted Average
18.990	30	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.5	90	0.0089	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
17.7	1,300	0.0058	1.23		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
44.2	1,390	Total			

Subcatchment 2S: EDA-1 (Pervious)



Summary for Subcatchment 3S: EDA-2 (Impervious)

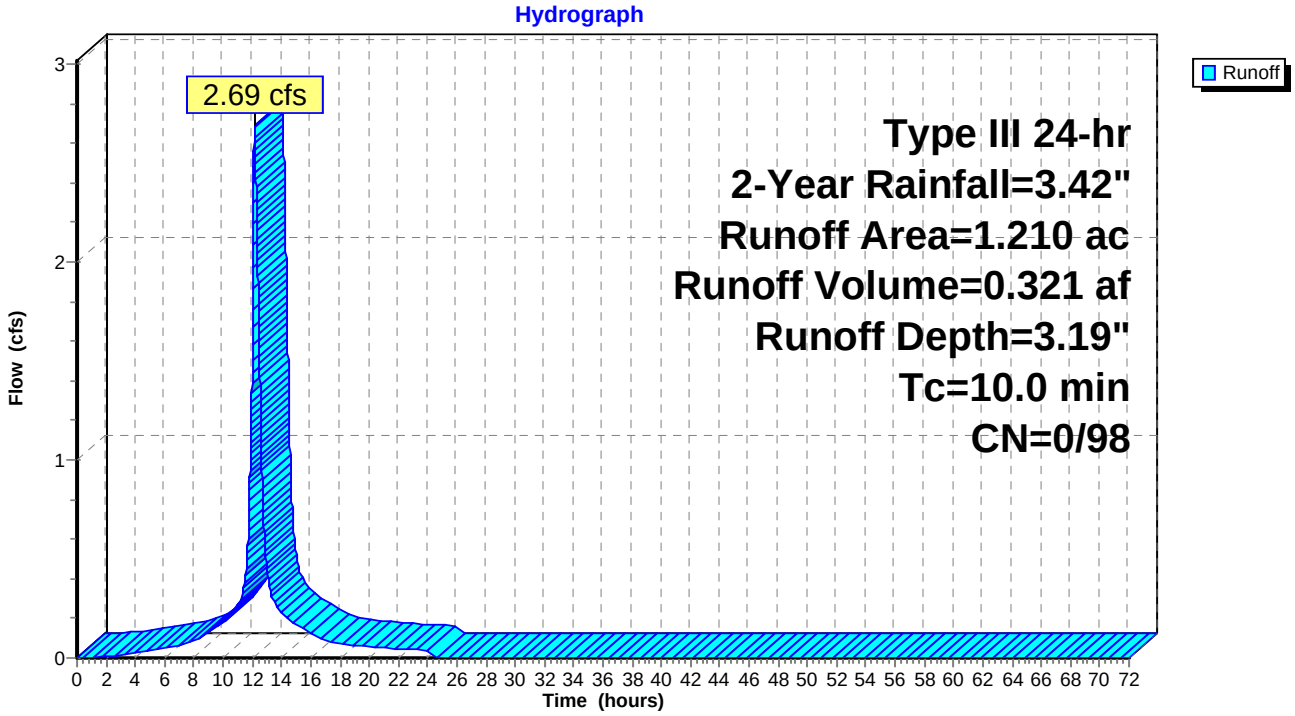
Runoff = 2.69 cfs @ 12.16 hrs, Volume= 0.321 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.42"

Area (ac)	CN	Description
1.210	98	Paved parking, HSG A
1.210	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 3S: EDA-2 (Impervious)



Summary for Subcatchment 4S: EDA-2 (Pervious)

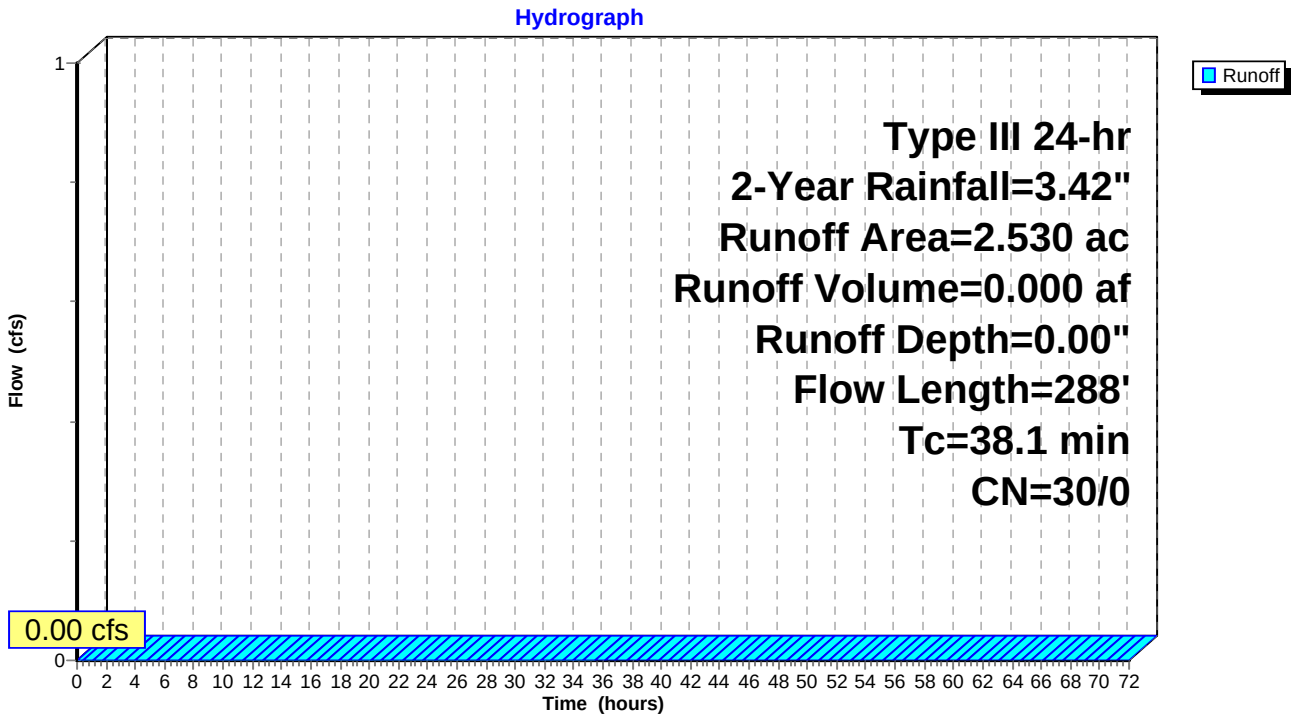
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.42"

Area (ac)	CN	Description
1.980	30	Woods, Good, HSG A
0.550	30	Woods, Good, HSG A
2.530	30	Weighted Average
2.530	30	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.3	150	0.0105	0.07		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
0.8	138	0.0290	2.74		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
38.1	288	Total			

Subcatchment 4S: EDA-2 (Pervious)



Summary for Subcatchment 7S: PDA-1A (Impervious)

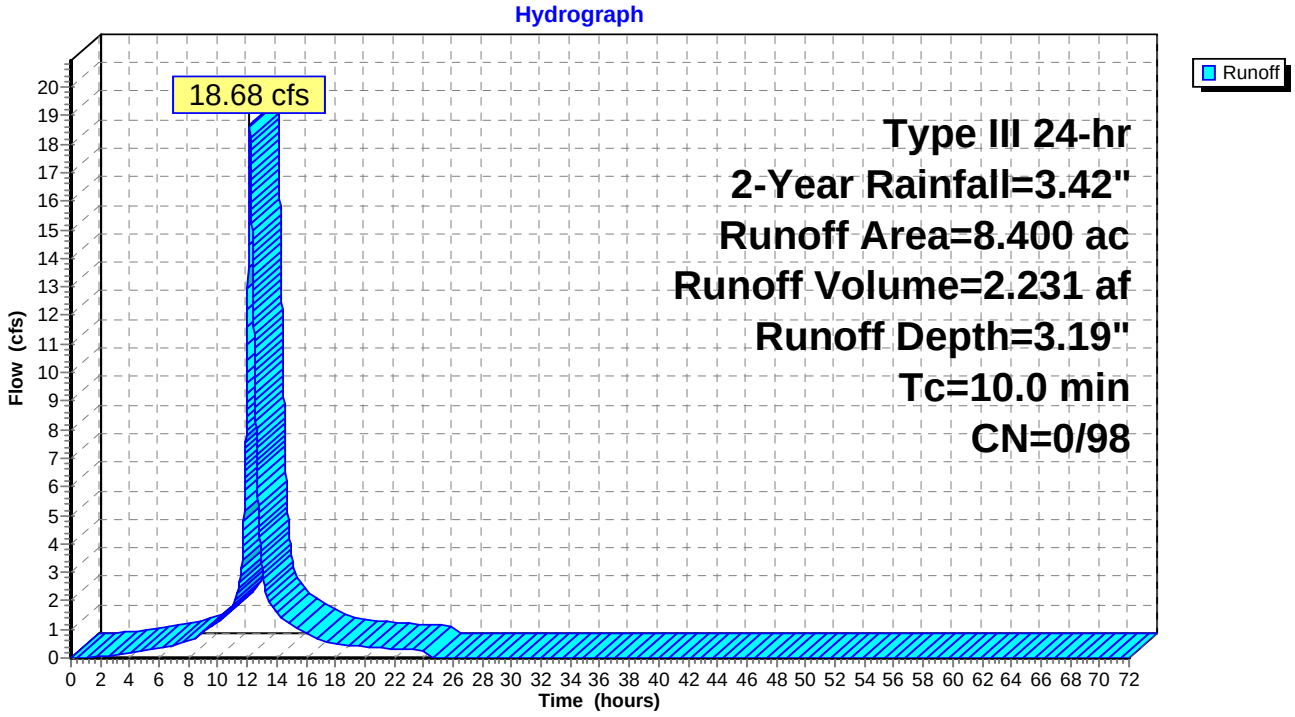
Runoff = 18.68 cfs @ 12.16 hrs, Volume= 2.231 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.42"

	Area (ac)	CN	Description
	6.160	98	Paved parking, HSG A
*	2.240	98	Basin Bottom
	8.400	98	Weighted Average
	8.400	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 7S: PDA-1A (Impervious)



Summary for Subcatchment 8S: PDA-1A (Pervious)

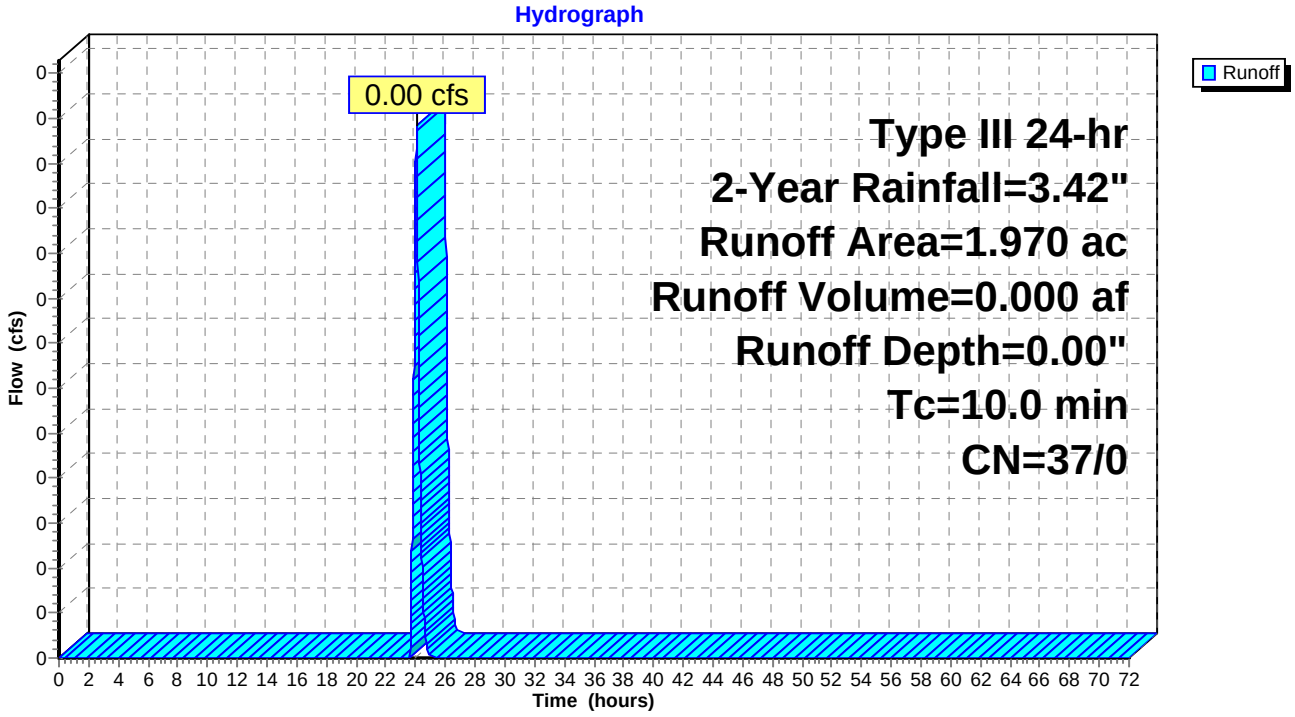
Runoff = 0.00 cfs @ 24.06 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.42"

Area (ac)	CN	Description
0.490	30	Woods, Good, HSG A
1.480	39	>75% Grass cover, Good, HSG A
1.970	37	Weighted Average
1.970	37	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 8S: PDA-1A (Pervious)



Summary for Subcatchment 9S: PDA-1B (Impervious)

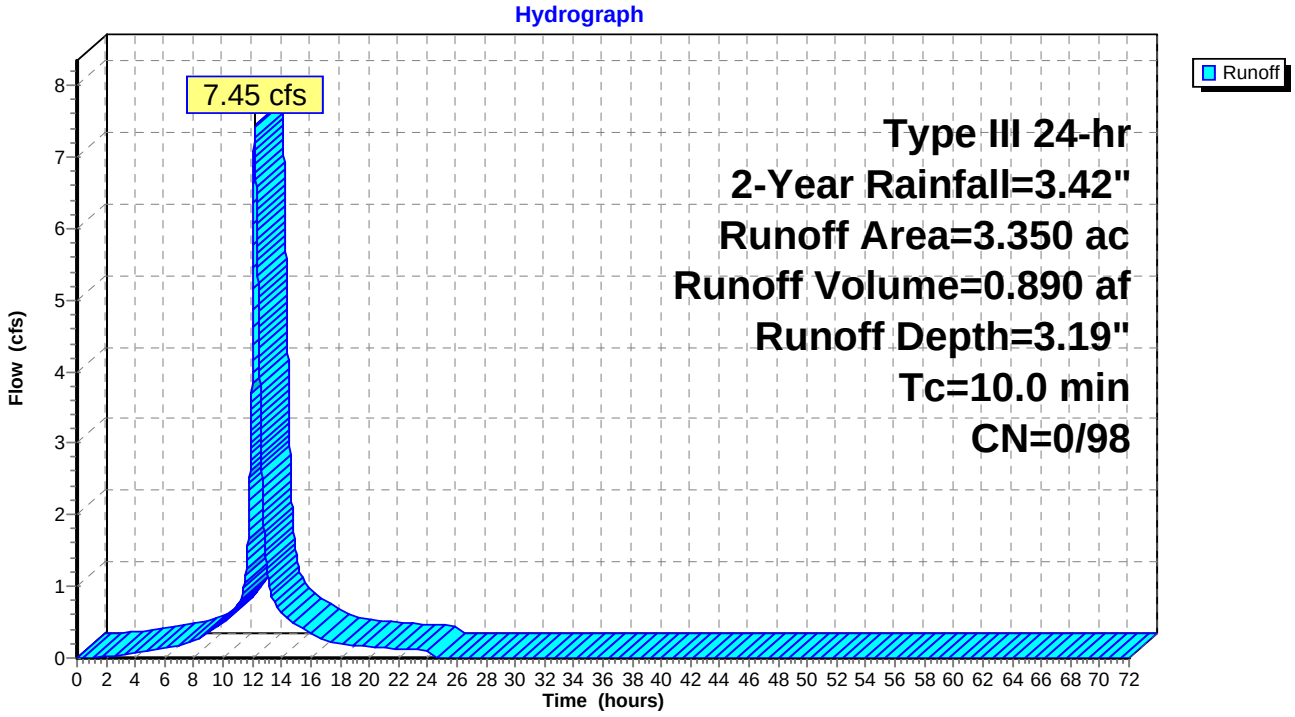
Runoff = 7.45 cfs @ 12.16 hrs, Volume= 0.890 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.42"

	Area (ac)	CN	Description
	2.610	98	Paved parking, HSG A
*	0.740	98	Basin bottom
	3.350	98	Weighted Average
	3.350	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 9S: PDA-1B (Impervious)



Summary for Subcatchment 10S: PDA-1B (Pervious)

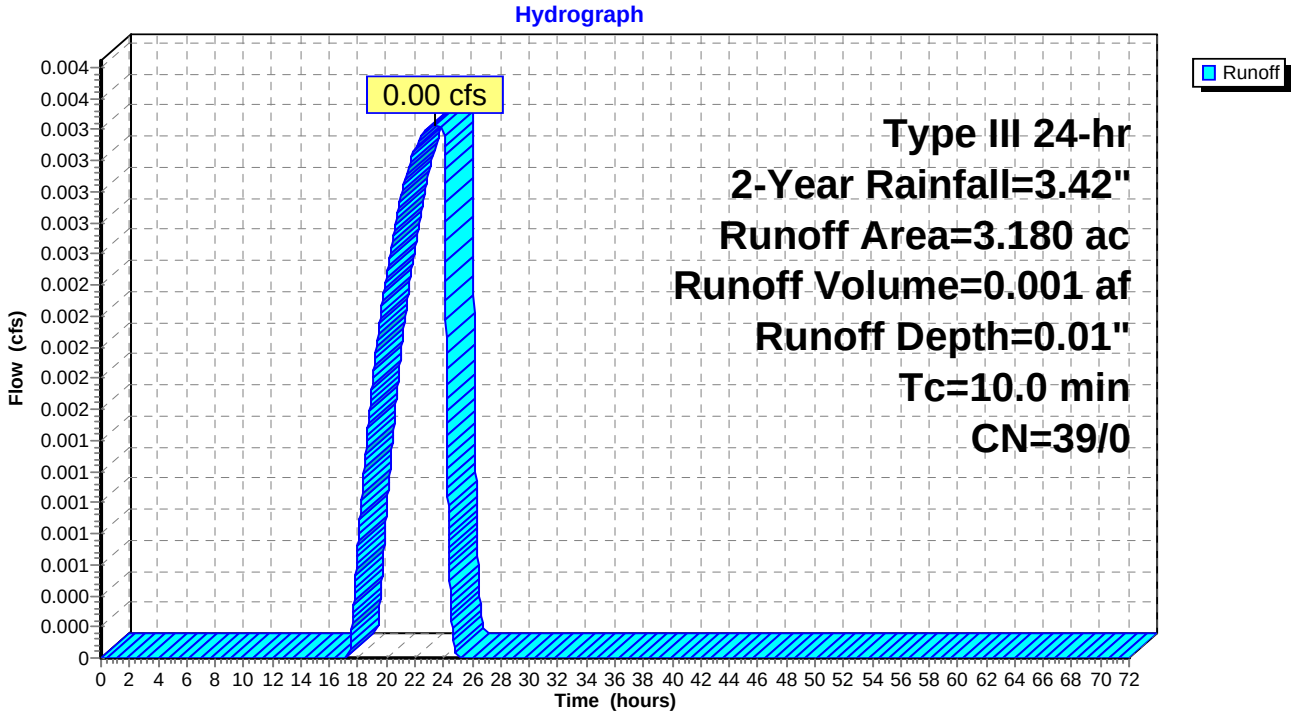
Runoff = 0.00 cfs @ 23.40 hrs, Volume= 0.001 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.42"

Area (ac)	CN	Description
3.180	39	>75% Grass cover, Good, HSG A
3.180	39	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 10S: PDA-1B (Pervious)



Summary for Subcatchment 11S: PDA-1C

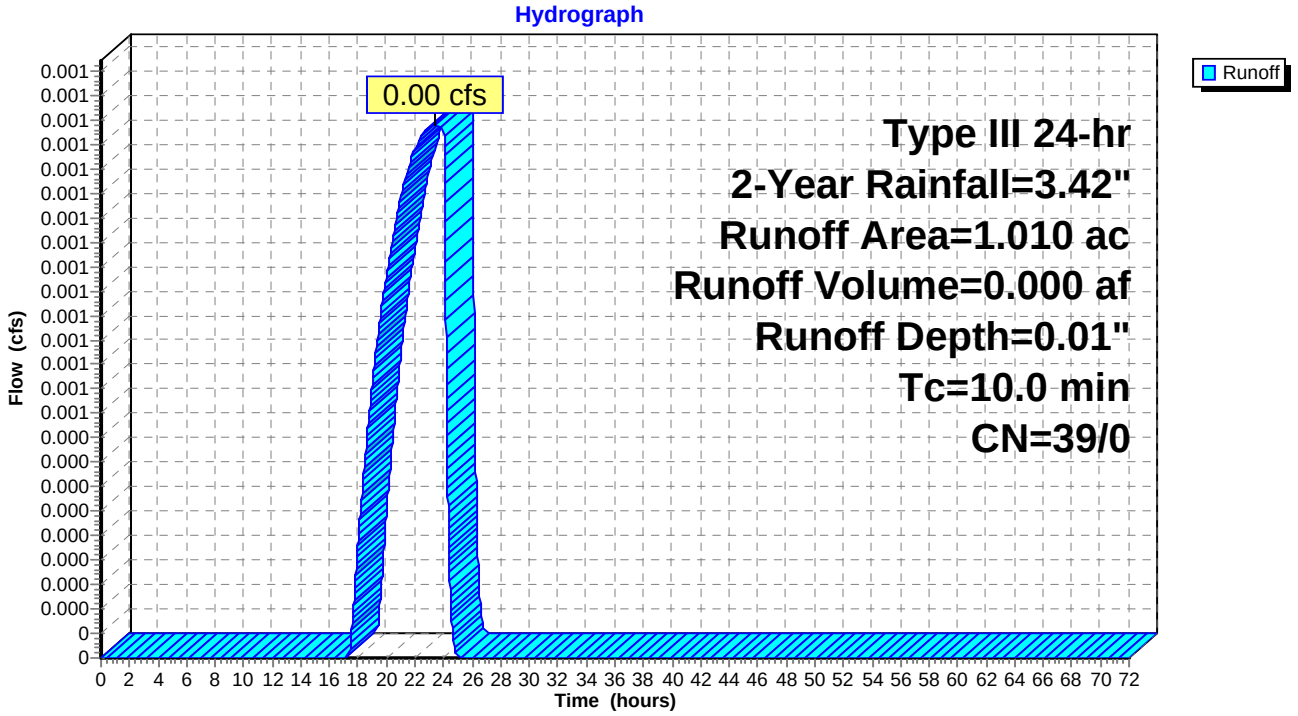
Runoff = 0.00 cfs @ 23.40 hrs, Volume= 0.000 af, Depth= 0.01"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.42"

Area (ac)	CN	Description
1.010	39	>75% Grass cover, Good, HSG A
1.010	39	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 11S: PDA-1C



Summary for Subcatchment 15S: PDA-2 (Impervious)

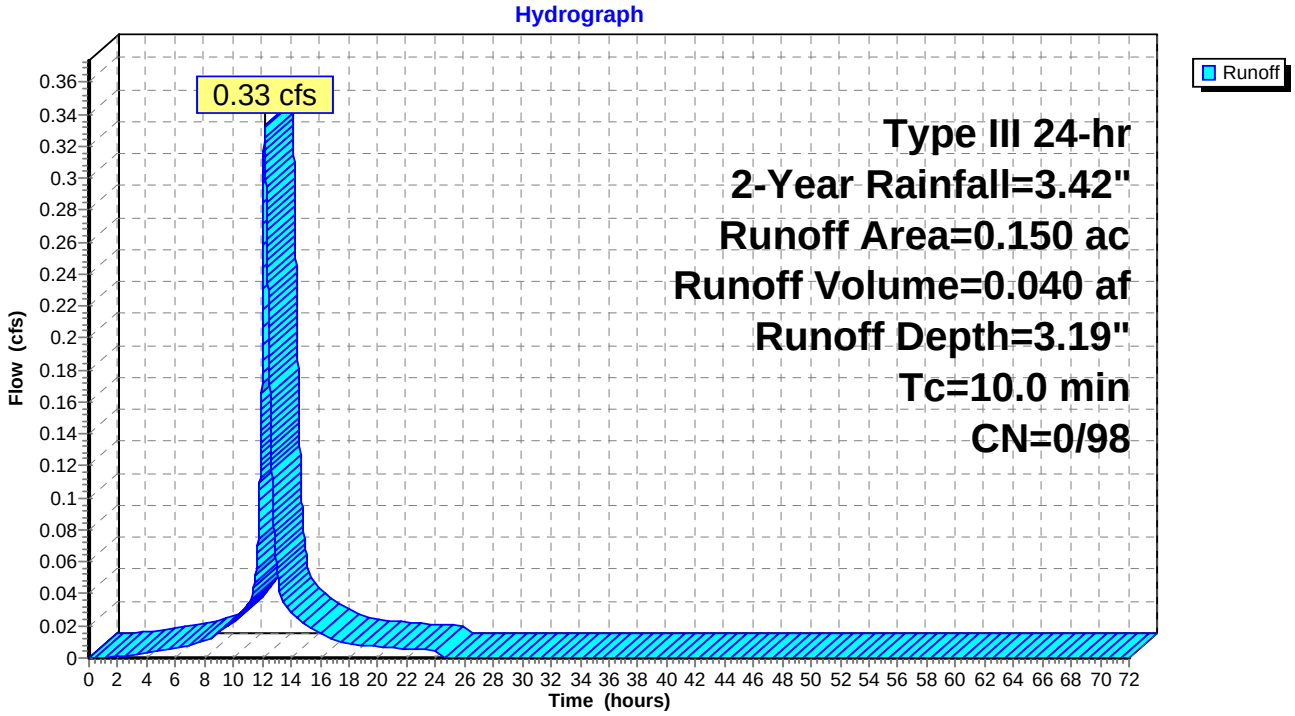
Runoff = 0.33 cfs @ 12.16 hrs, Volume= 0.040 af, Depth= 3.19"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.42"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG A
0.150	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 15S: PDA-2 (Impervious)



Summary for Subcatchment 16S: PDA-2 (Pervious)

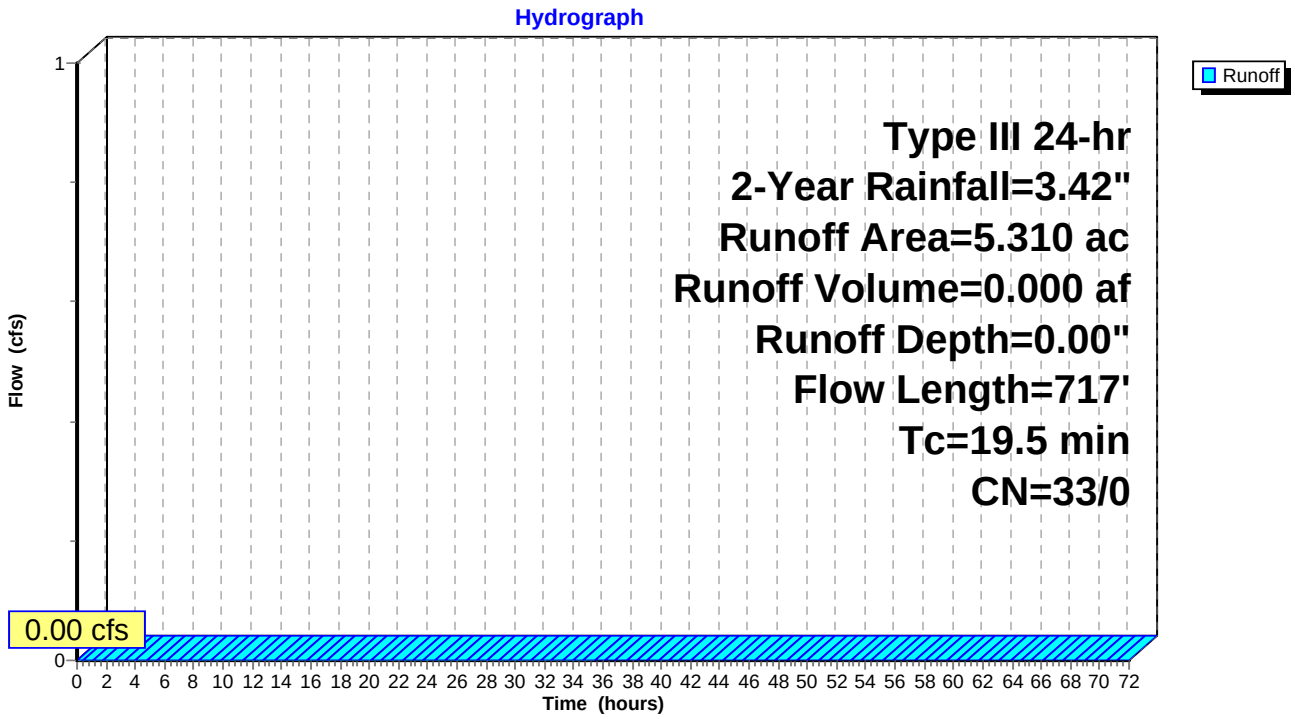
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.42"

Area (ac)	CN	Description
3.700	30	Woods, Good, HSG A
1.610	39	>75% Grass cover, Good, HSG A
5.310	33	Weighted Average
5.310	33	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	97	0.0620	0.13		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
6.6	620	0.0096	1.58		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
19.5	717	Total			

Subcatchment 16S: PDA-2 (Pervious)



Summary for Pond 1P: Basin #1

Inflow Area =	10.370 ac, 81.00% Impervious, Inflow Depth = 2.58" for 2-Year event				
Inflow =	18.68 cfs @	12.16 hrs,	Volume=	2.231 af	
Outflow =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af,	Atten= 100%, Lag= 0.0 min
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 57.87' @ 25.10 hrs Surf.Area= 101,644 sf Storage= 97,170 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	56.90'	432,566 cf	**Basin #1 (Prismatic)** Listed below (Recalc)

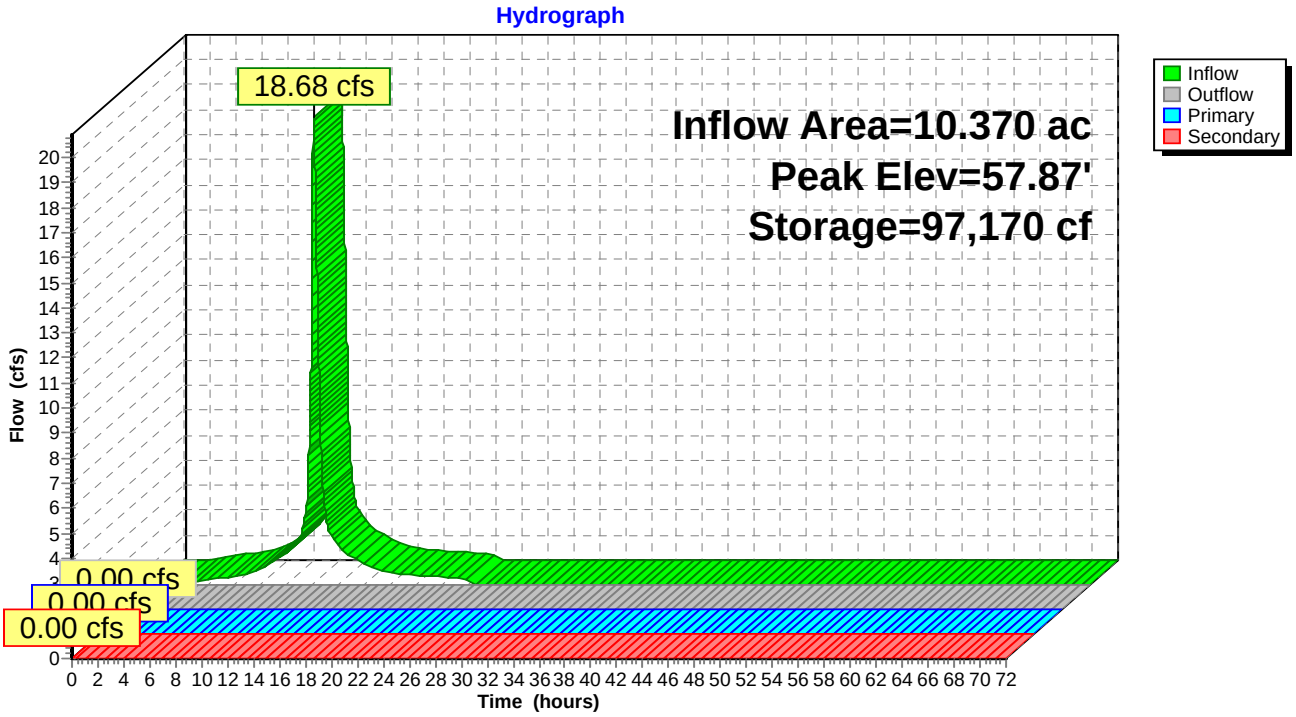
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.90	97,675	0	0
57.00	98,767	9,822	9,822
58.00	102,067	100,417	110,239
59.00	105,401	103,734	213,973
60.00	108,770	107,086	321,059
61.00	114,245	111,508	432,566

Device	Routing	Invert	Outlet Devices
#1	Primary	56.80'	**15.0" Round Culvert** L= 12.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 56.80' / 56.68' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	58.50'	**2.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	60.00'	**36.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	60.30'	**100.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=56.90' TW=52.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.00 cfs of 0.04 cfs potential flow)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=56.90' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Basin #1



Summary for Pond 2P: Basin #2

Inflow Area =	16.900 ac, 69.53% Impervious, Inflow Depth = 0.63" for 2-Year event				
Inflow =	7.45 cfs @	12.16 hrs,	Volume=	0.891 af	
Outflow =	0.50 cfs @	14.76 hrs,	Volume=	0.554 af,	Atten= 93%, Lag= 156.1 min
Primary =	0.50 cfs @	14.76 hrs,	Volume=	0.554 af	
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 52.85' @ 14.76 hrs Surf.Area= 34,179 sf Storage= 28,019 cf

Plug-Flow detention time= 753.5 min calculated for 0.554 af (62% of inflow)
Center-of-Mass det. time= 647.0 min (1,412.7 - 765.7)

Volume	Invert	Avail.Storage	Storage Description
#1	52.00'	149,696 cf	**Basin #2 (Prismatic)** Listed below (Recalc)

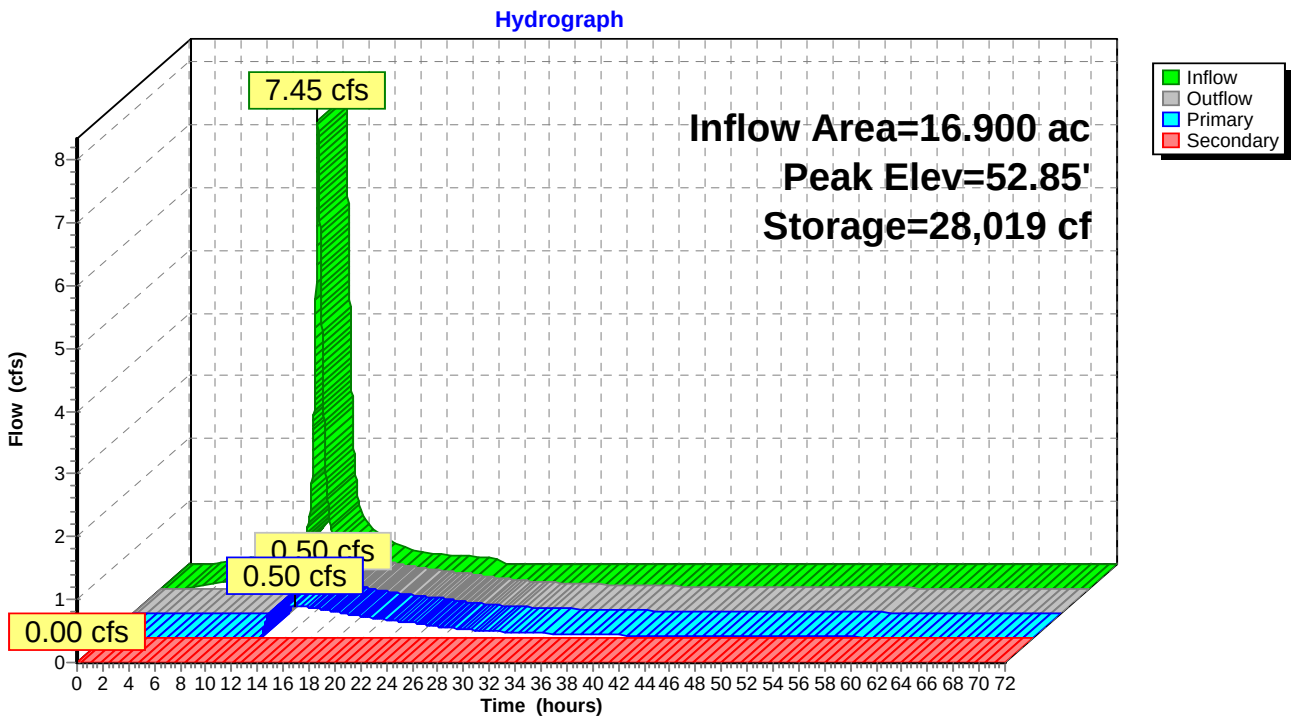
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
52.00	32,110	0	0
53.00	34,558	33,334	33,334
54.00	37,053	35,806	69,140
55.00	40,912	38,983	108,122
56.00	42,236	41,574	149,696

Device	Routing	Invert	Outlet Devices
#1	Primary	51.00'	**15.0" Round Culvert** L= 17.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 51.00' / 50.66' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	52.40'	**7.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	54.20'	**36.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	54.60'	**35.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.50 cfs @ 14.76 hrs HW=52.85' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.50 cfs of 7.54 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.50 cfs @ 2.27 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=52.00' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: Basin #2



Summary for Pond E-LD: Local Depression

Inflow Area = 3.740 ac, 32.35% Impervious, Inflow Depth = 1.03" for 2-Year event
Inflow = 2.69 cfs @ 12.16 hrs, Volume= 0.321 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 56.99' @ 25.10 hrs Surf.Area= 16,940 sf Storage= 13,997 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

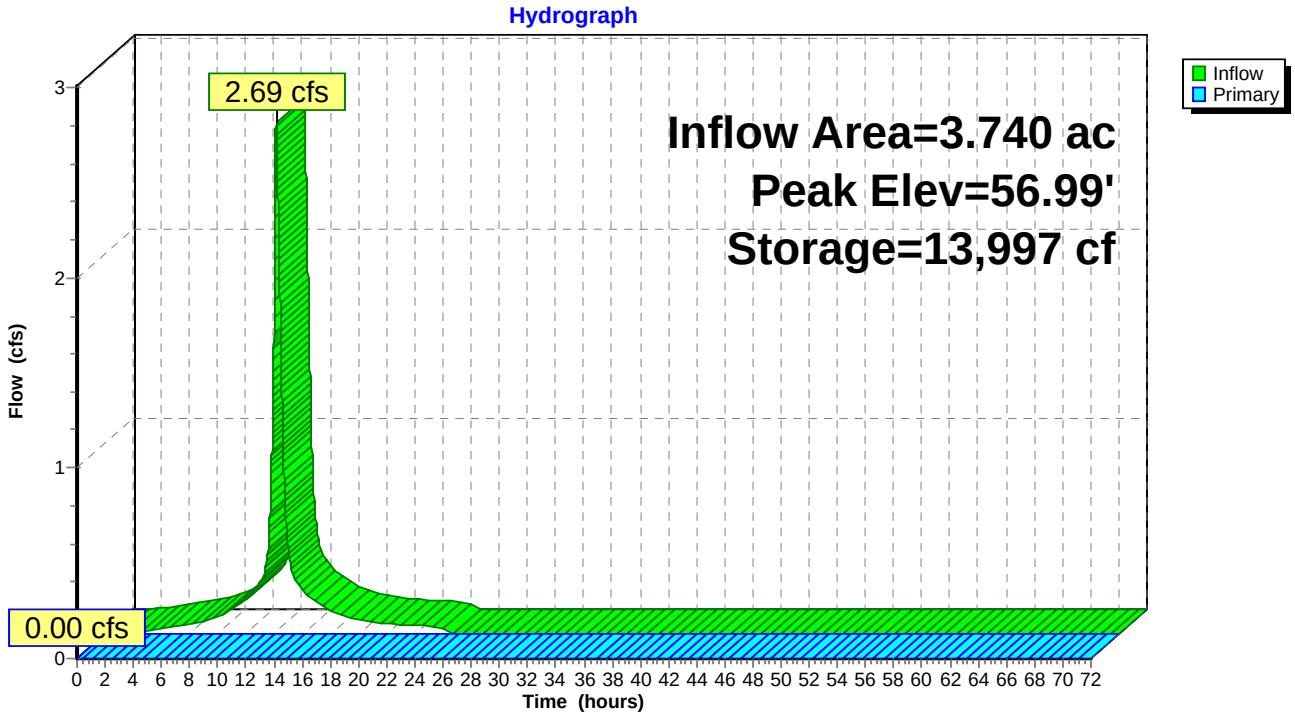
Volume	Invert	Avail.Storage	Storage Description
#1	55.00'	77,509 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
55.00	305	82.0	0	0	305
56.00	6,603	306.0	2,776	2,776	7,224
57.00	17,113	481.0	11,449	14,224	18,191
58.00	29,890	639.0	23,207	37,431	32,284
59.00	51,218	900.0	40,078	77,509	64,258

Device	Routing	Invert	Outlet Devices
#1	Primary	58.79'	**50.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=55.00' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond E-LD: Local Depression



Summary for Pond P-LD: PDA-2A (Local Depression)

Inflow Area = 5.460 ac, 2.75% Impervious, Inflow Depth = 0.09" for 2-Year event
Inflow = 0.33 cfs @ 12.16 hrs, Volume= 0.040 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 55.82' @ 25.10 hrs Surf.Area= 4,846 sf Storage= 1,735 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

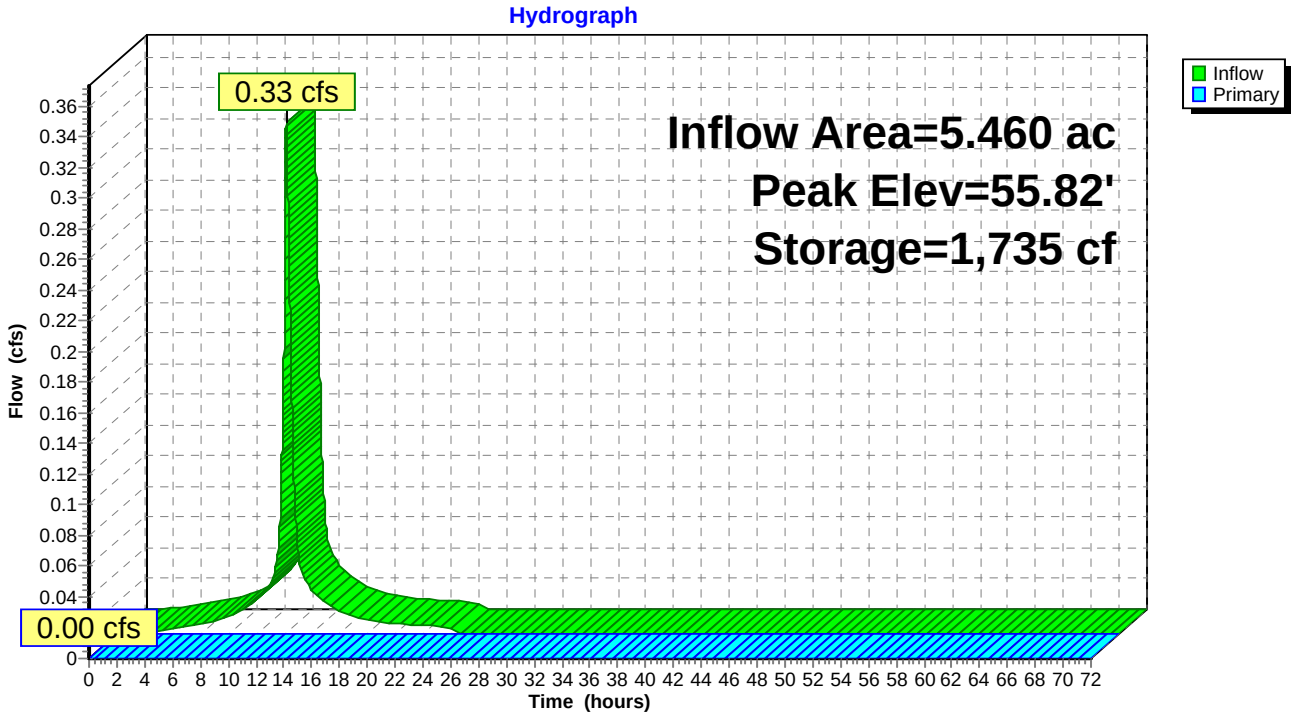
Volume	Invert	Avail.Storage	Storage Description
#1	55.00'	74,341 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
55.00	305	82.0	0	0	305
56.00	6,601	306.0	2,775	2,775	7,224
57.00	17,096	481.0	11,440	14,215	18,191
58.00	29,886	639.0	23,195	37,410	32,284
59.00	44,455	776.0	36,930	74,341	47,727

Device	Routing	Invert	Outlet Devices
#1	Primary	58.79'	**50.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=55.00' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-LD: PDA-2A (Local Depression)

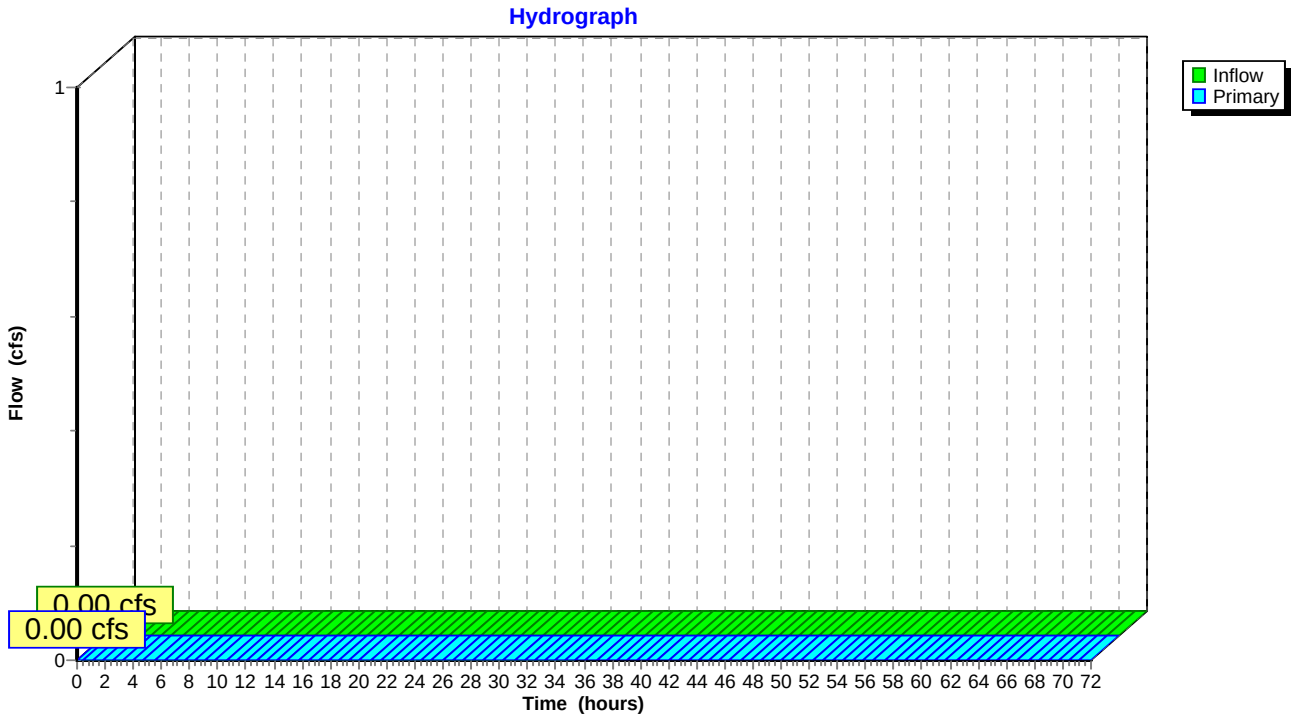


Summary for Link 1L: Emergency Spillway

Inflow	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af
Primary	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 1L: Emergency Spillway

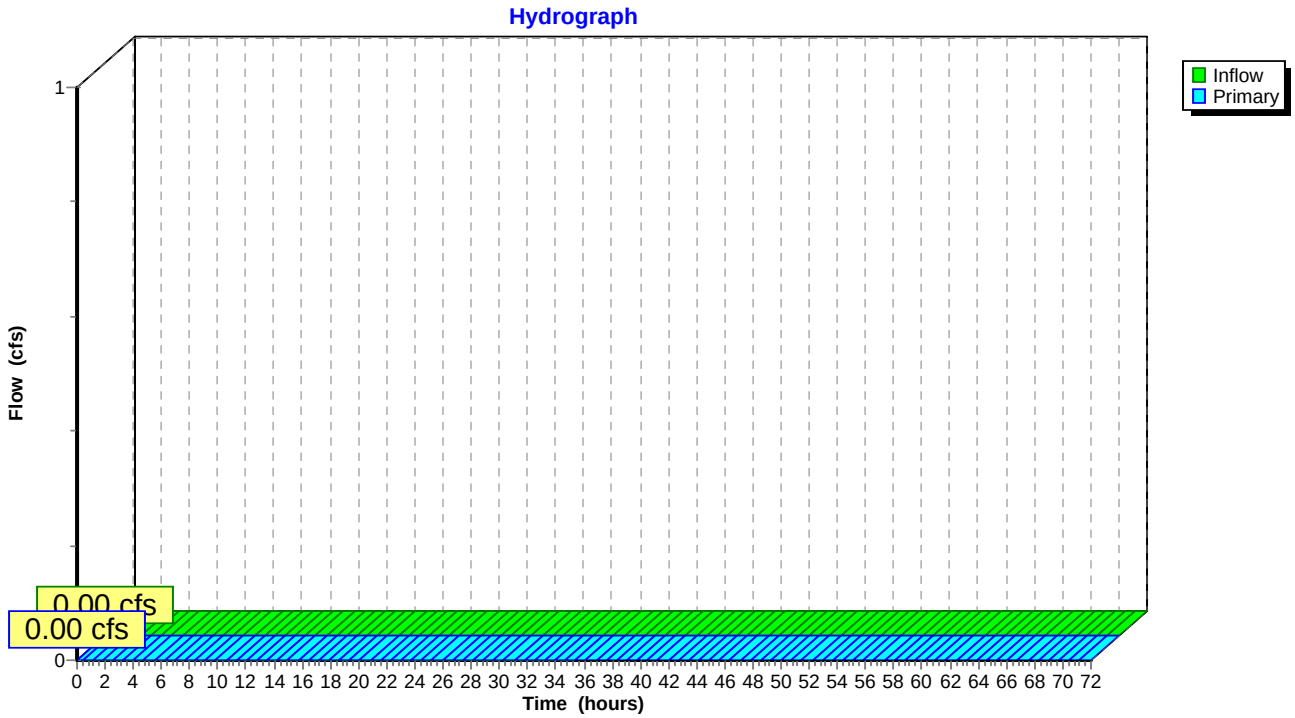


Summary for Link 2L: Emergency Spillway

Inflow	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af
Primary	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 2L: Emergency Spillway

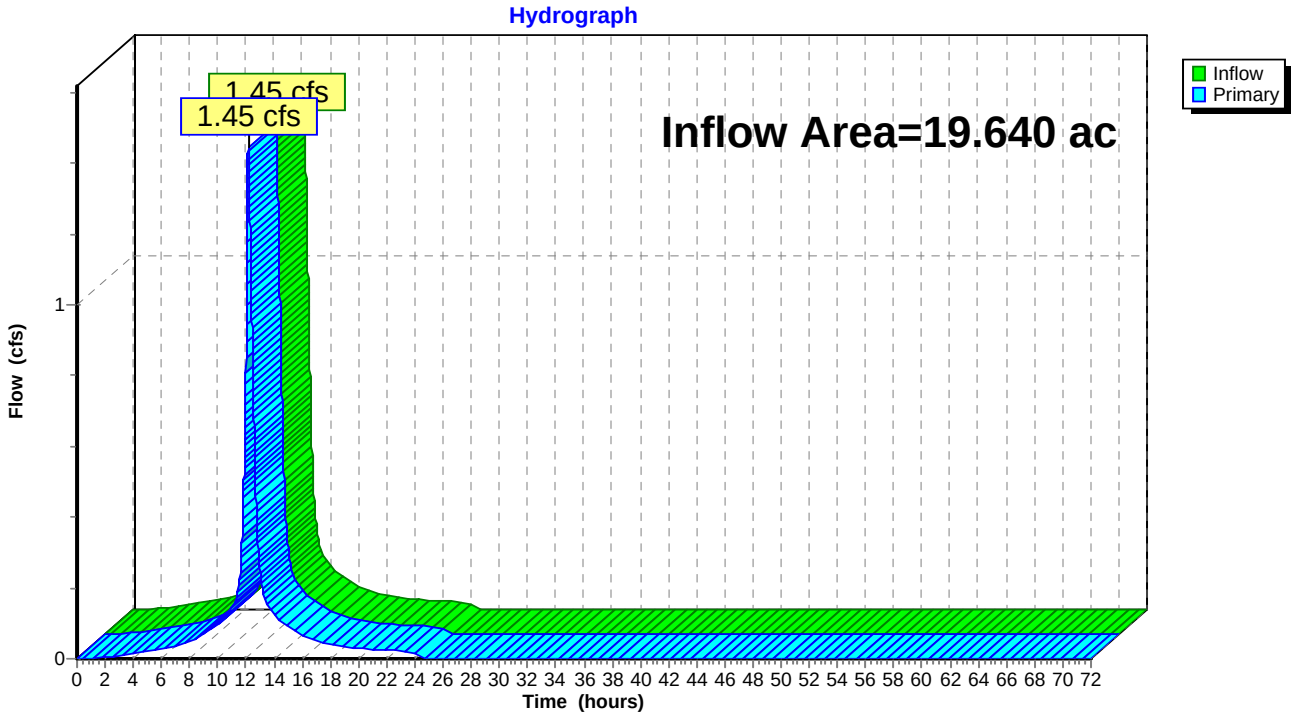


Summary for Link L-E1: EDA-1

Inflow Area = 19.640 ac, 3.31% Impervious, Inflow Depth = 0.11" for 2-Year event
Inflow = 1.45 cfs @ 12.16 hrs, Volume= 0.173 af
Primary = 1.45 cfs @ 12.16 hrs, Volume= 0.173 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link L-E1: EDA-1

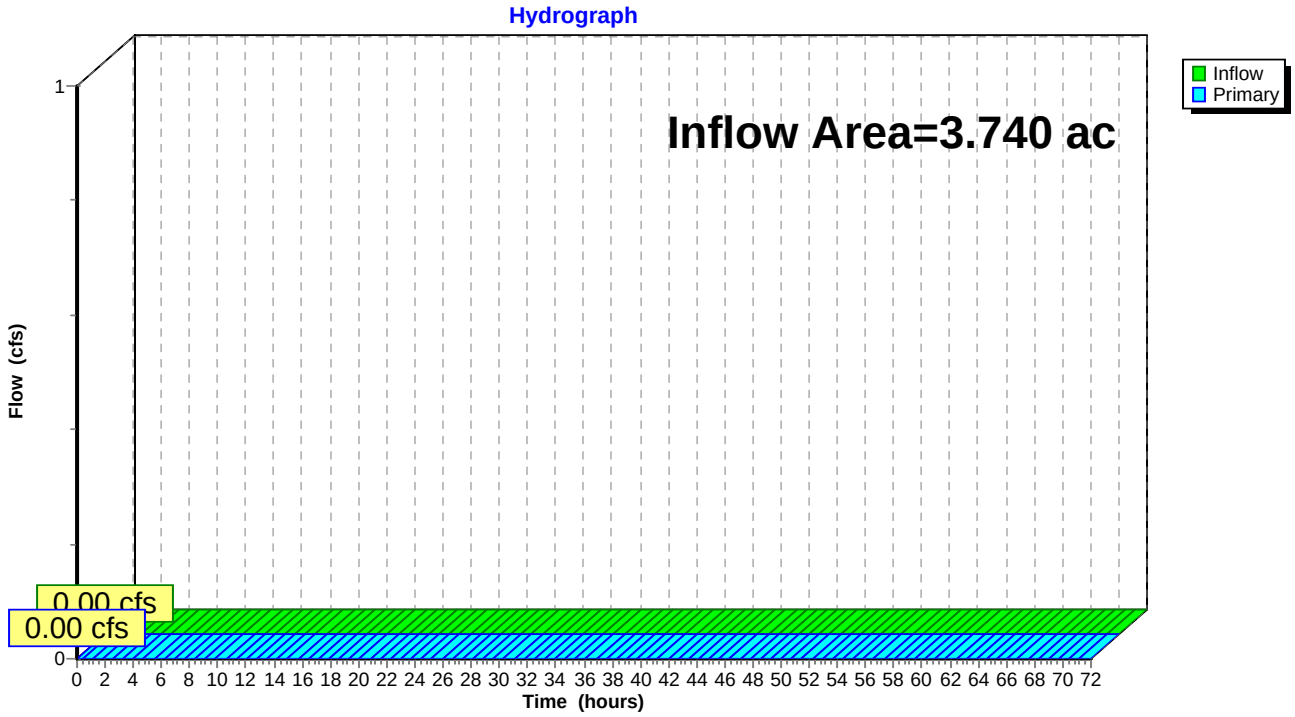


Summary for Link L-E2: EDA-2

Inflow Area = 3.740 ac, 32.35% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link L-E2: EDA-2

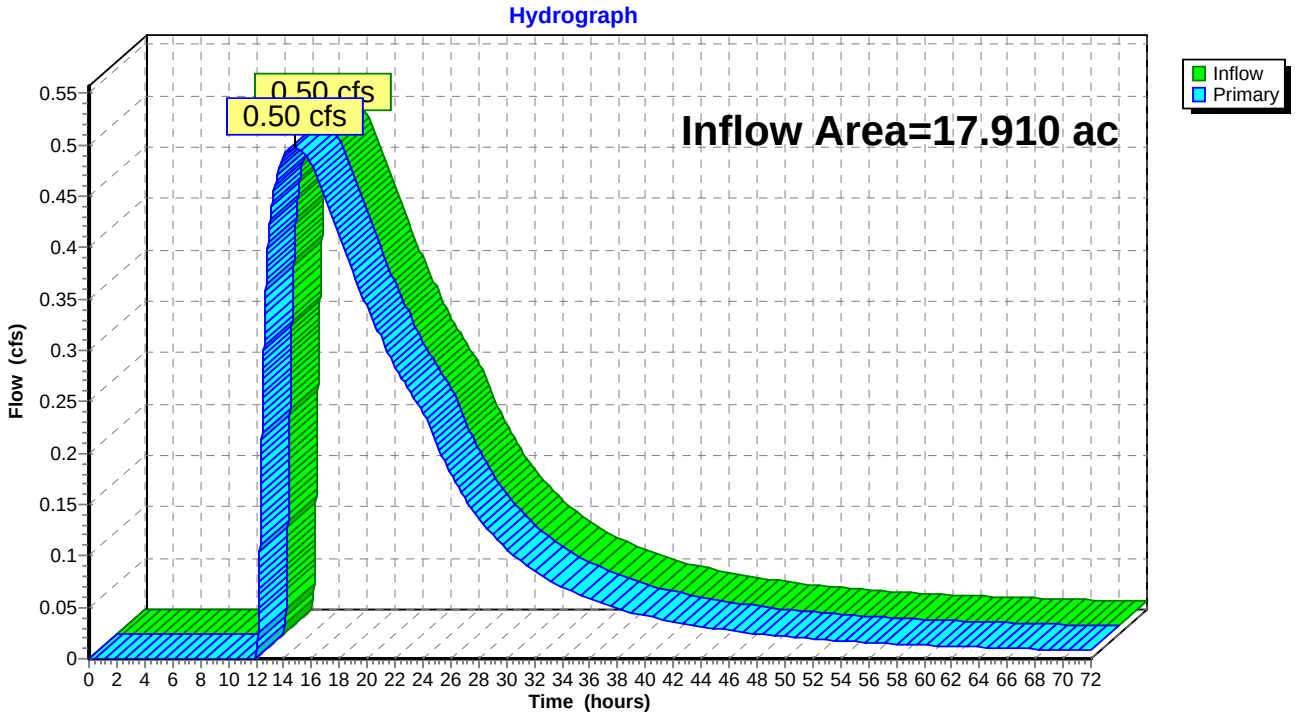


Summary for Link L-P1: PDA-1

Inflow Area = 17.910 ac, 65.61% Impervious, Inflow Depth > 0.37" for 2-Year event
Inflow = 0.50 cfs @ 14.76 hrs, Volume= 0.555 af
Primary = 0.50 cfs @ 14.76 hrs, Volume= 0.555 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link L-P1: PDA-1

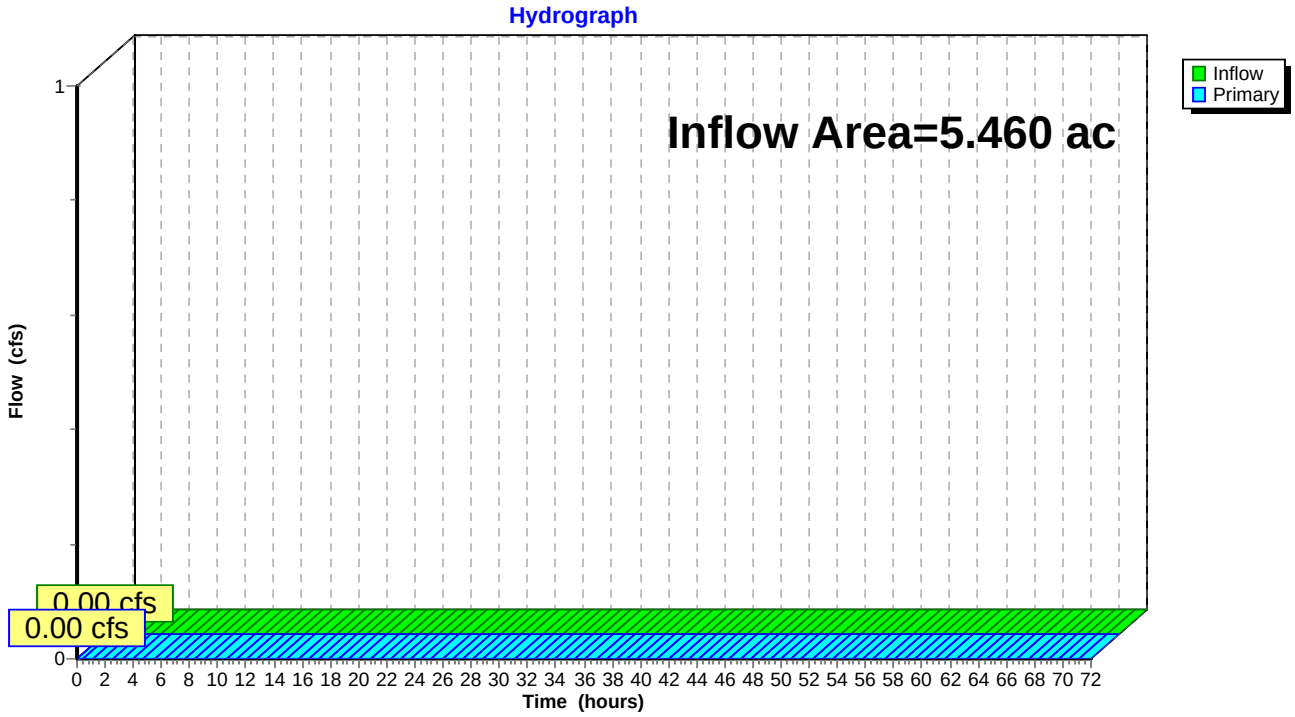


Summary for Link L-P2: PDA-2

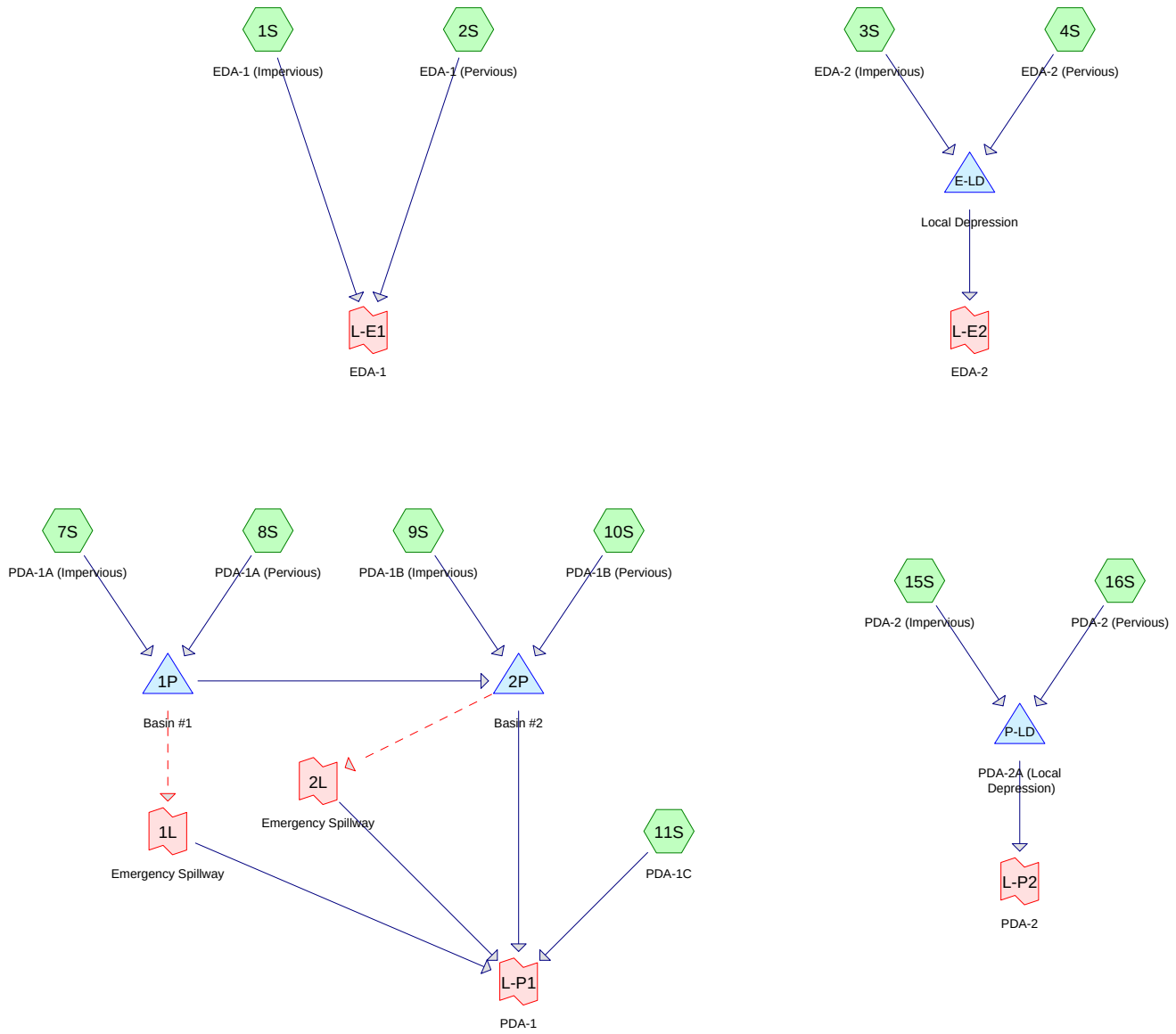
Inflow Area = 5.460 ac, 2.75% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

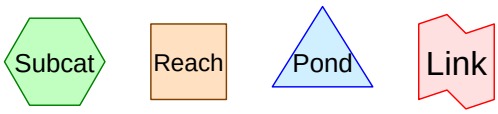
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link L-P2: PDA-2



10-YEAR STORM EVENT





Routing Diagram for Ex-Pr
Prepared by Bohler Engineering NJ, LLC, Printed 6/26/2019
HydroCAD® 10.00-23 s/n 02612 © 2018 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: EDA-1 (Impervious)

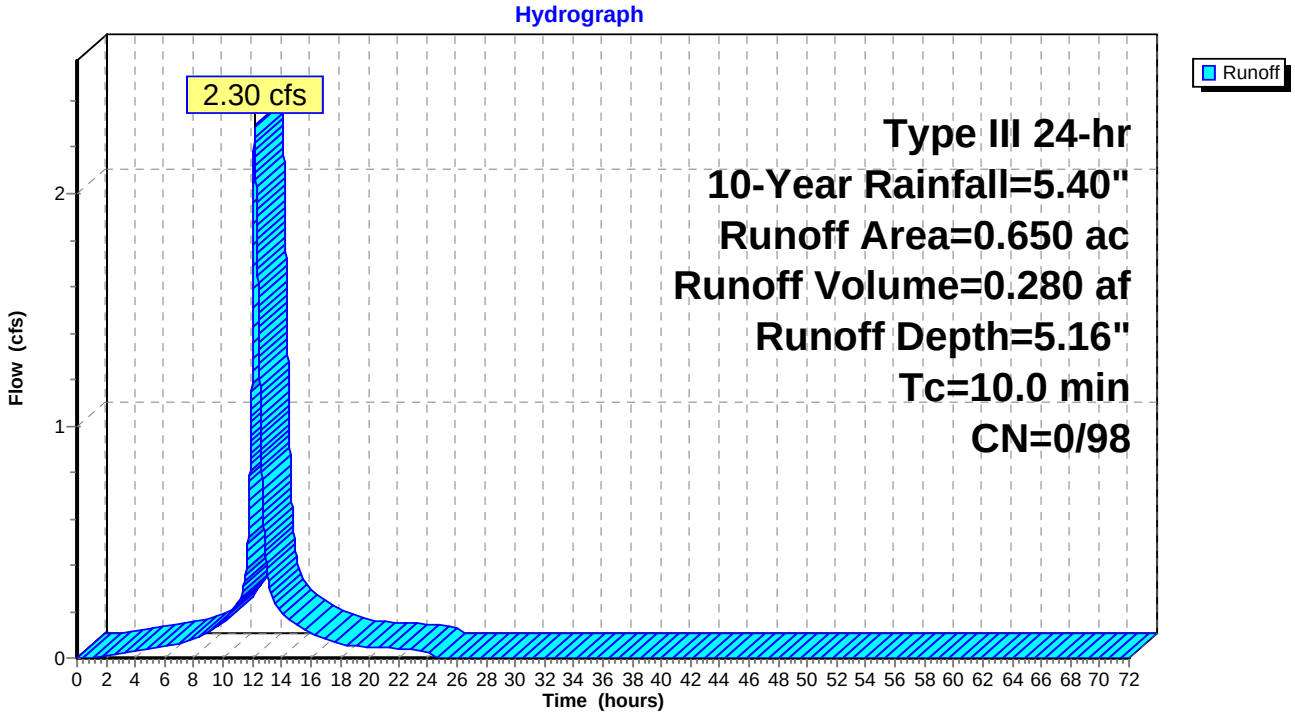
Runoff = 2.30 cfs @ 12.15 hrs, Volume= 0.280 af, Depth= 5.16"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.40"

Area (ac)	CN	Description
0.650	98	Paved roads w/curbs & sewers, HSG A
0.650	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: EDA-1 (Impervious)



Summary for Subcatchment 2S: EDA-1 (Pervious)

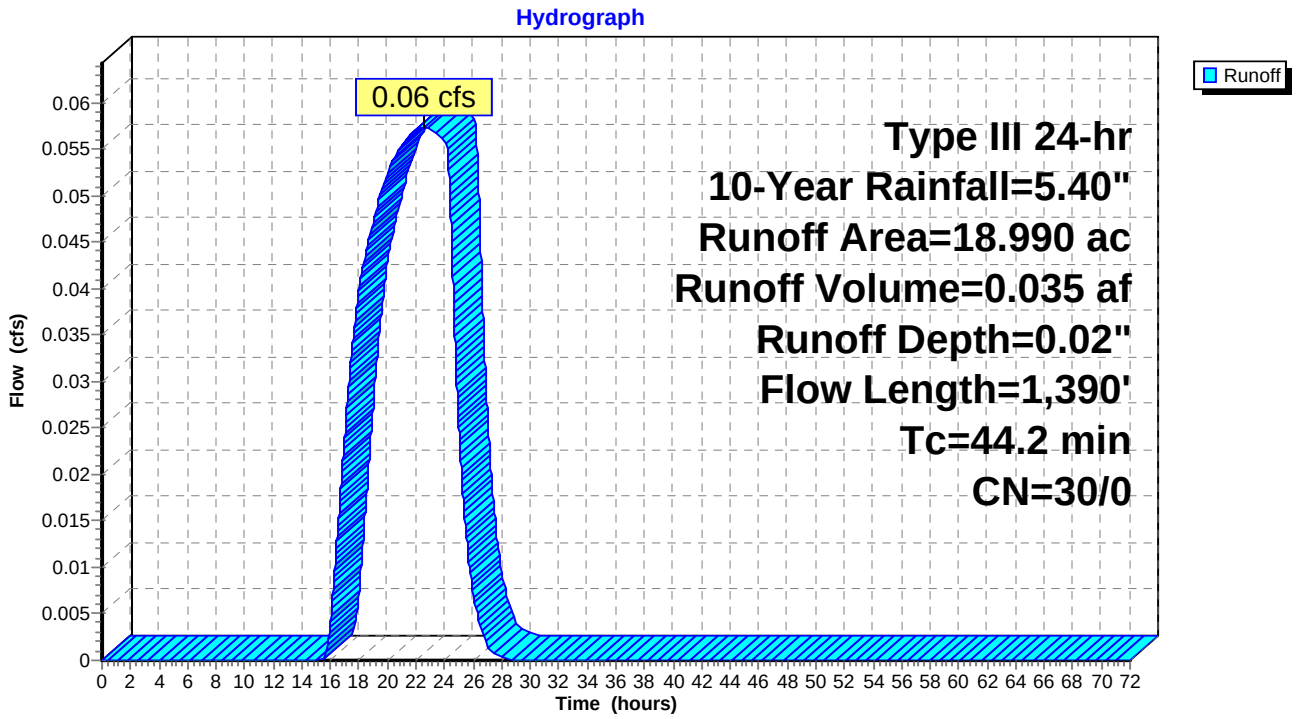
Runoff = 0.06 cfs @ 22.59 hrs, Volume= 0.035 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.40"

Area (ac)	CN	Description
18.470	30	Woods, Good, HSG A
0.520	30	Woods, Good, HSG A
18.990	30	Weighted Average
18.990	30	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.5	90	0.0089	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
17.7	1,300	0.0058	1.23		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
44.2	1,390	Total			

Subcatchment 2S: EDA-1 (Pervious)



Summary for Subcatchment 3S: EDA-2 (Impervious)

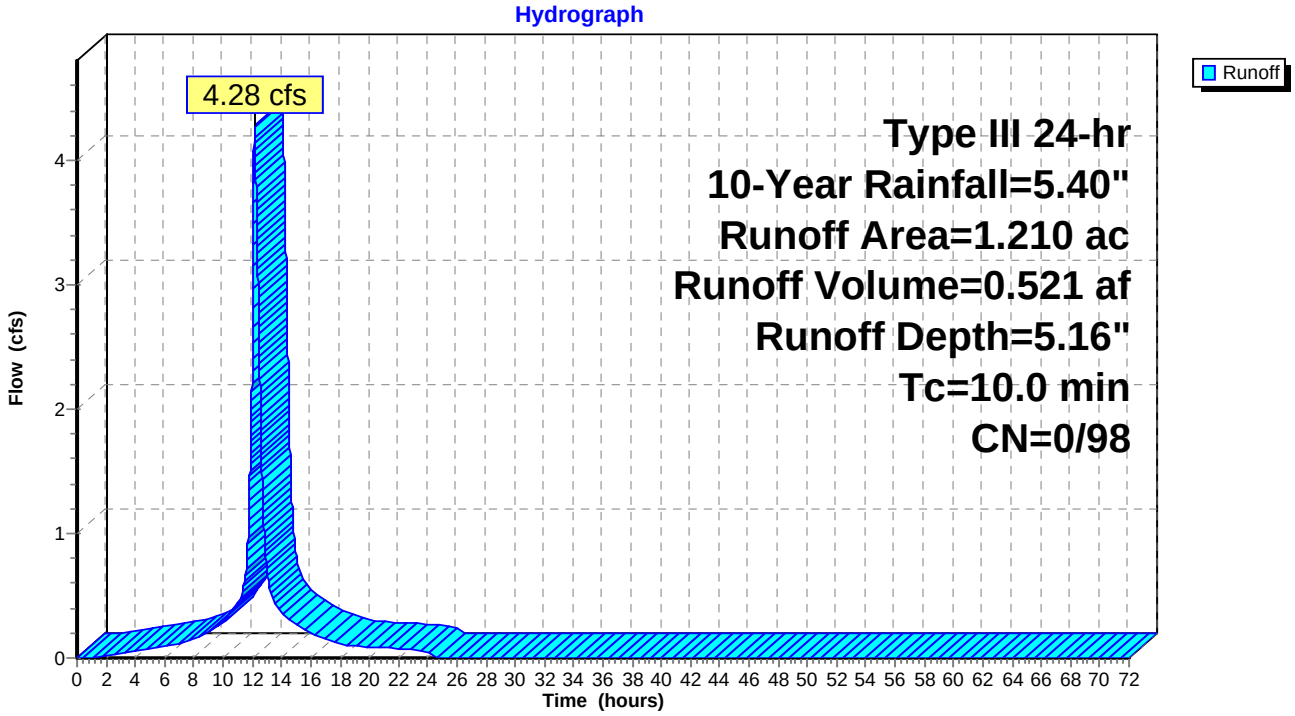
Runoff = 4.28 cfs @ 12.15 hrs, Volume= 0.521 af, Depth= 5.16"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.40"

Area (ac)	CN	Description
1.210	98	Paved parking, HSG A
1.210	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 3S: EDA-2 (Impervious)



Summary for Subcatchment 4S: EDA-2 (Pervious)

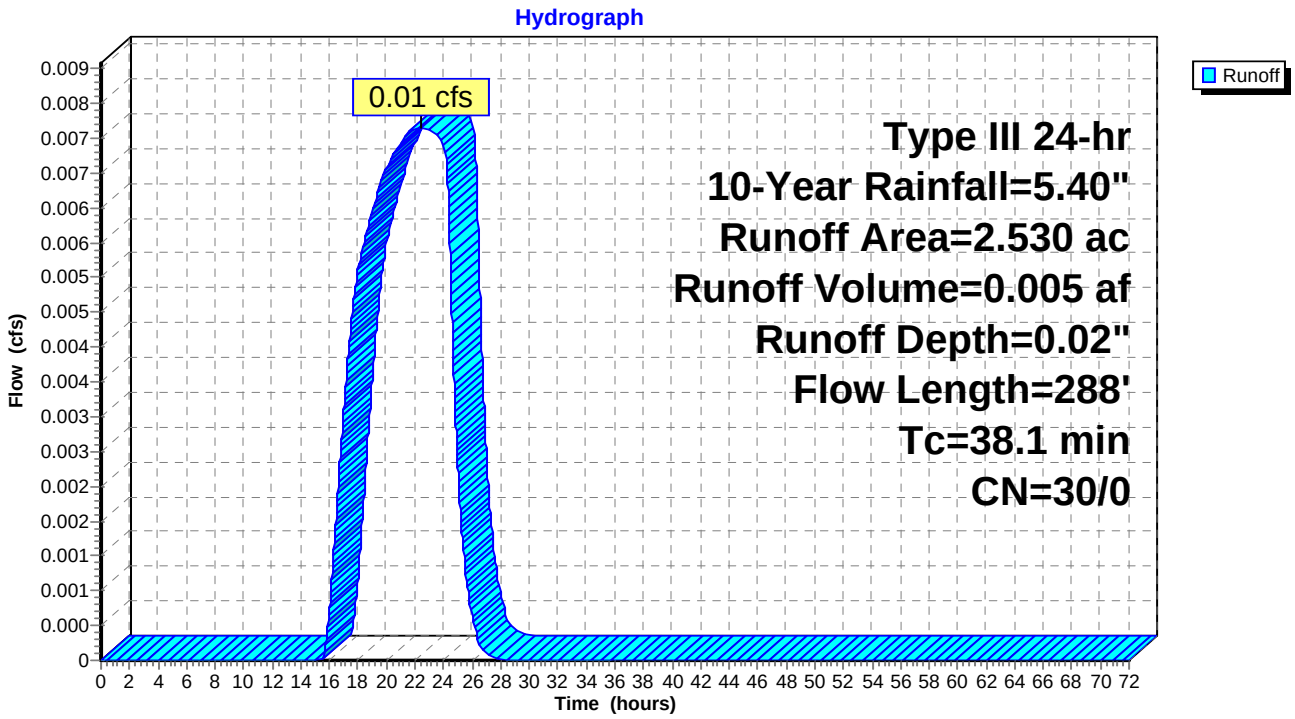
Runoff = 0.01 cfs @ 22.44 hrs, Volume= 0.005 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.40"

Area (ac)	CN	Description
1.980	30	Woods, Good, HSG A
0.550	30	Woods, Good, HSG A
2.530	30	Weighted Average
2.530	30	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.3	150	0.0105	0.07		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
0.8	138	0.0290	2.74		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
38.1	288	Total			

Subcatchment 4S: EDA-2 (Pervious)



Summary for Subcatchment 7S: PDA-1A (Impervious)

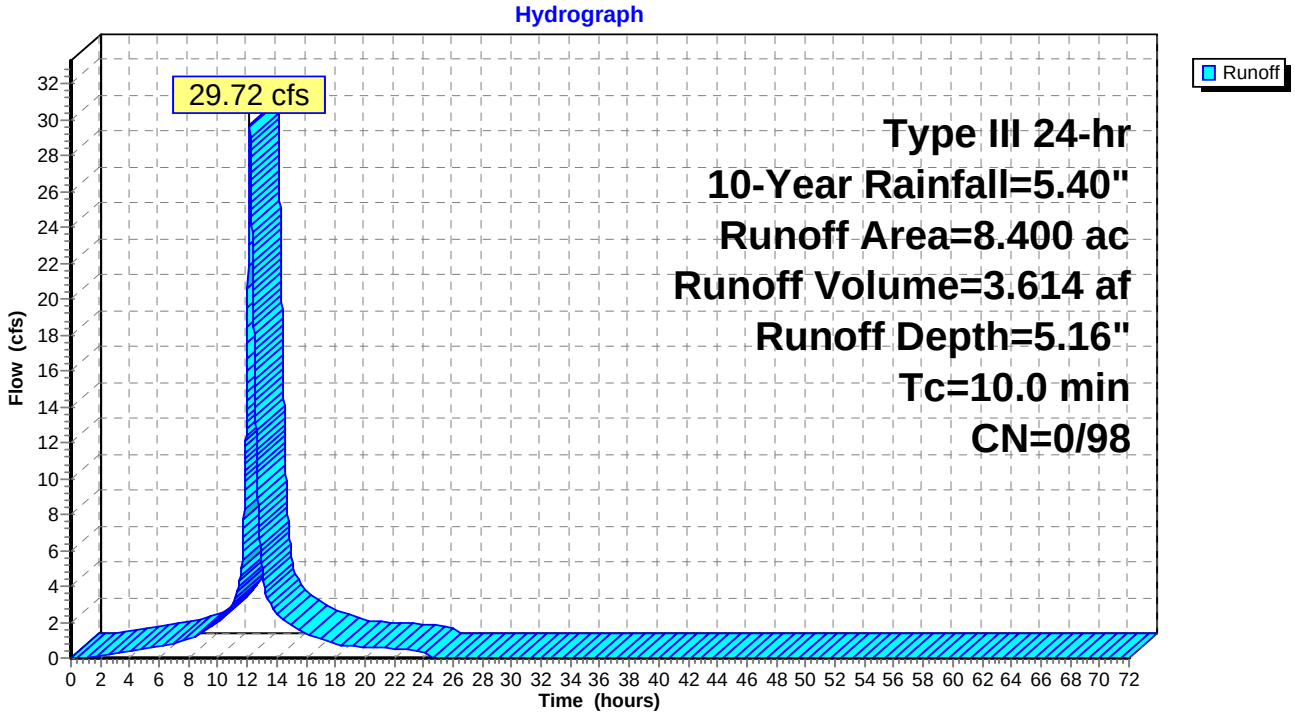
Runoff = 29.72 cfs @ 12.15 hrs, Volume= 3.614 af, Depth= 5.16"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.40"

	Area (ac)	CN	Description
	6.160	98	Paved parking, HSG A
*	2.240	98	Basin Bottom
	8.400	98	Weighted Average
	8.400	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 7S: PDA-1A (Impervious)



Summary for Subcatchment 8S: PDA-1A (Pervious)

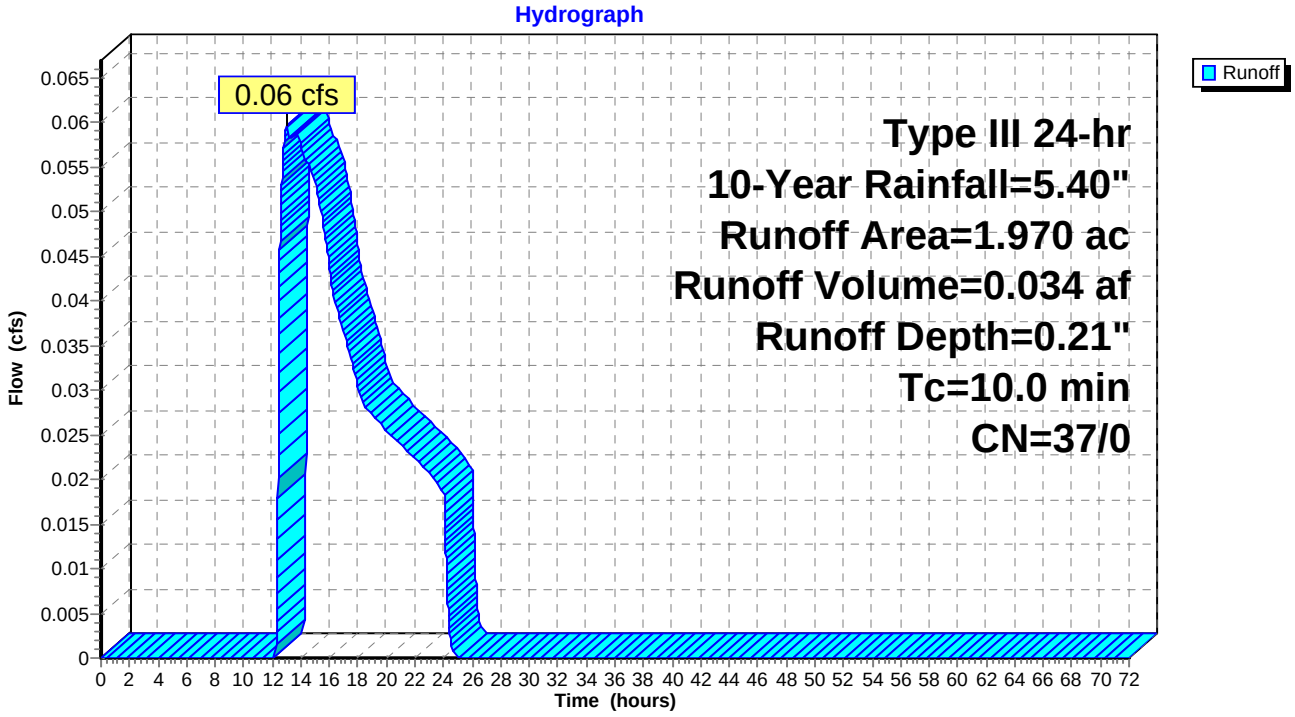
Runoff = 0.06 cfs @ 12.98 hrs, Volume= 0.034 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.40"

Area (ac)	CN	Description
0.490	30	Woods, Good, HSG A
1.480	39	>75% Grass cover, Good, HSG A
1.970	37	Weighted Average
1.970	37	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 8S: PDA-1A (Pervious)



Summary for Subcatchment 9S: PDA-1B (Impervious)

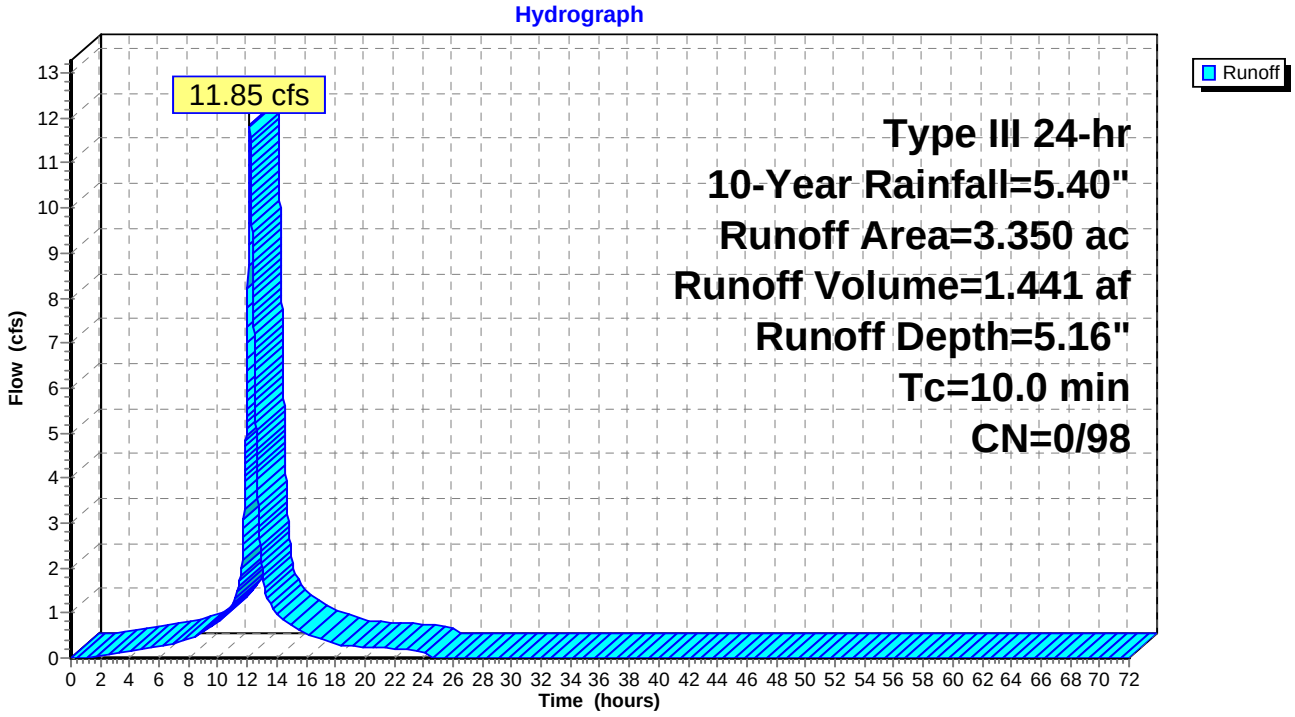
Runoff = 11.85 cfs @ 12.15 hrs, Volume= 1.441 af, Depth= 5.16"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.40"

	Area (ac)	CN	Description
	2.610	98	Paved parking, HSG A
*	0.740	98	Basin bottom
	3.350	98	Weighted Average
	3.350	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 9S: PDA-1B (Impervious)



Summary for Subcatchment 10S: PDA-1B (Pervious)

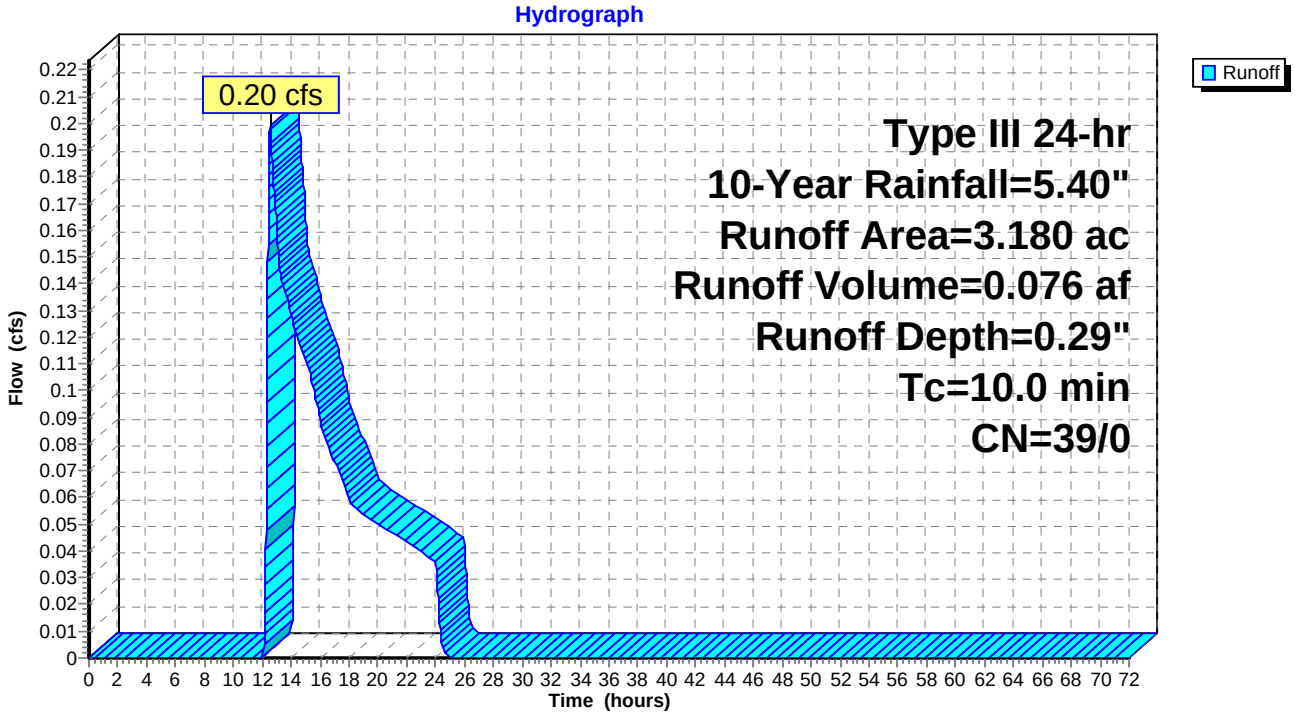
Runoff = 0.20 cfs @ 12.54 hrs, Volume= 0.076 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.40"

Area (ac)	CN	Description
3.180	39	>75% Grass cover, Good, HSG A
3.180	39	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 10S: PDA-1B (Pervious)



Summary for Subcatchment 11S: PDA-1C

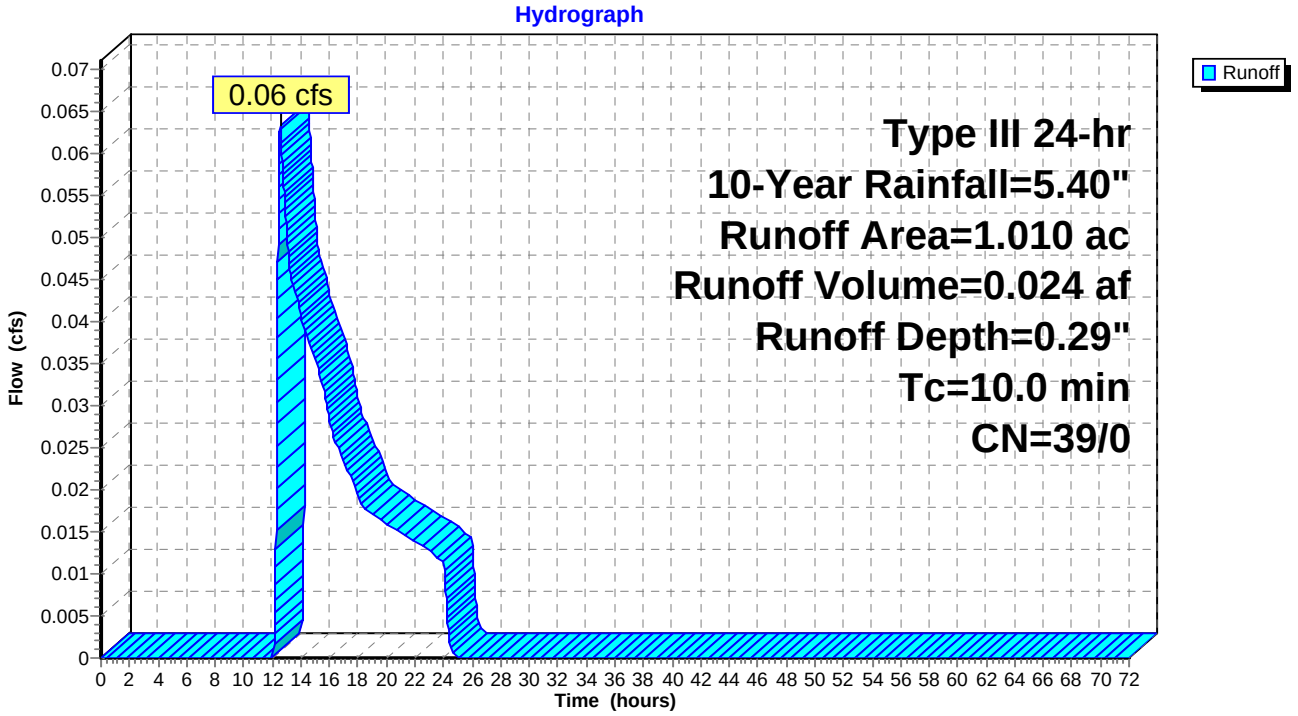
Runoff = 0.06 cfs @ 12.54 hrs, Volume= 0.024 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.40"

Area (ac)	CN	Description
1.010	39	>75% Grass cover, Good, HSG A
1.010	39	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 11S: PDA-1C



Summary for Subcatchment 15S: PDA-2 (Impervious)

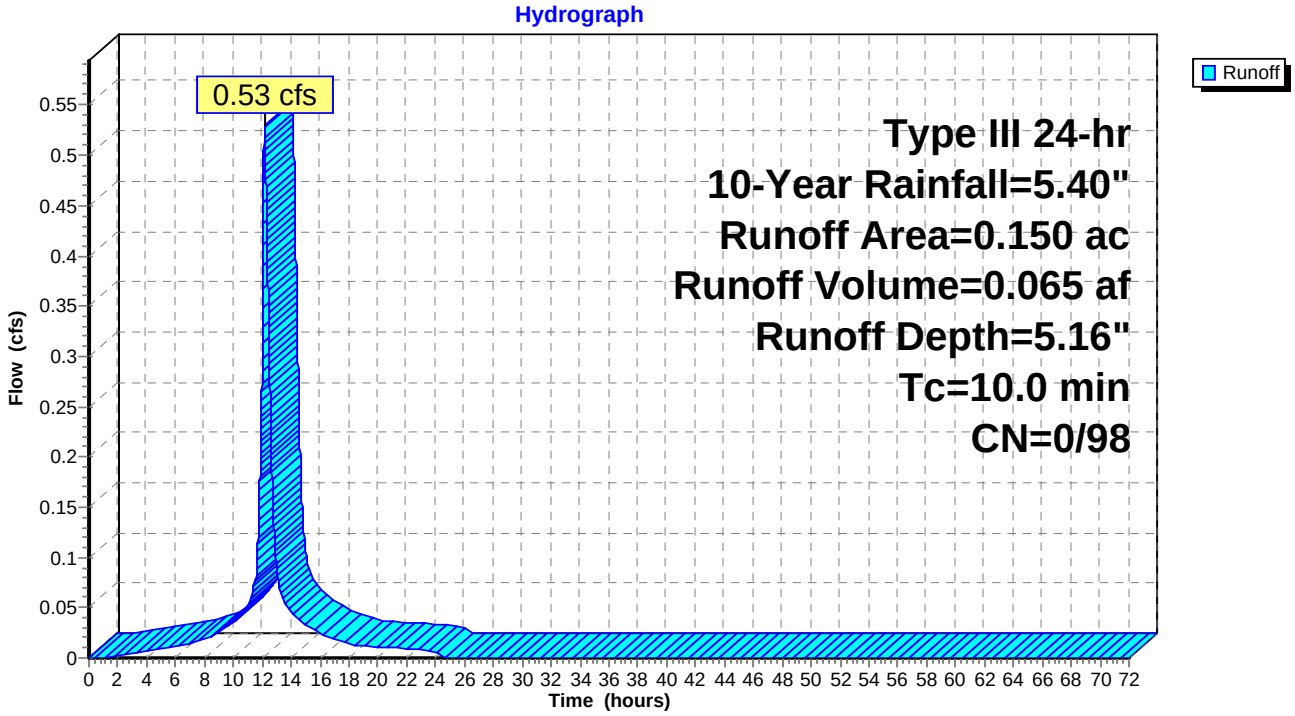
Runoff = 0.53 cfs @ 12.15 hrs, Volume= 0.065 af, Depth= 5.16"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.40"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG A
0.150	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 15S: PDA-2 (Impervious)



Summary for Subcatchment 16S: PDA-2 (Pervious)

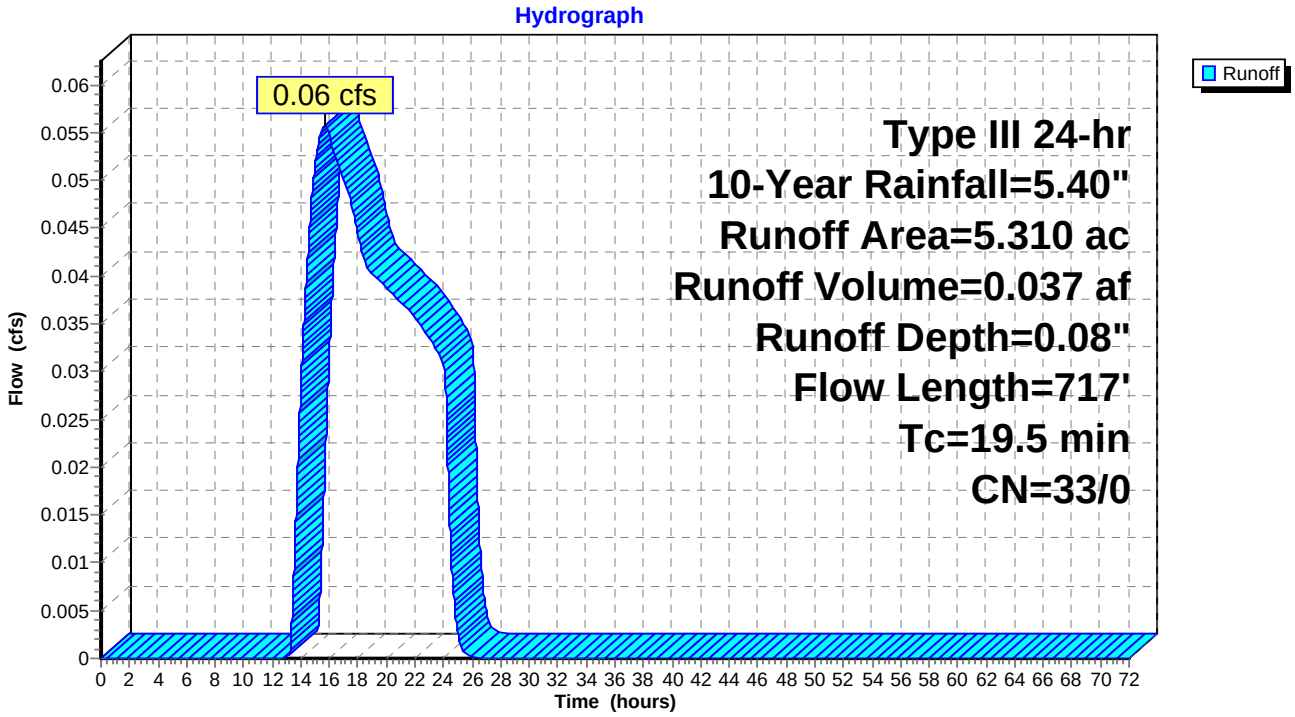
Runoff = 0.06 cfs @ 15.65 hrs, Volume= 0.037 af, Depth= 0.08"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.40"

Area (ac)	CN	Description
3.700	30	Woods, Good, HSG A
1.610	39	>75% Grass cover, Good, HSG A
5.310	33	Weighted Average
5.310	33	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	97	0.0620	0.13		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
6.6	620	0.0096	1.58		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
19.5	717	Total			

Subcatchment 16S: PDA-2 (Pervious)



Summary for Pond 1P: Basin #1

Inflow Area =	10.370 ac,	81.00% Impervious,	Inflow Depth =	4.22"	for 10-Year event
Inflow =	29.72 cfs @	12.15 hrs,	Volume=	3.648 af	
Outflow =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af,	Atten= 100%, Lag= 0.0 min
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 58.47' @ 25.10 hrs Surf.Area= 103,645 sf Storage= 158,913 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	56.90'	432,566 cf	**Basin #1 (Prismatic)** Listed below (Recalc)

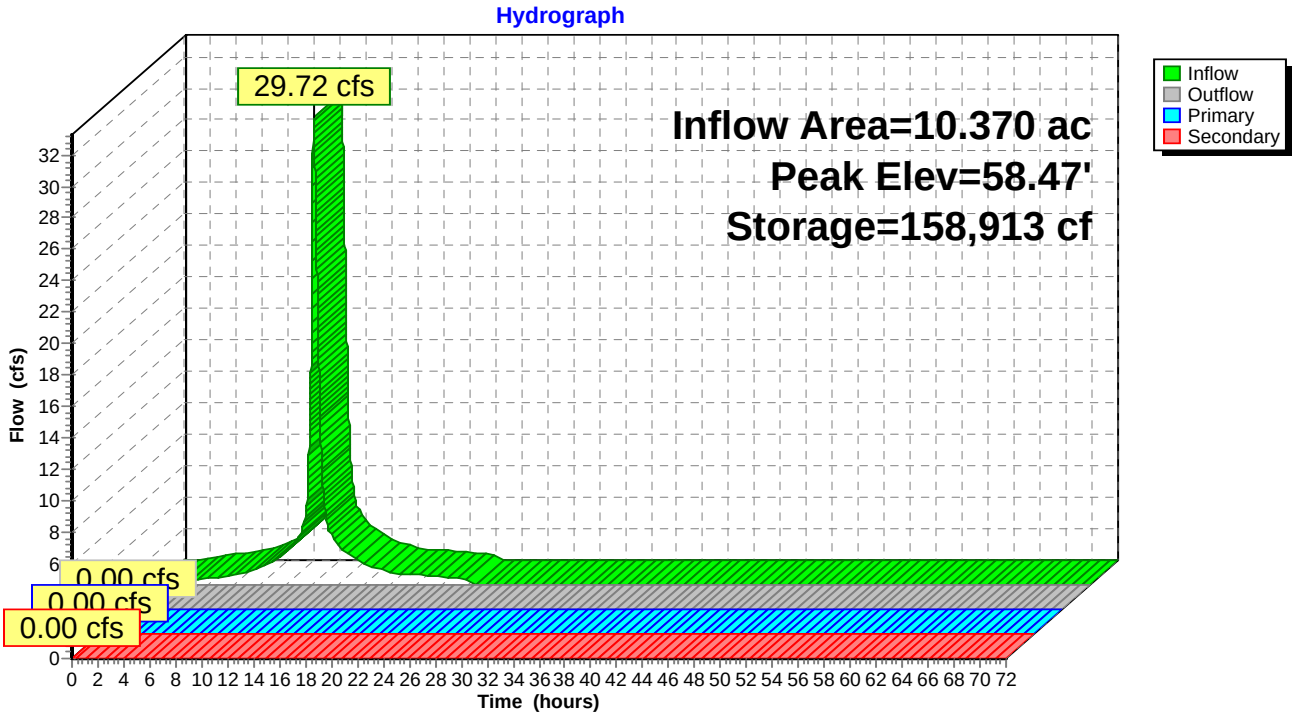
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.90	97,675	0	0
57.00	98,767	9,822	9,822
58.00	102,067	100,417	110,239
59.00	105,401	103,734	213,973
60.00	108,770	107,086	321,059
61.00	114,245	111,508	432,566

Device	Routing	Invert	Outlet Devices
#1	Primary	56.80'	**15.0" Round Culvert** L= 12.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 56.80' / 56.68' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	58.50'	**2.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	60.00'	**36.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	60.30'	**100.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=56.90' TW=52.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.00 cfs of 0.04 cfs potential flow)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=56.90' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Basin #1



Summary for Pond 2P: Basin #2

Inflow Area =	16.900 ac, 69.53% Impervious, Inflow Depth = 1.08" for 10-Year event				
Inflow =	11.86 cfs @	12.16 hrs,	Volume=	1.518 af	
Outflow =	1.01 cfs @	14.32 hrs,	Volume=	1.177 af,	Atten= 91%, Lag= 129.8 min
Primary =	1.01 cfs @	14.32 hrs,	Volume=	1.177 af	
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 53.31' @ 14.32 hrs Surf.Area= 35,330 sf Storage= 44,144 cf

Plug-Flow detention time= 649.1 min calculated for 1.177 af (78% of inflow)
Center-of-Mass det. time= 562.4 min (1,331.0 - 768.6)

Volume	Invert	Avail.Storage	Storage Description
#1	52.00'	149,696 cf	**Basin #2 (Prismatic)** Listed below (Recalc)

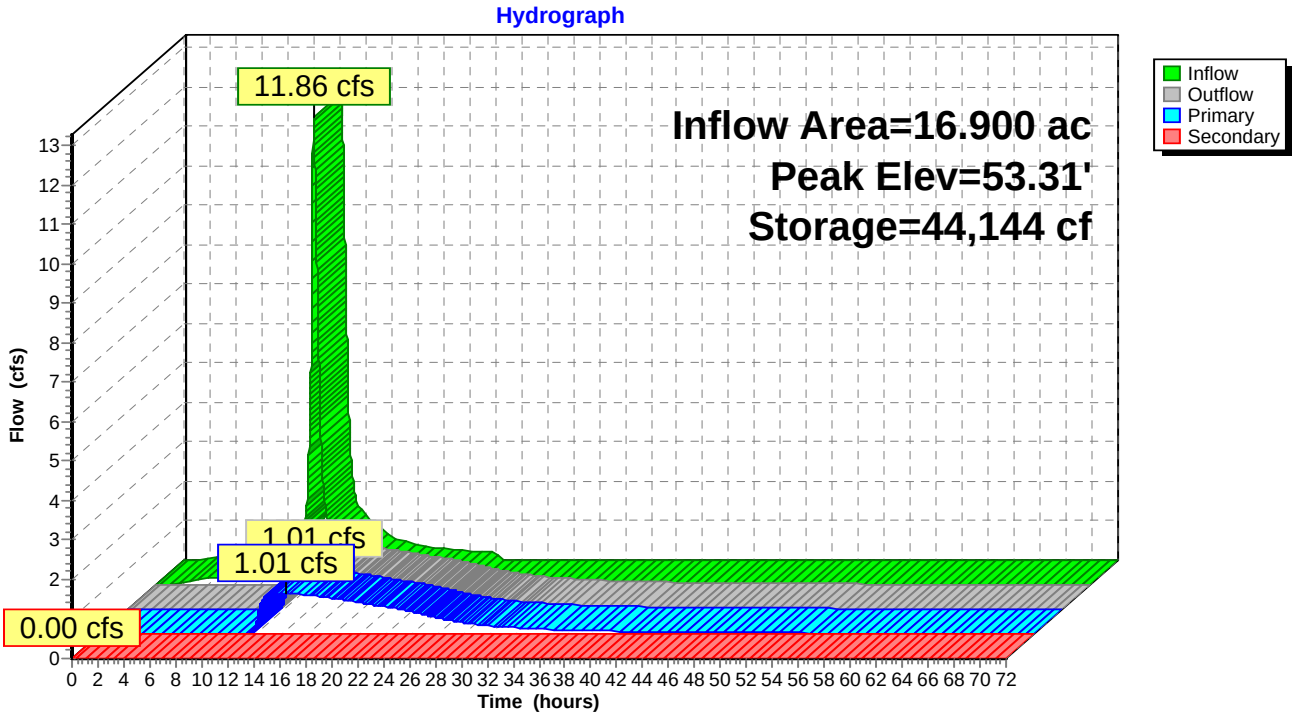
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
52.00	32,110	0	0
53.00	34,558	33,334	33,334
54.00	37,053	35,806	69,140
55.00	40,912	38,983	108,122
56.00	42,236	41,574	149,696

Device	Routing	Invert	Outlet Devices
#1	Primary	51.00'	**15.0" Round Culvert** L= 17.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 51.00' / 50.66' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	52.40'	**7.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	54.20'	**36.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	54.60'	**35.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.01 cfs @ 14.32 hrs HW=53.31' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.01 cfs of 9.22 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.01 cfs @ 3.78 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=52.00' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: Basin #2



Summary for Pond E-LD: Local Depression

Inflow Area = 3.740 ac, 32.35% Impervious, Inflow Depth = 1.69" for 10-Year event
Inflow = 4.28 cfs @ 12.15 hrs, Volume= 0.525 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 57.44' @ 28.20 hrs Surf.Area= 22,305 sf Storage= 22,881 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

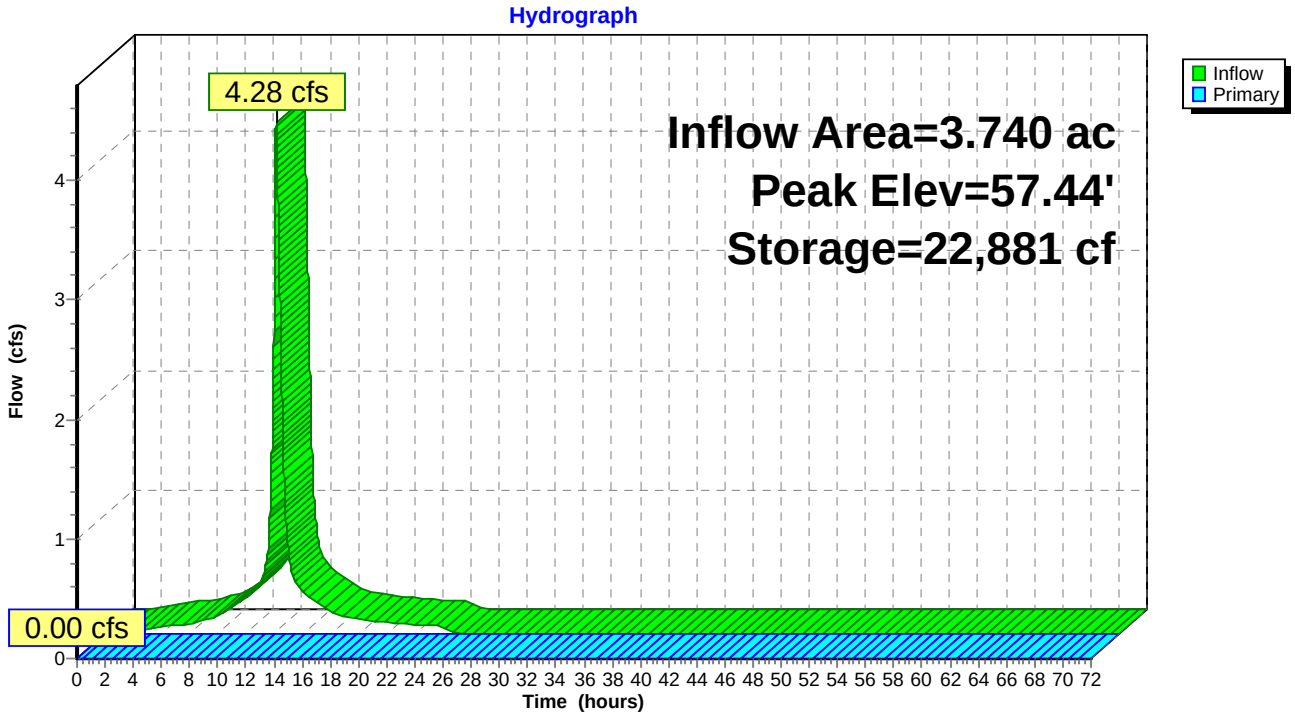
Volume	Invert	Avail.Storage	Storage Description
#1	55.00'	77,509 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
55.00	305	82.0	0	0	305
56.00	6,603	306.0	2,776	2,776	7,224
57.00	17,113	481.0	11,449	14,224	18,191
58.00	29,890	639.0	23,207	37,431	32,284
59.00	51,218	900.0	40,078	77,509	64,258

Device	Routing	Invert	Outlet Devices
#1	Primary	58.79'	**50.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=55.00' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond E-LD: Local Depression



Summary for Pond P-LD: PDA-2A (Local Depression)

Inflow Area = 5.460 ac, 2.75% Impervious, Inflow Depth = 0.22" for 10-Year event
Inflow = 0.53 cfs @ 12.15 hrs, Volume= 0.101 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 56.22' @ 26.14 hrs Surf.Area= 8,466 sf Storage= 4,409 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

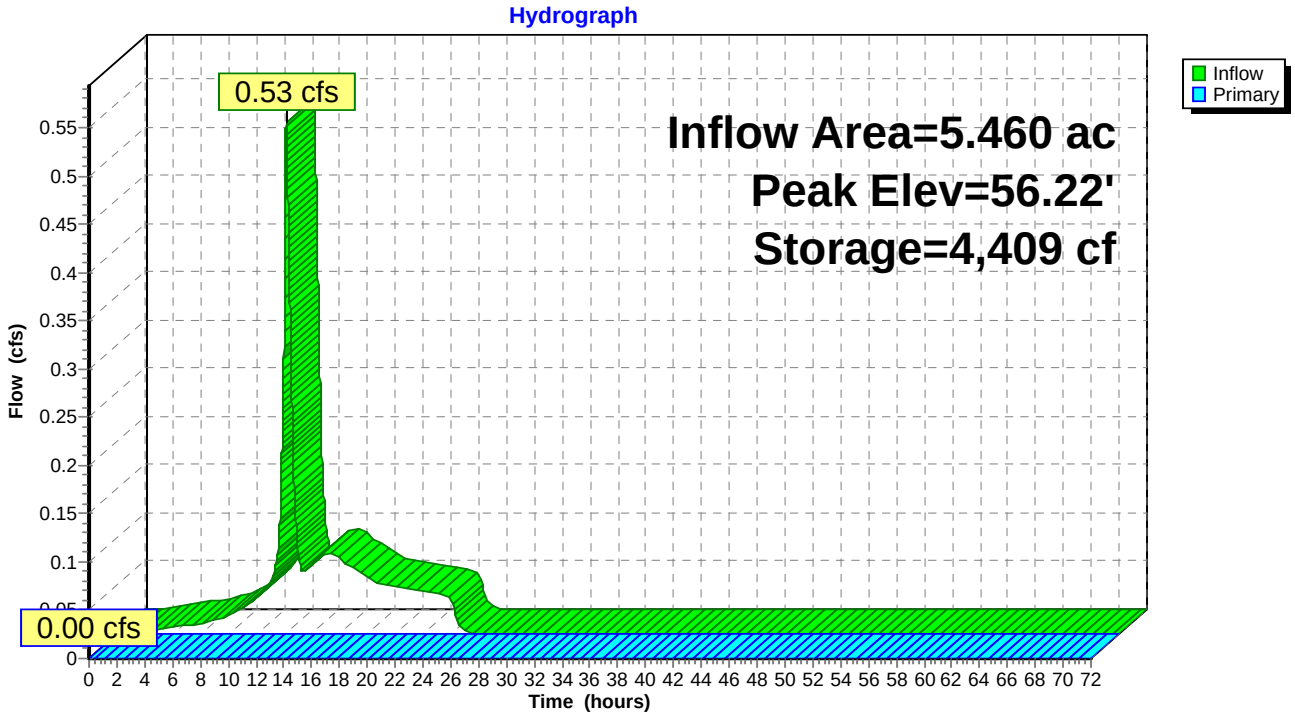
Volume	Invert	Avail.Storage	Storage Description
#1	55.00'	74,341 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
55.00	305	82.0	0	0	305
56.00	6,601	306.0	2,775	2,775	7,224
57.00	17,096	481.0	11,440	14,215	18,191
58.00	29,886	639.0	23,195	37,410	32,284
59.00	44,455	776.0	36,930	74,341	47,727

Device	Routing	Invert	Outlet Devices
#1	Primary	58.79'	**50.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=55.00' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-LD: PDA-2A (Local Depression)

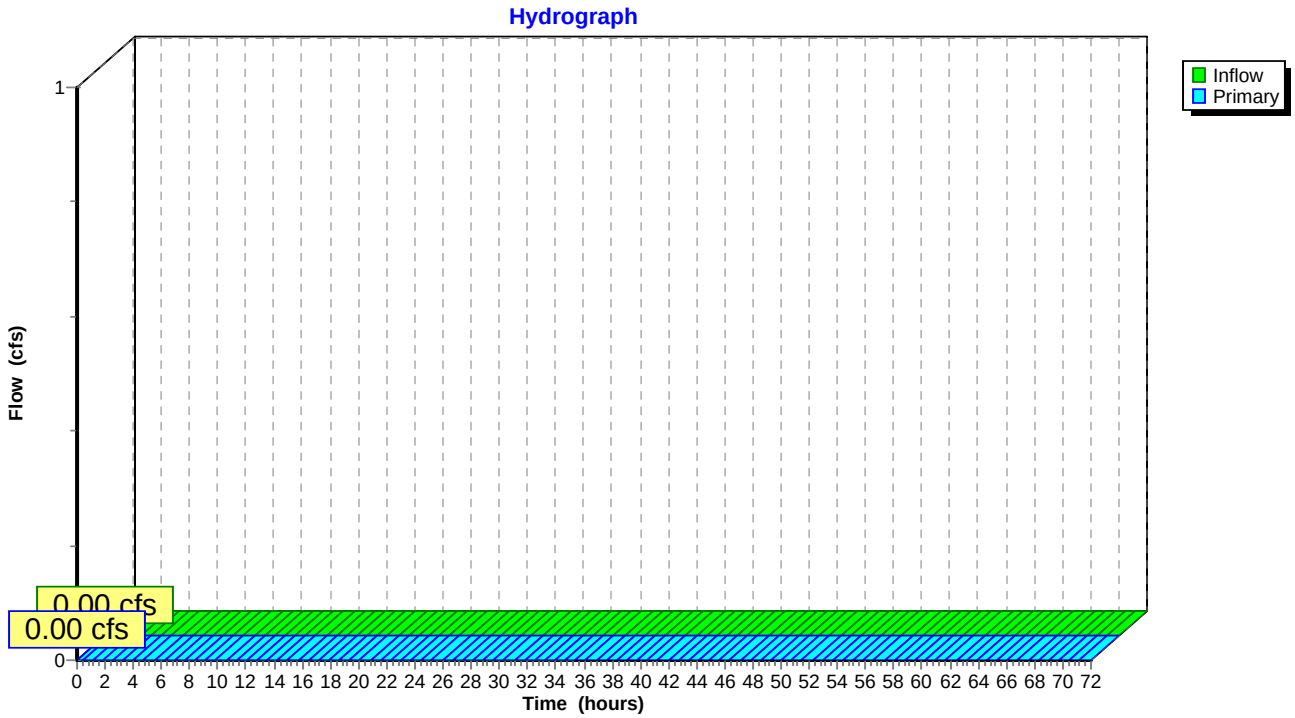


Summary for Link 1L: Emergency Spillway

Inflow	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af
Primary	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 1L: Emergency Spillway

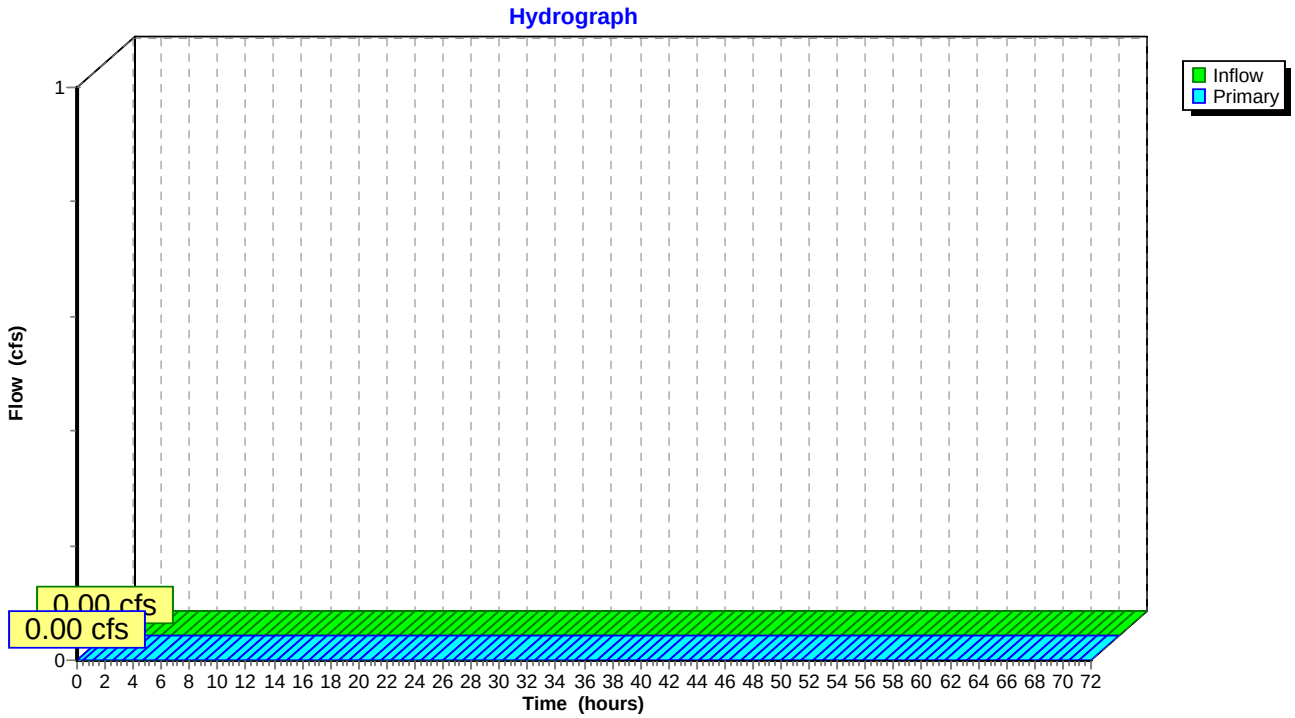


Summary for Link 2L: Emergency Spillway

Inflow	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af
Primary	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 2L: Emergency Spillway

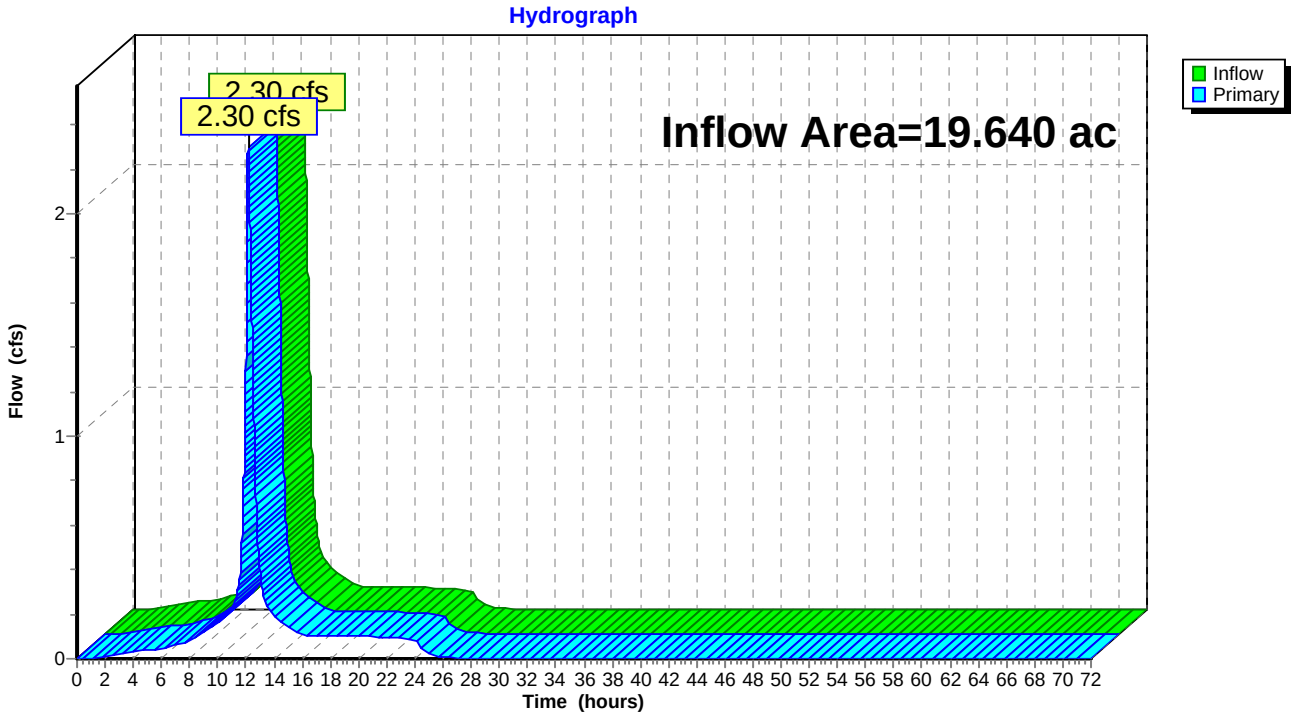


Summary for Link L-E1: EDA-1

Inflow Area = 19.640 ac, 3.31% Impervious, Inflow Depth = 0.19" for 10-Year event
Inflow = 2.30 cfs @ 12.15 hrs, Volume= 0.315 af
Primary = 2.30 cfs @ 12.15 hrs, Volume= 0.315 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link L-E1: EDA-1

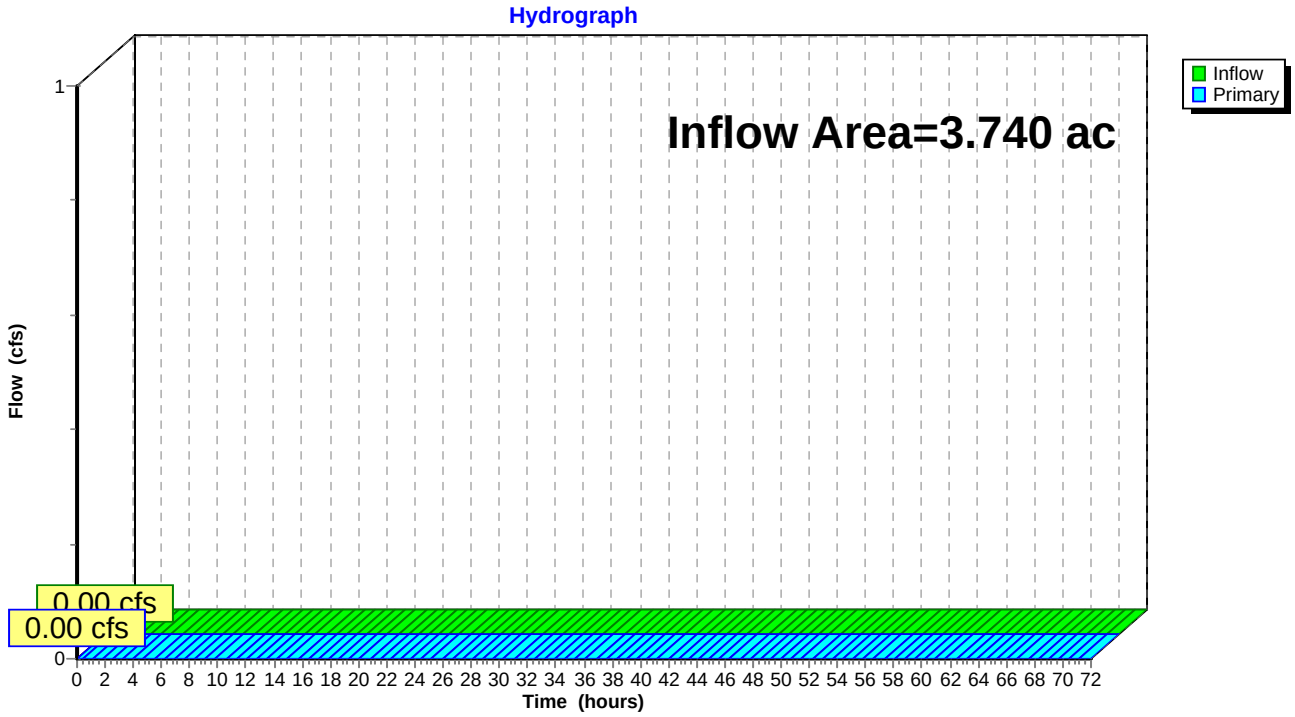


Summary for Link L-E2: EDA-2

Inflow Area = 3.740 ac, 32.35% Impervious, Inflow Depth = 0.00" for 10-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link L-E2: EDA-2

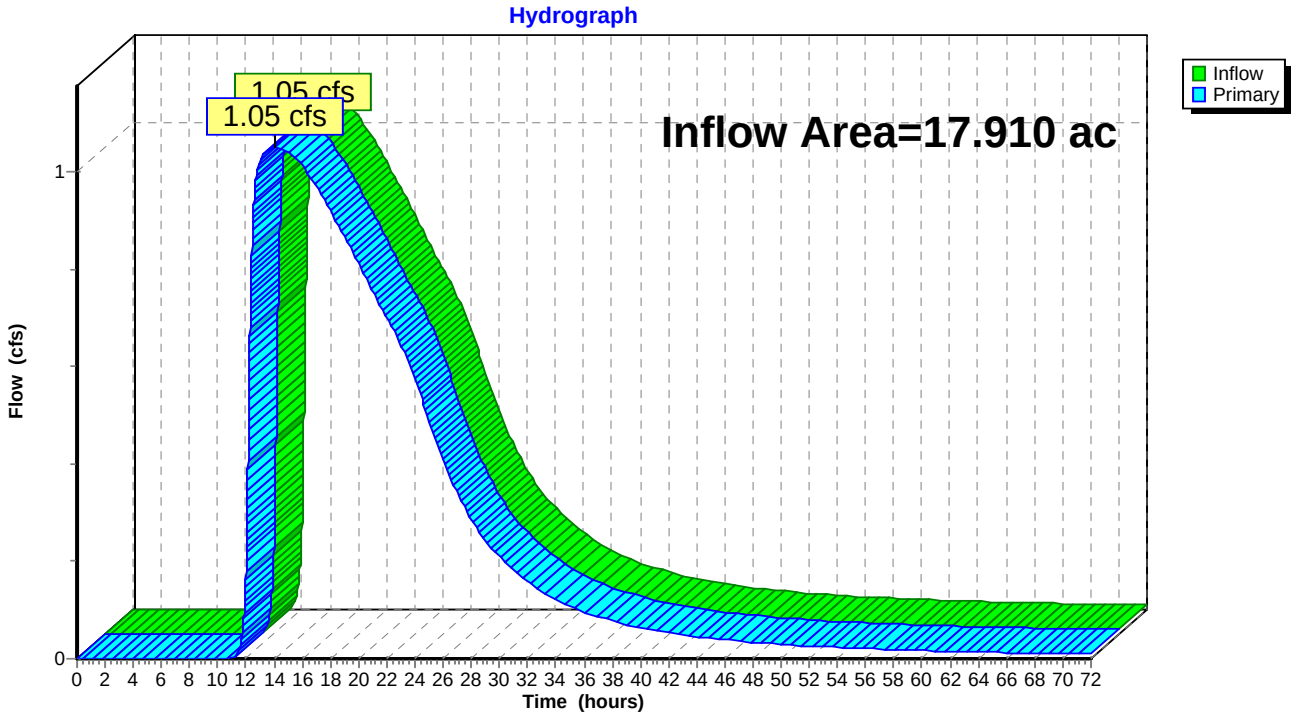


Summary for Link L-P1: PDA-1

Inflow Area = 17.910 ac, 65.61% Impervious, Inflow Depth > 0.80" for 10-Year event
Inflow = 1.05 cfs @ 14.03 hrs, Volume= 1.201 af
Primary = 1.05 cfs @ 14.03 hrs, Volume= 1.201 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link L-P1: PDA-1

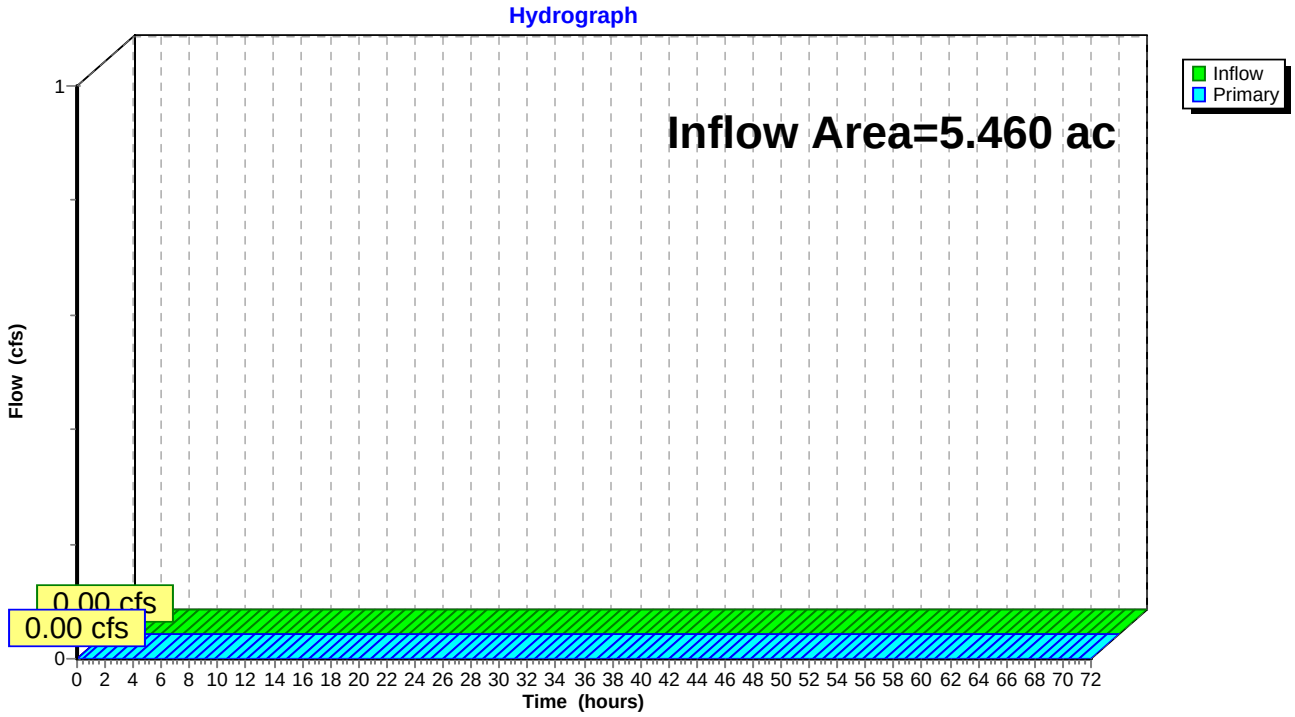


Summary for Link L-P2: PDA-2

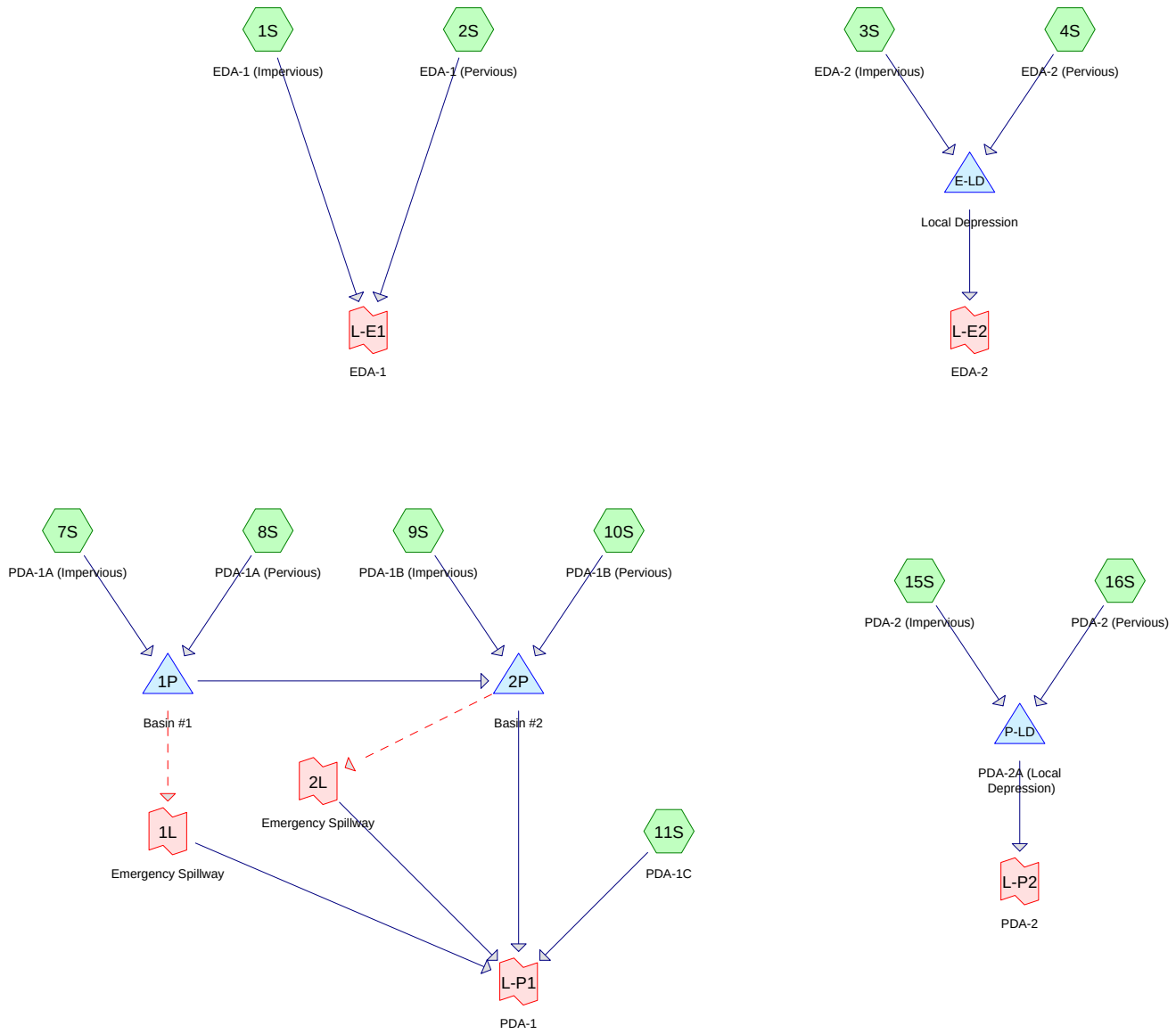
Inflow Area = 5.460 ac, 2.75% Impervious, Inflow Depth = 0.00" for 10-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

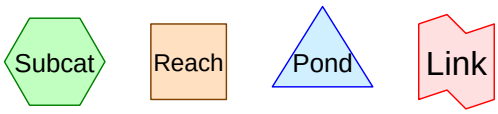
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link L-P2: PDA-2



100-YEAR STORM EVENT





Routing Diagram for Ex-Pr
Prepared by Bohler Engineering NJ, LLC, Printed 6/26/2019
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Summary for Subcatchment 1S: EDA-1 (Impervious)

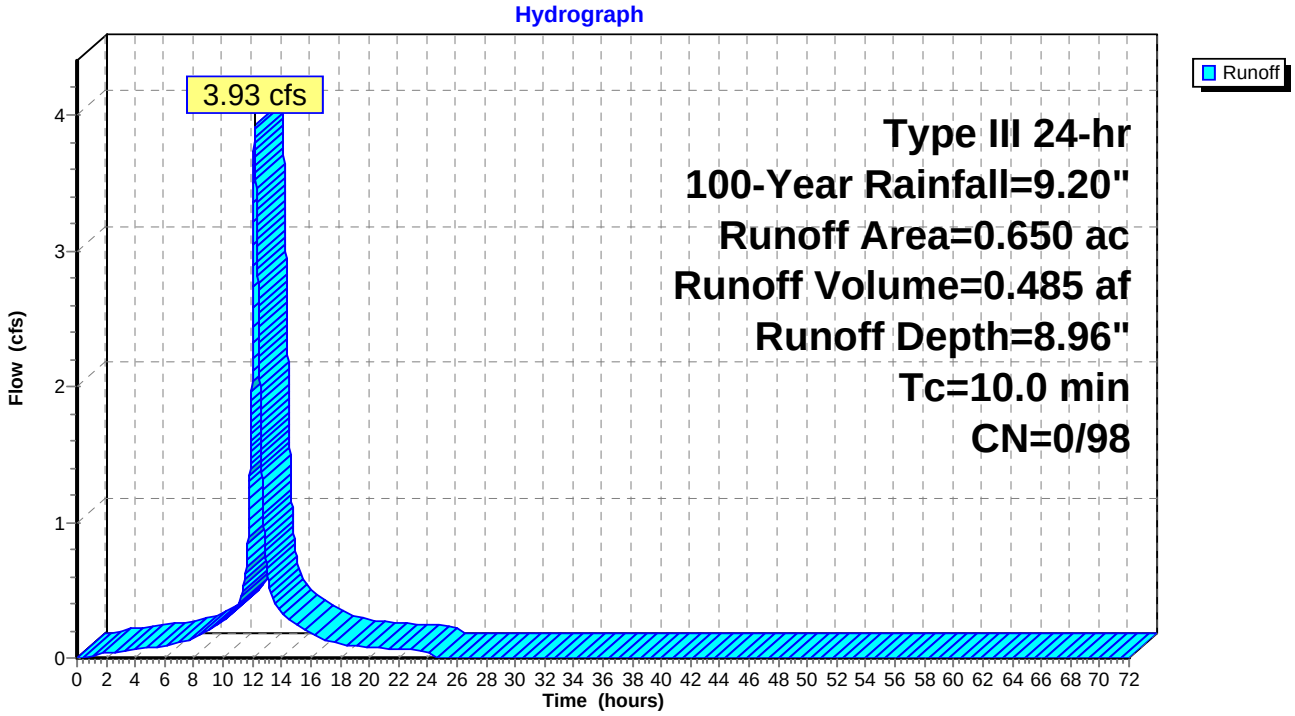
Runoff = 3.93 cfs @ 12.15 hrs, Volume= 0.485 af, Depth= 8.96"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.20"

Area (ac)	CN	Description
0.650	98	Paved roads w/curbs & sewers, HSG A
0.650	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: EDA-1 (Impervious)



Summary for Subcatchment 2S: EDA-1 (Pervious)

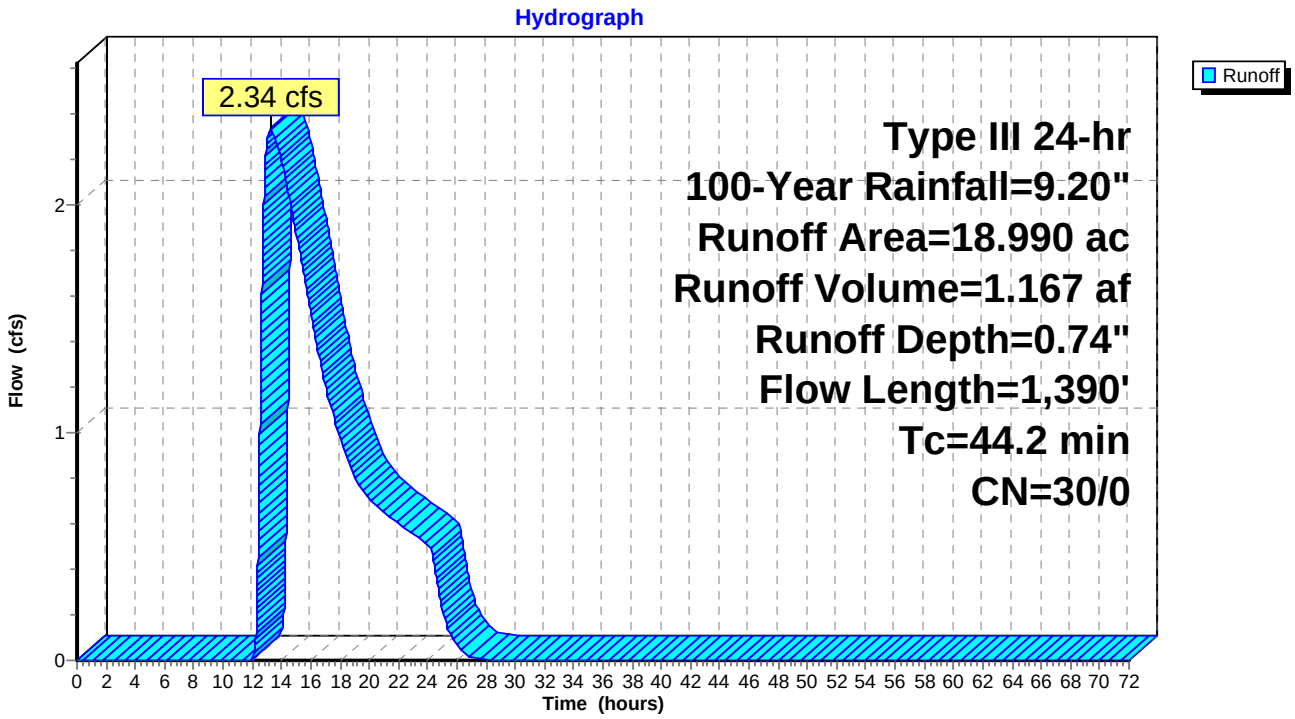
Runoff = 2.34 cfs @ 13.26 hrs, Volume= 1.167 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.20"

Area (ac)	CN	Description
18.470	30	Woods, Good, HSG A
0.520	30	Woods, Good, HSG A
18.990	30	Weighted Average
18.990	30	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.5	90	0.0089	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
17.7	1,300	0.0058	1.23		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
44.2	1,390	Total			

Subcatchment 2S: EDA-1 (Pervious)



Summary for Subcatchment 3S: EDA-2 (Impervious)

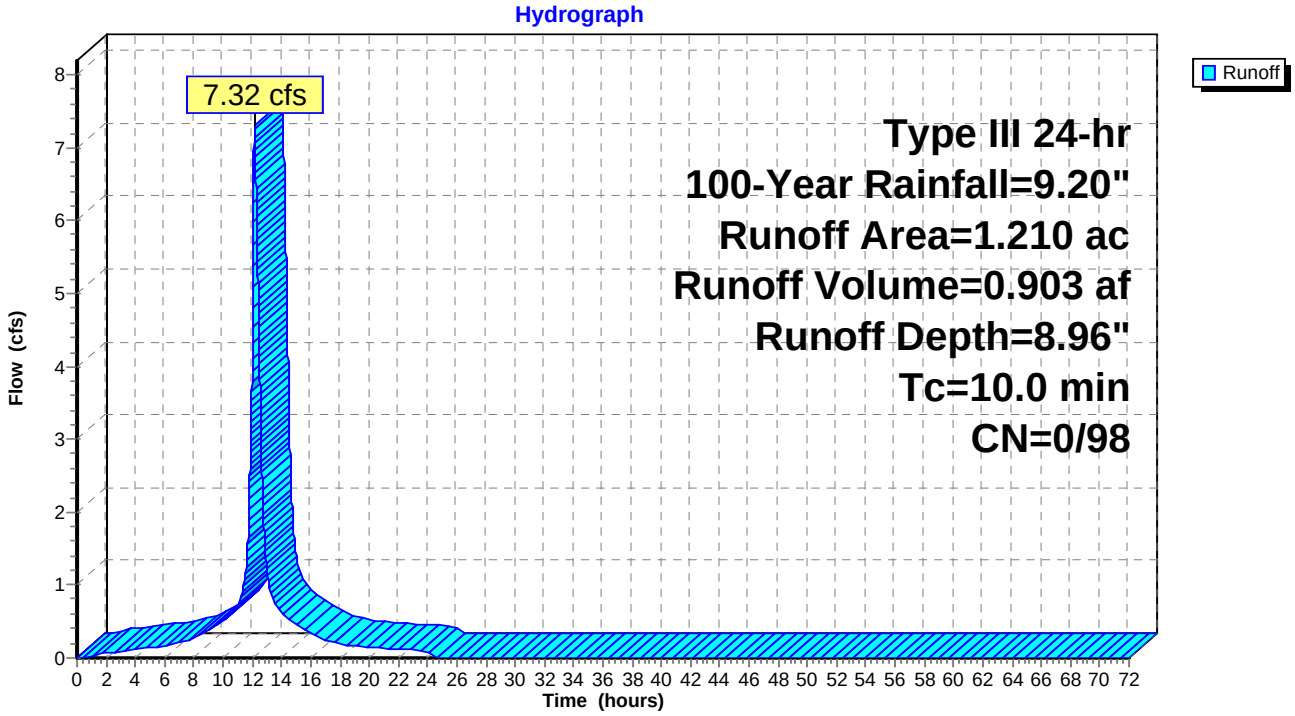
Runoff = 7.32 cfs @ 12.15 hrs, Volume= 0.903 af, Depth= 8.96"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.20"

Area (ac)	CN	Description
1.210	98	Paved parking, HSG A
1.210	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 3S: EDA-2 (Impervious)



Summary for Subcatchment 4S: EDA-2 (Pervious)

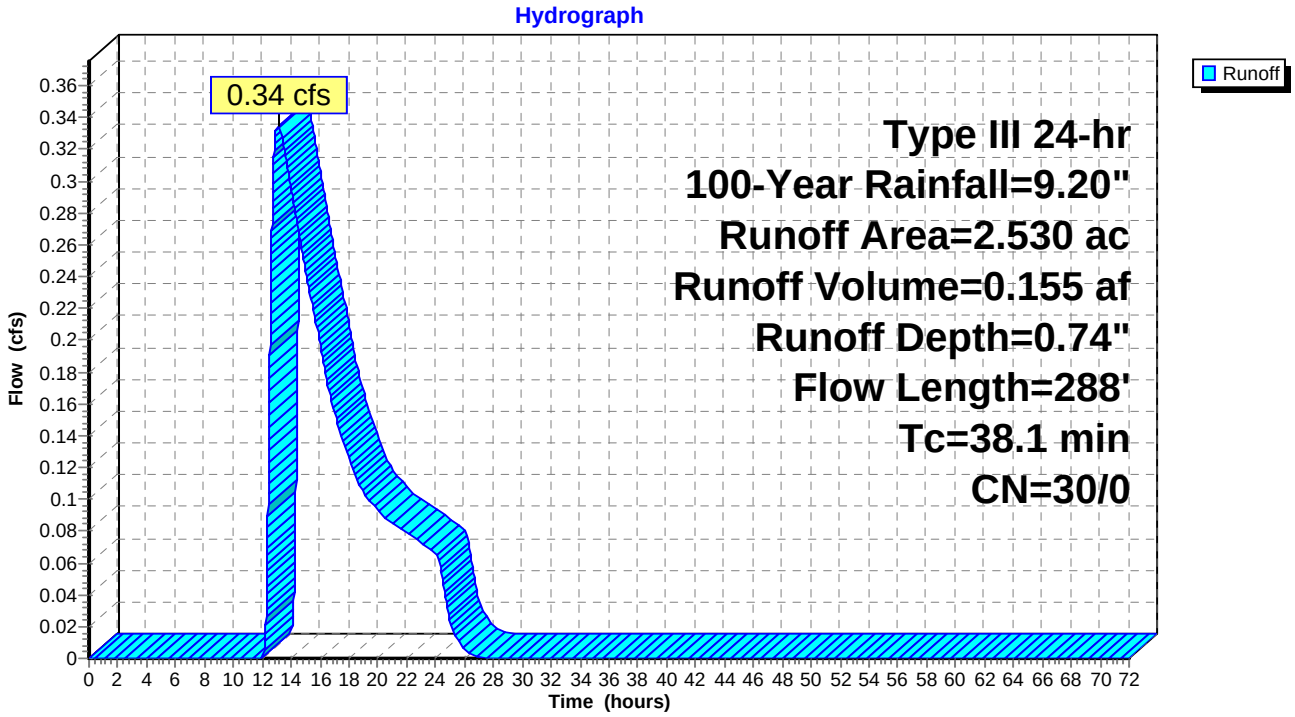
Runoff = 0.34 cfs @ 13.12 hrs, Volume= 0.155 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.20"

Area (ac)	CN	Description
1.980	30	Woods, Good, HSG A
0.550	30	Woods, Good, HSG A
2.530	30	Weighted Average
2.530	30	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.3	150	0.0105	0.07		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
0.8	138	0.0290	2.74		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
38.1	288	Total			

Subcatchment 4S: EDA-2 (Pervious)



Summary for Subcatchment 7S: PDA-1A (Impervious)

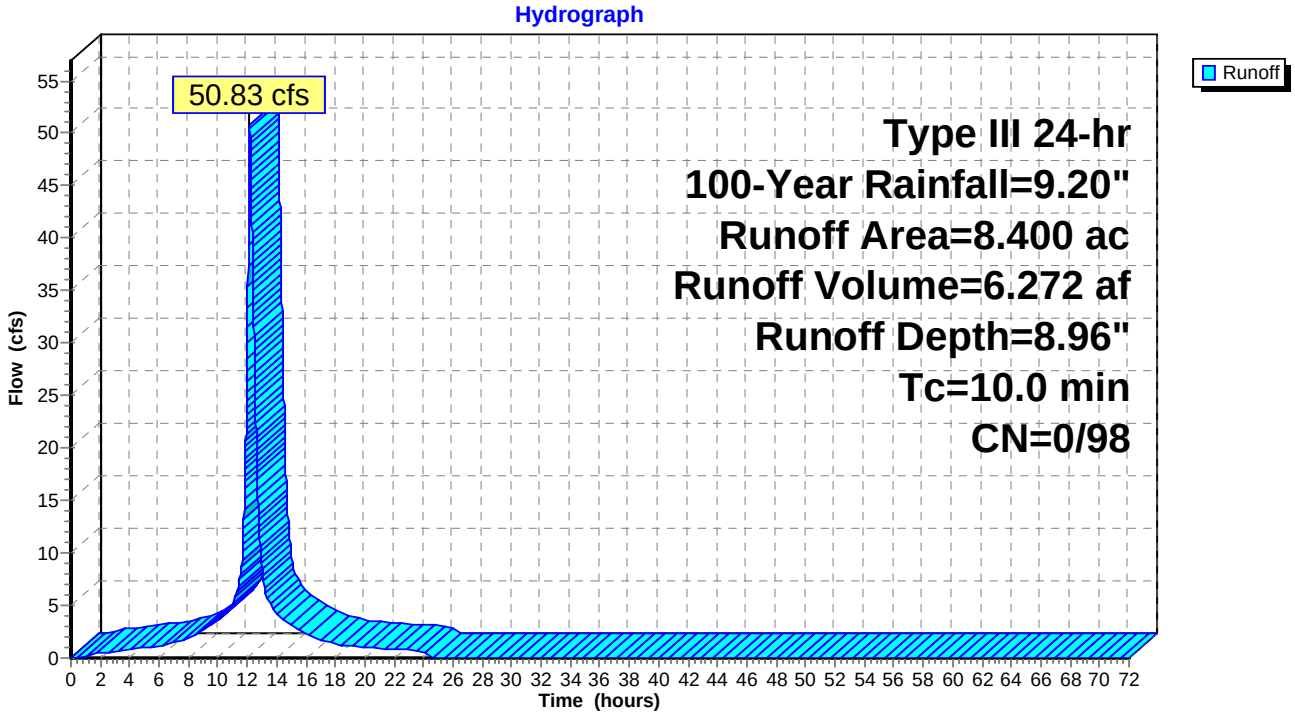
Runoff = 50.83 cfs @ 12.15 hrs, Volume= 6.272 af, Depth= 8.96"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.20"

	Area (ac)	CN	Description
	6.160	98	Paved parking, HSG A
*	2.240	98	Basin Bottom
	8.400	98	Weighted Average
	8.400	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 7S: PDA-1A (Impervious)



Summary for Subcatchment 8S: PDA-1A (Pervious)

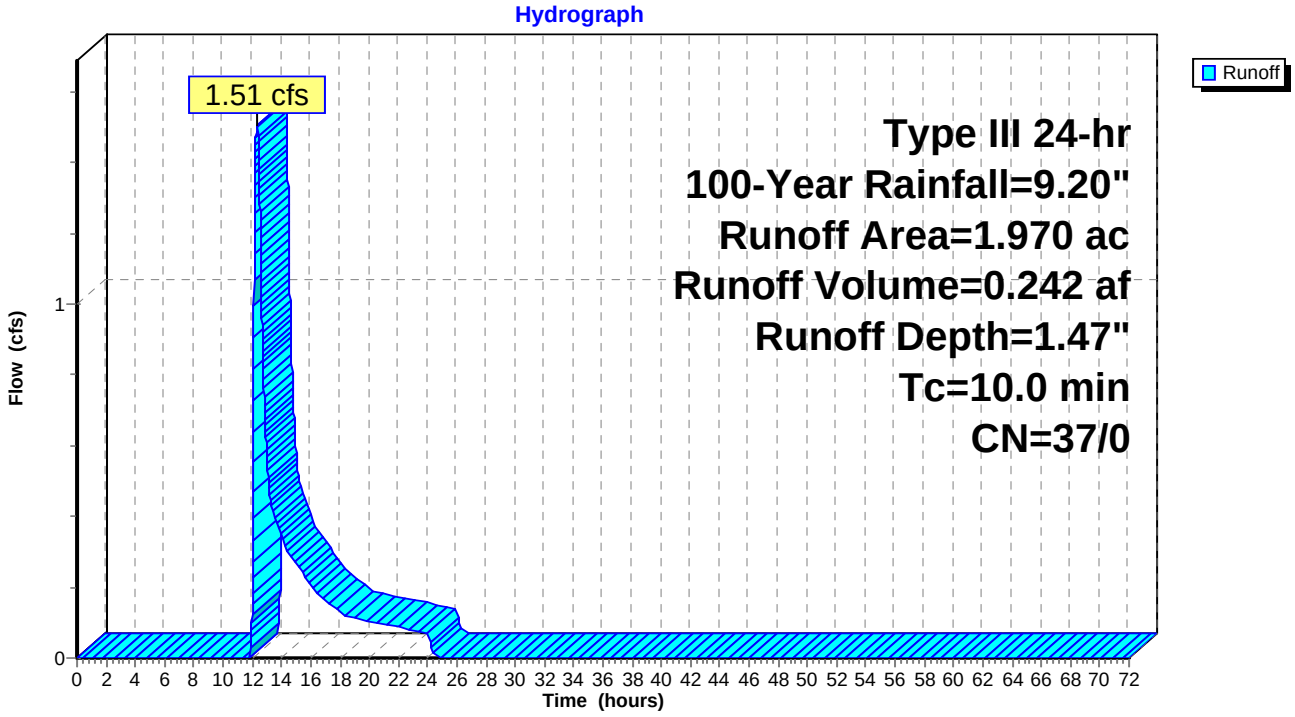
Runoff = 1.51 cfs @ 12.33 hrs, Volume= 0.242 af, Depth= 1.47"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.20"

Area (ac)	CN	Description
0.490	30	Woods, Good, HSG A
1.480	39	>75% Grass cover, Good, HSG A
1.970	37	Weighted Average
1.970	37	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 8S: PDA-1A (Pervious)



Summary for Subcatchment 9S: PDA-1B (Impervious)

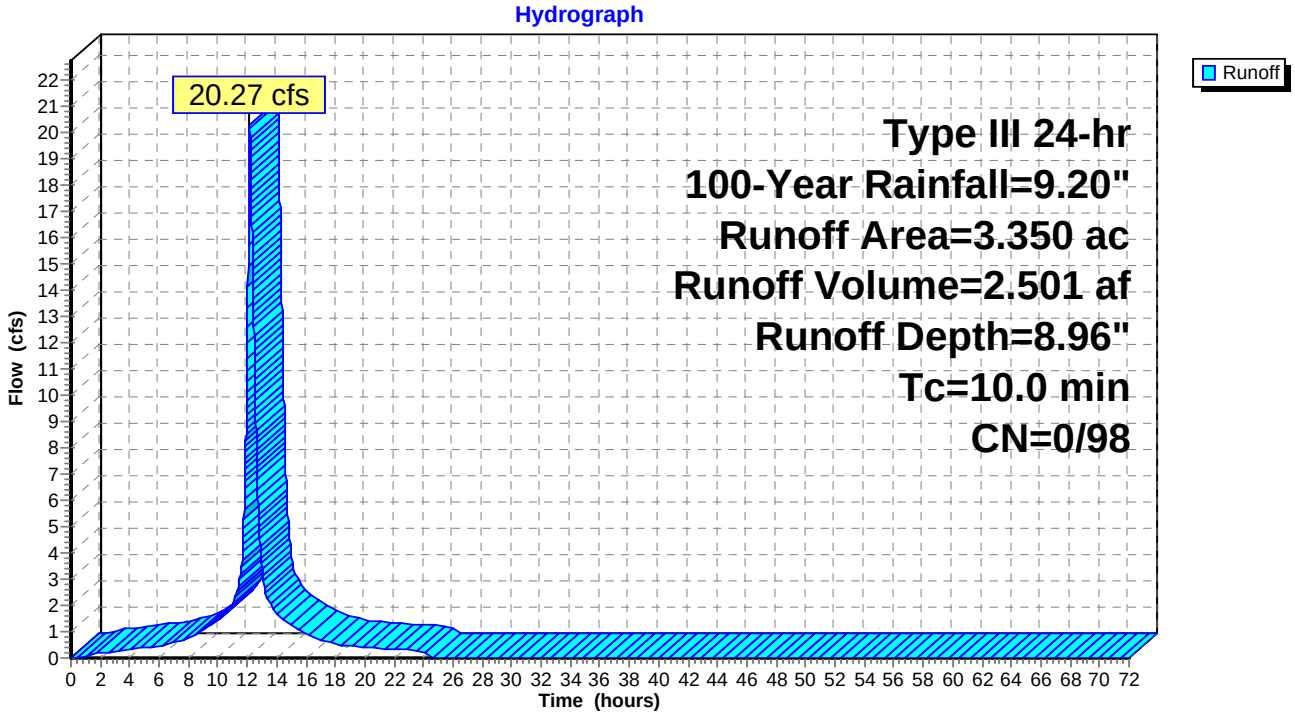
Runoff = 20.27 cfs @ 12.15 hrs, Volume= 2.501 af, Depth= 8.96"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.20"

	Area (ac)	CN	Description
	2.610	98	Paved parking, HSG A
*	0.740	98	Basin bottom
	3.350	98	Weighted Average
	3.350	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 9S: PDA-1B (Impervious)



Summary for Subcatchment 10S: PDA-1B (Pervious)

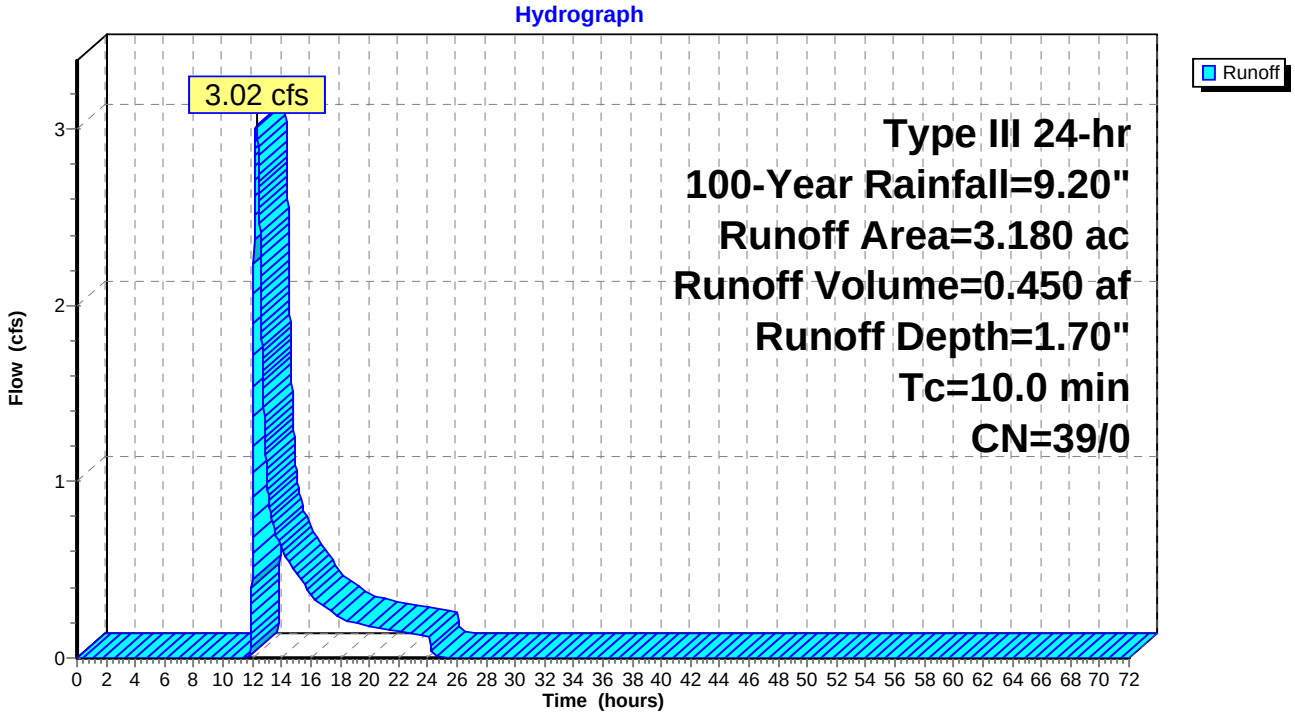
Runoff = 3.02 cfs @ 12.28 hrs, Volume= 0.450 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.20"

Area (ac)	CN	Description
3.180	39	>75% Grass cover, Good, HSG A
3.180	39	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 10S: PDA-1B (Pervious)



Summary for Subcatchment 11S: PDA-1C

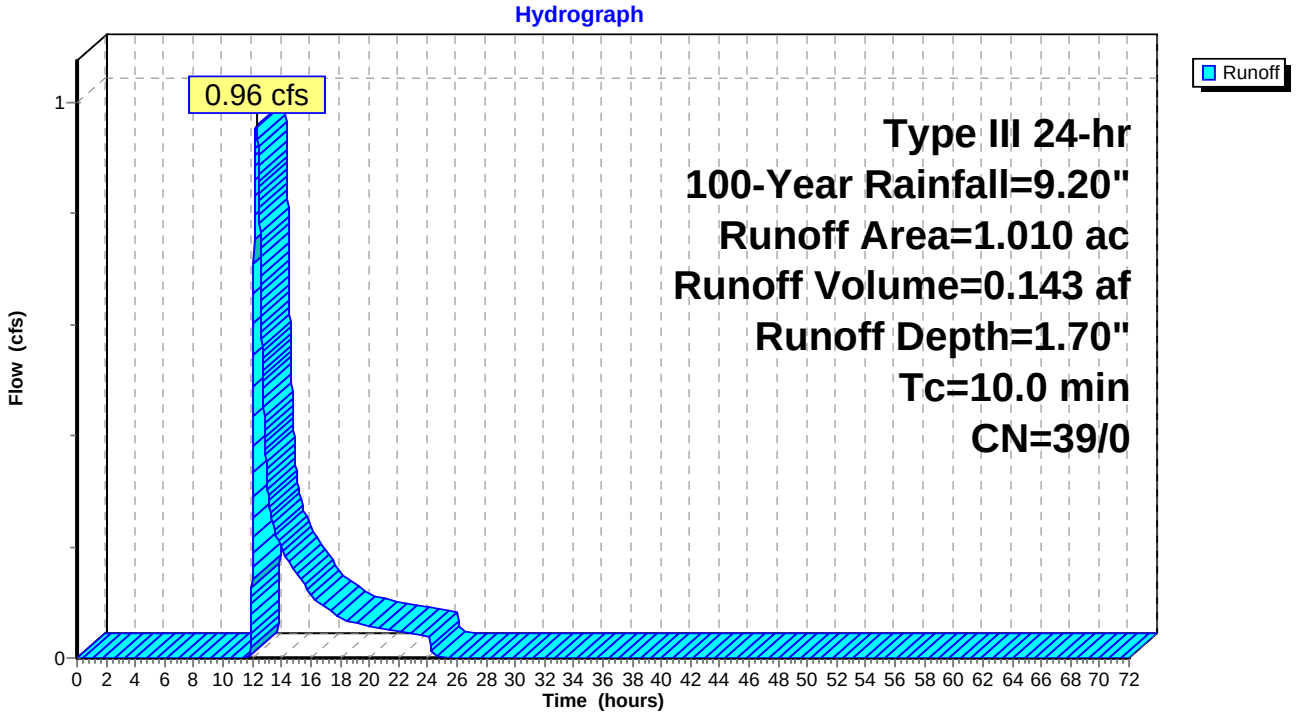
Runoff = 0.96 cfs @ 12.28 hrs, Volume= 0.143 af, Depth= 1.70"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.20"

Area (ac)	CN	Description
1.010	39	>75% Grass cover, Good, HSG A
1.010	39	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 11S: PDA-1C



Summary for Subcatchment 15S: PDA-2 (Impervious)

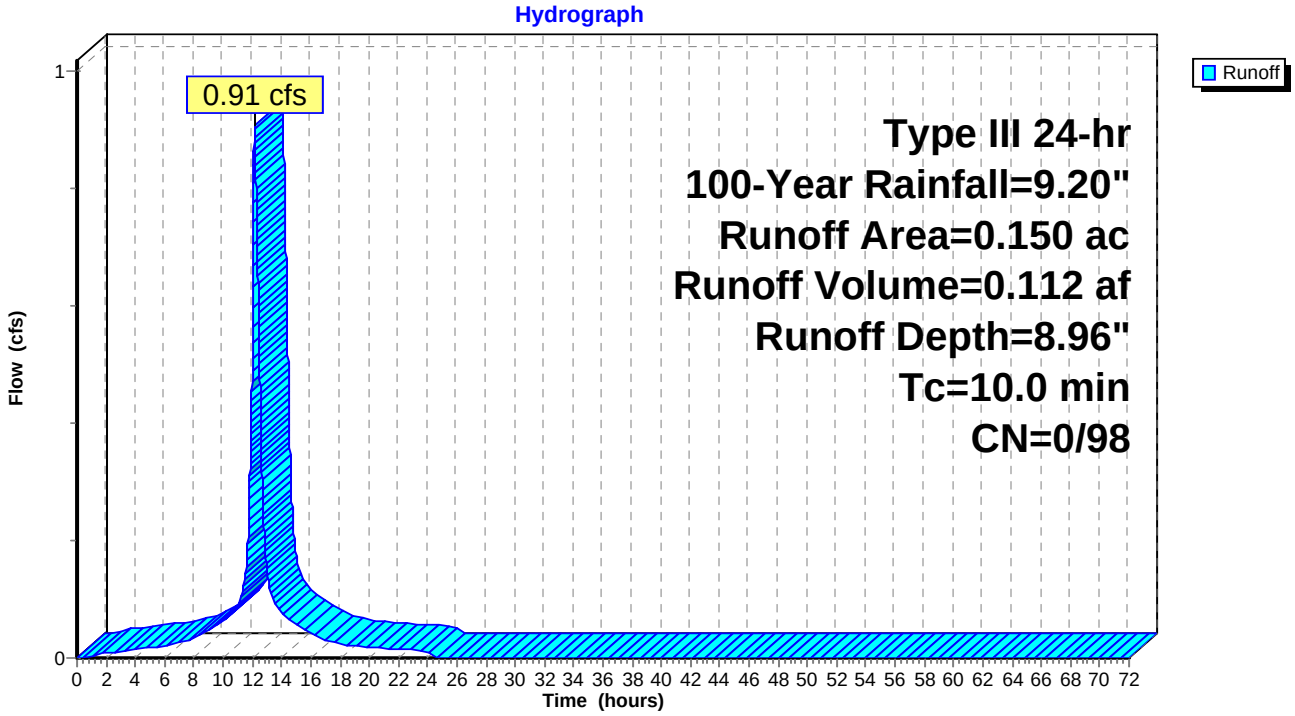
Runoff = 0.91 cfs @ 12.15 hrs, Volume= 0.112 af, Depth= 8.96"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.20"

Area (ac)	CN	Description
0.150	98	Paved parking, HSG A
0.150	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 15S: PDA-2 (Impervious)



Summary for Subcatchment 16S: PDA-2 (Pervious)

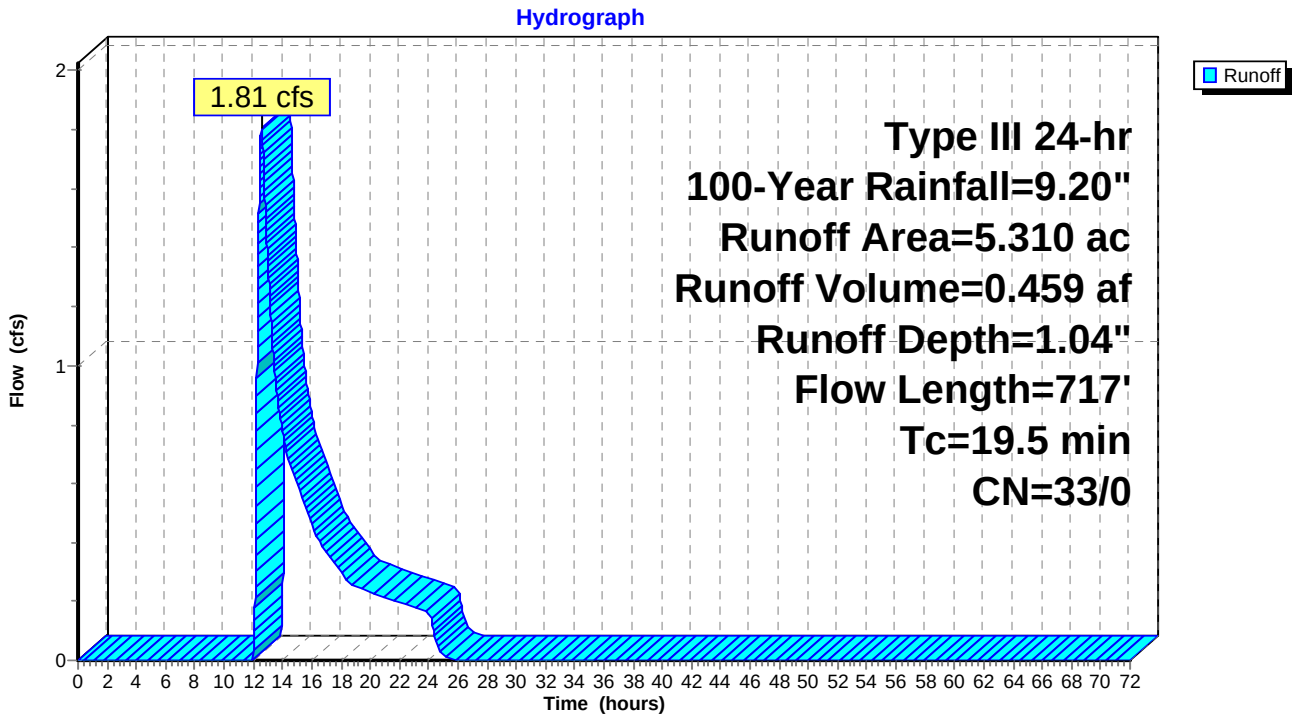
Runoff = 1.81 cfs @ 12.57 hrs, Volume= 0.459 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.20"

Area (ac)	CN	Description
3.700	30	Woods, Good, HSG A
1.610	39	>75% Grass cover, Good, HSG A
5.310	33	Weighted Average
5.310	33	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	97	0.0620	0.13		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.40"
6.6	620	0.0096	1.58		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
19.5	717	Total			

Subcatchment 16S: PDA-2 (Pervious)



Summary for Pond 1P: Basin #1

Inflow Area = 10.370 ac, 81.00% Impervious, Inflow Depth = 7.54" for 100-Year event
Inflow = 52.12 cfs @ 12.16 hrs, Volume= 6.513 af
Outflow = 0.16 cfs @ 24.36 hrs, Volume= 0.740 af, Atten= 100%, Lag= 732.3 min
Primary = 0.16 cfs @ 24.36 hrs, Volume= 0.740 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 59.60' @ 24.36 hrs Surf.Area= 107,416 sf Storage= 277,625 cf

Plug-Flow detention time= 2,165.3 min calculated for 0.740 af (11% of inflow)
Center-of-Mass det. time= 1,781.8 min (2,537.3 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1	56.90'	432,566 cf	**Basin #1 (Prismatic)** Listed below (Recalc)

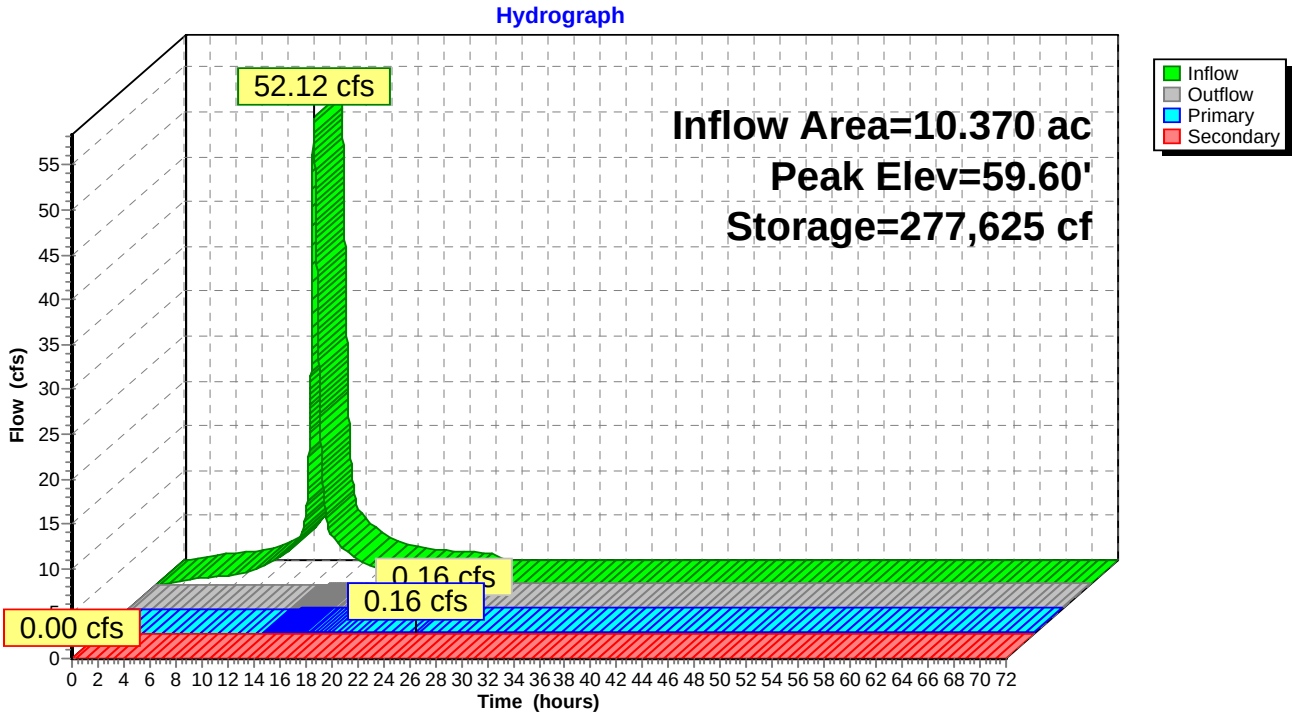
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.90	97,675	0	0
57.00	98,767	9,822	9,822
58.00	102,067	100,417	110,239
59.00	105,401	103,734	213,973
60.00	108,770	107,086	321,059
61.00	114,245	111,508	432,566

Device	Routing	Invert	Outlet Devices
#1	Primary	56.80'	**15.0" Round Culvert** L= 12.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 56.80' / 56.68' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	58.50'	**2.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	60.00'	**36.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	60.30'	**100.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.16 cfs @ 24.36 hrs HW=59.60' TW=53.68' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.16 cfs of 10.46 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.16 cfs @ 4.80 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=56.90' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Basin #1



Summary for Pond 2P: Basin #2

Inflow Area =	16.900 ac, 69.53% Impervious, Inflow Depth > 2.62" for 100-Year event				
Inflow =	23.05 cfs @	12.16 hrs,	Volume=	3.691 af	
Outflow =	2.84 cfs @	13.59 hrs,	Volume=	3.223 af,	Atten= 88%, Lag= 85.8 min
Primary =	2.84 cfs @	13.59 hrs,	Volume=	3.223 af	
Secondary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 54.30' @ 13.59 hrs Surf.Area= 38,204 sf Storage= 80,359 cf

Plug-Flow detention time= 782.2 min calculated for 3.223 af (87% of inflow)
Center-of-Mass det. time= 485.7 min (1,612.5 - 1,126.9)

Volume	Invert	Avail.Storage	Storage Description
#1	52.00'	149,696 cf	**Basin #2 (Prismatic)** Listed below (Recalc)

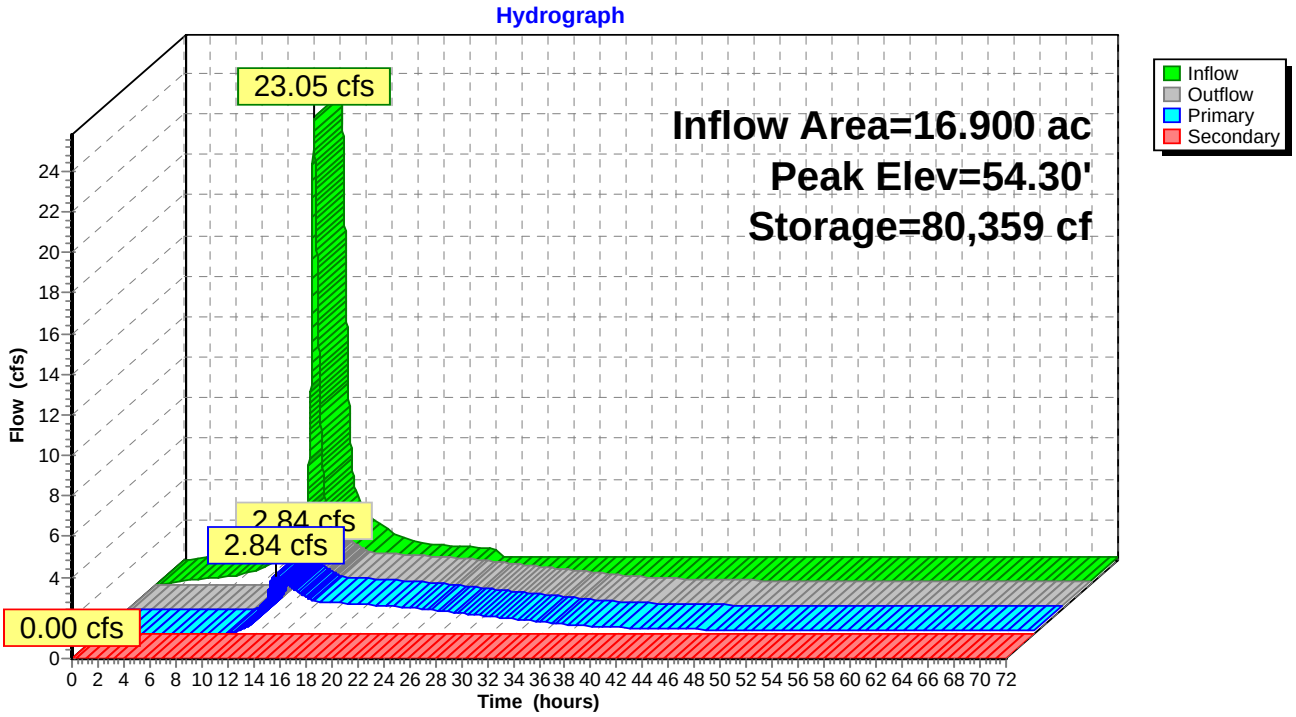
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
52.00	32,110	0	0
53.00	34,558	33,334	33,334
54.00	37,053	35,806	69,140
55.00	40,912	38,983	108,122
56.00	42,236	41,574	149,696

Device	Routing	Invert	Outlet Devices
#1	Primary	51.00'	**15.0" Round Culvert** L= 17.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 51.00' / 50.66' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	52.40'	**7.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	54.20'	**36.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	54.60'	**35.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=2.84 cfs @ 13.59 hrs HW=54.30' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 2.84 cfs of 12.05 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.63 cfs @ 6.10 fps)
  └─**3=Orifice/Grate** (Weir Controls 1.21 cfs @ 1.02 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=52.00' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: Basin #2



Summary for Pond E-LD: Local Depression

Inflow Area = 3.740 ac, 32.35% Impervious, Inflow Depth = 3.40" for 100-Year event
Inflow = 7.33 cfs @ 12.15 hrs, Volume= 1.059 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 58.27' @ 28.20 hrs Surf.Area= 35,048 sf Storage= 46,126 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

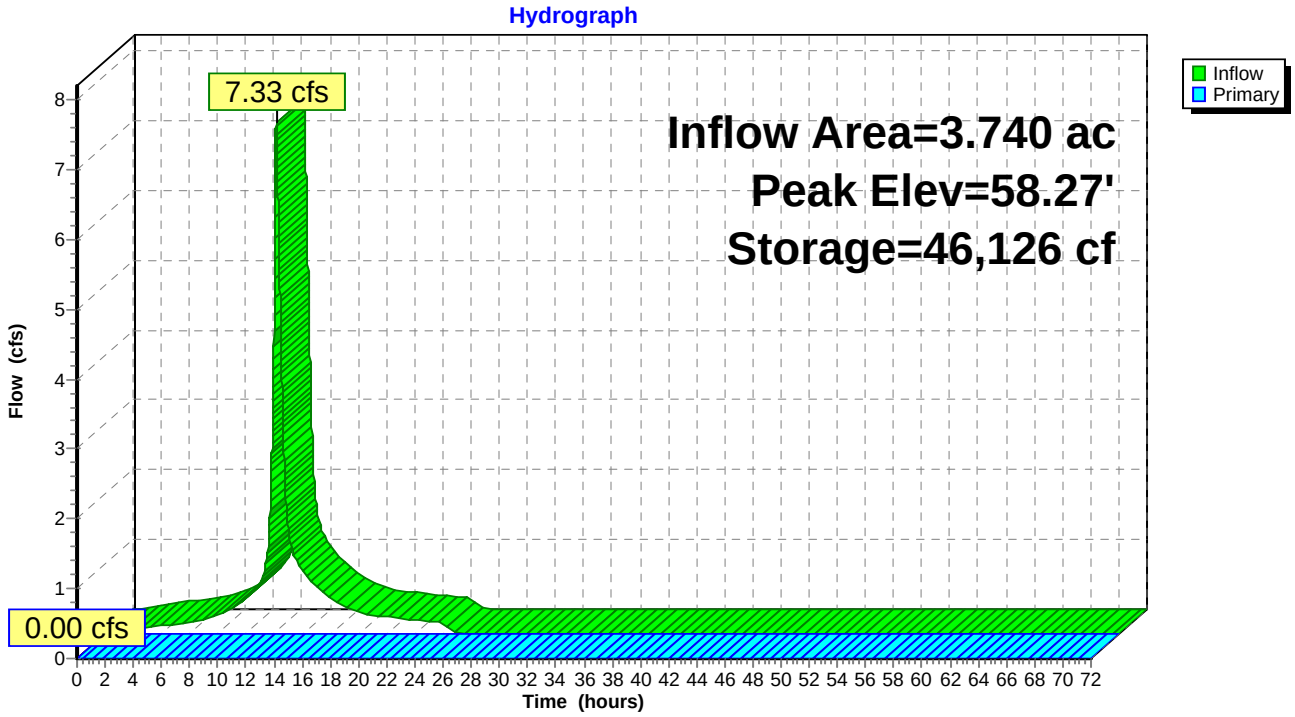
Volume	Invert	Avail.Storage	Storage Description
#1	55.00'	77,509 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
55.00	305	82.0	0	0	305
56.00	6,603	306.0	2,776	2,776	7,224
57.00	17,113	481.0	11,449	14,224	18,191
58.00	29,890	639.0	23,207	37,431	32,284
59.00	51,218	900.0	40,078	77,509	64,258

Device	Routing	Invert	Outlet Devices
#1	Primary	58.79'	**50.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=55.00' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond E-LD: Local Depression



Summary for Pond P-LD: PDA-2A (Local Depression)

Inflow Area = 5.460 ac, 2.75% Impervious, Inflow Depth = 1.26" for 100-Year event
Inflow = 2.27 cfs @ 12.48 hrs, Volume= 0.571 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 57.53' @ 26.14 hrs Surf.Area= 23,421 sf Storage= 24,889 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

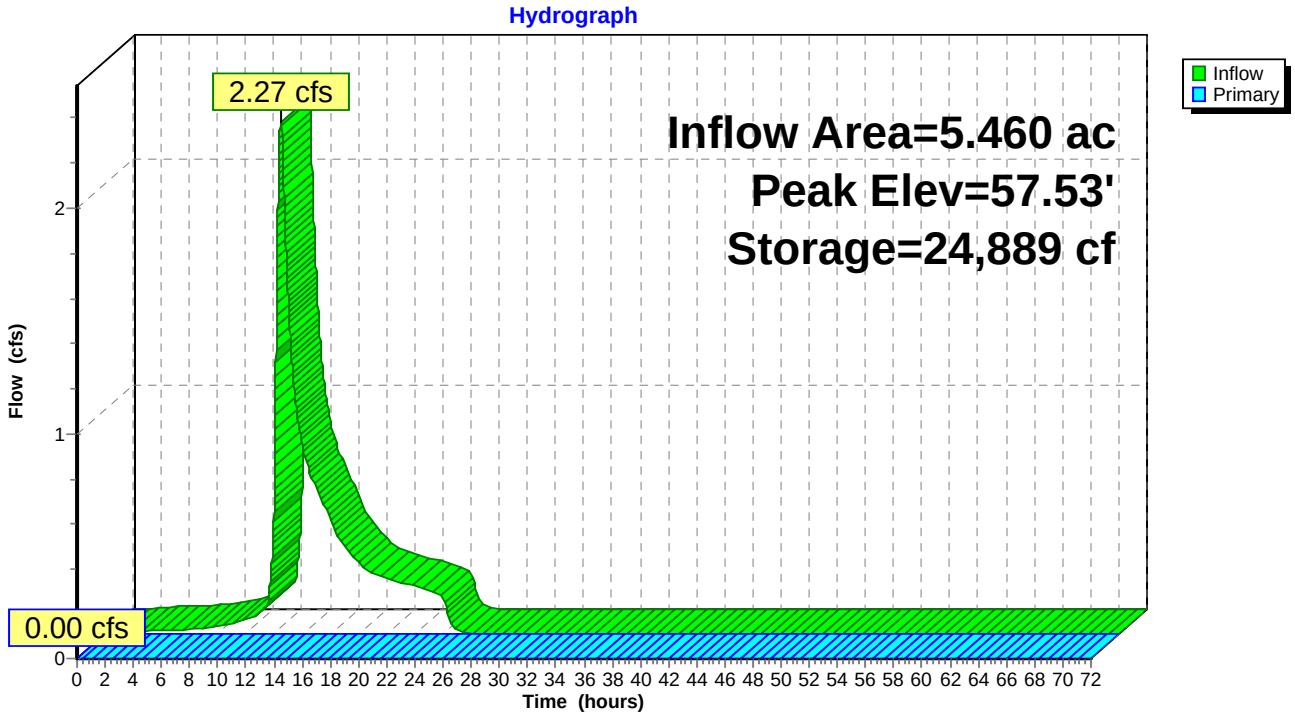
Volume	Invert	Avail.Storage	Storage Description
#1	55.00'	74,341 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
55.00	305	82.0	0	0	305
56.00	6,601	306.0	2,775	2,775	7,224
57.00	17,096	481.0	11,440	14,215	18,191
58.00	29,886	639.0	23,195	37,410	32,284
59.00	44,455	776.0	36,930	74,341	47,727

Device	Routing	Invert	Outlet Devices
#1	Primary	58.79'	**50.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=55.00' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-LD: PDA-2A (Local Depression)

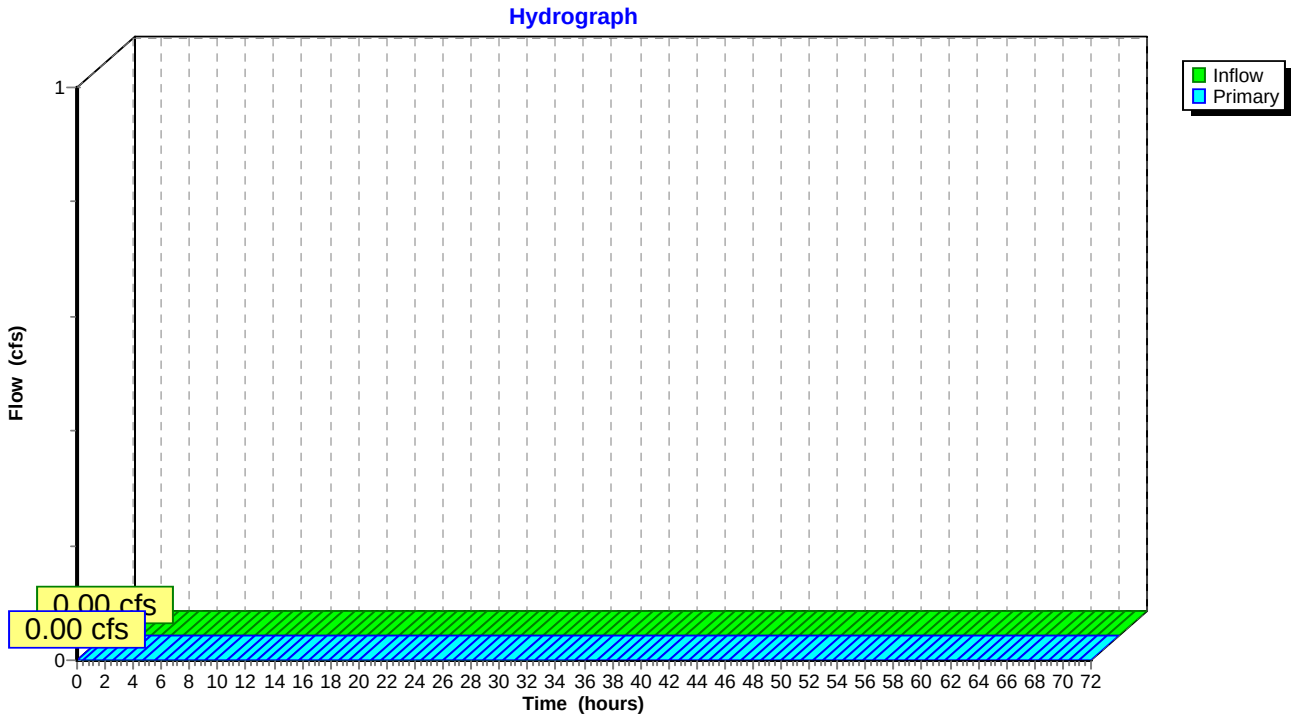


Summary for Link 1L: Emergency Spillway

Inflow	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af
Primary	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 1L: Emergency Spillway

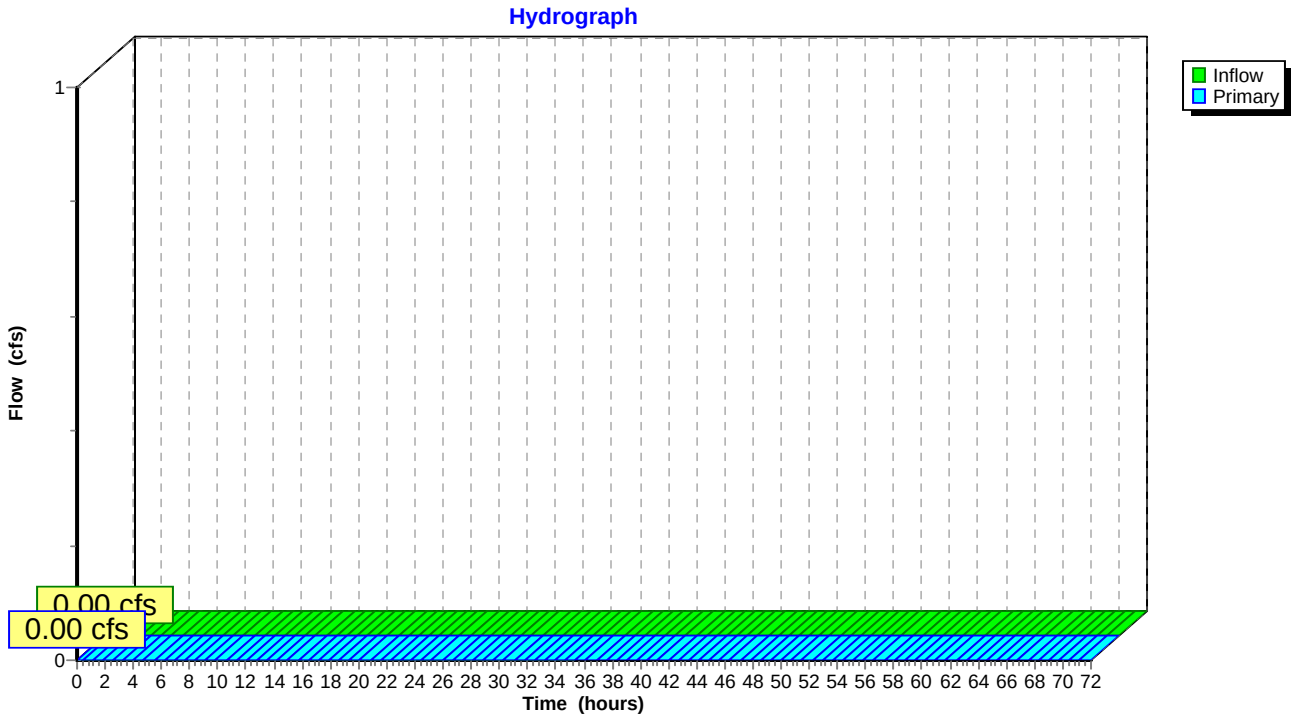


Summary for Link 2L: Emergency Spillway

Inflow	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af
Primary	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link 2L: Emergency Spillway

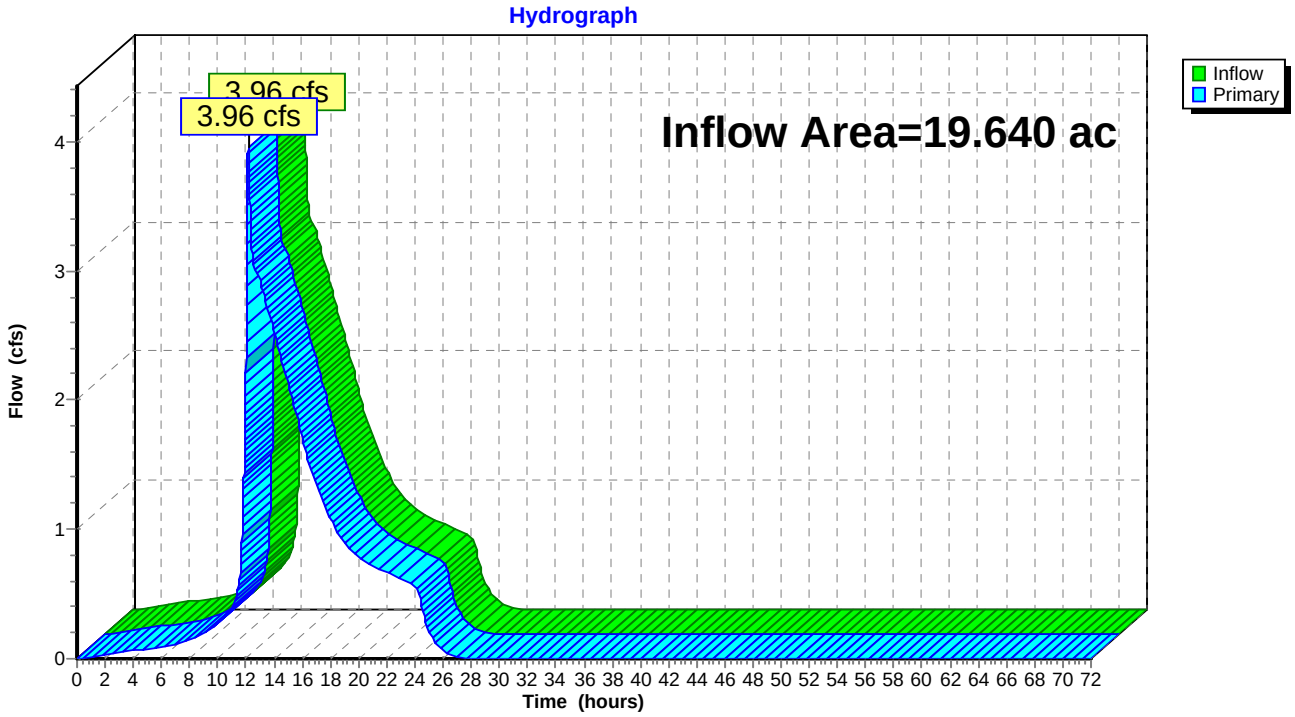


Summary for Link L-E1: EDA-1

Inflow Area = 19.640 ac, 3.31% Impervious, Inflow Depth = 1.01" for 100-Year event
Inflow = 3.96 cfs @ 12.16 hrs, Volume= 1.652 af
Primary = 3.96 cfs @ 12.16 hrs, Volume= 1.652 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link L-E1: EDA-1

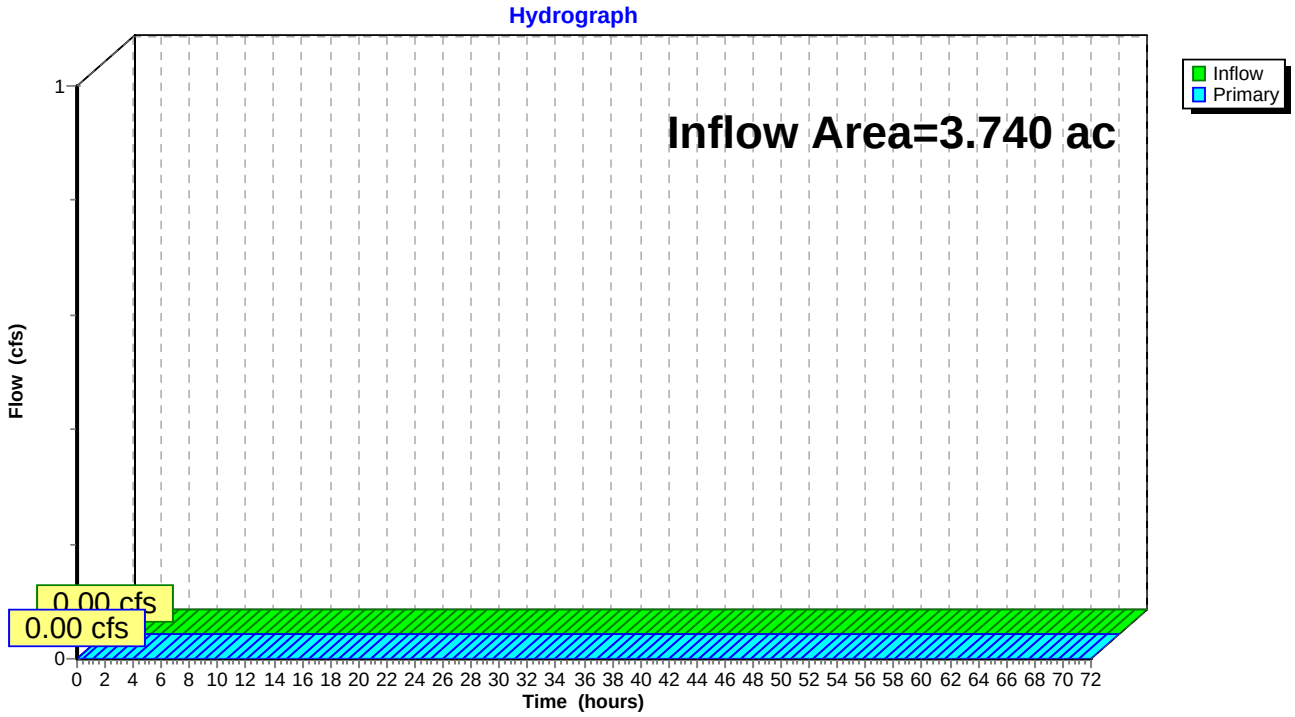


Summary for Link L-E2: EDA-2

Inflow Area = 3.740 ac, 32.35% Impervious, Inflow Depth = 0.00" for 100-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link L-E2: EDA-2

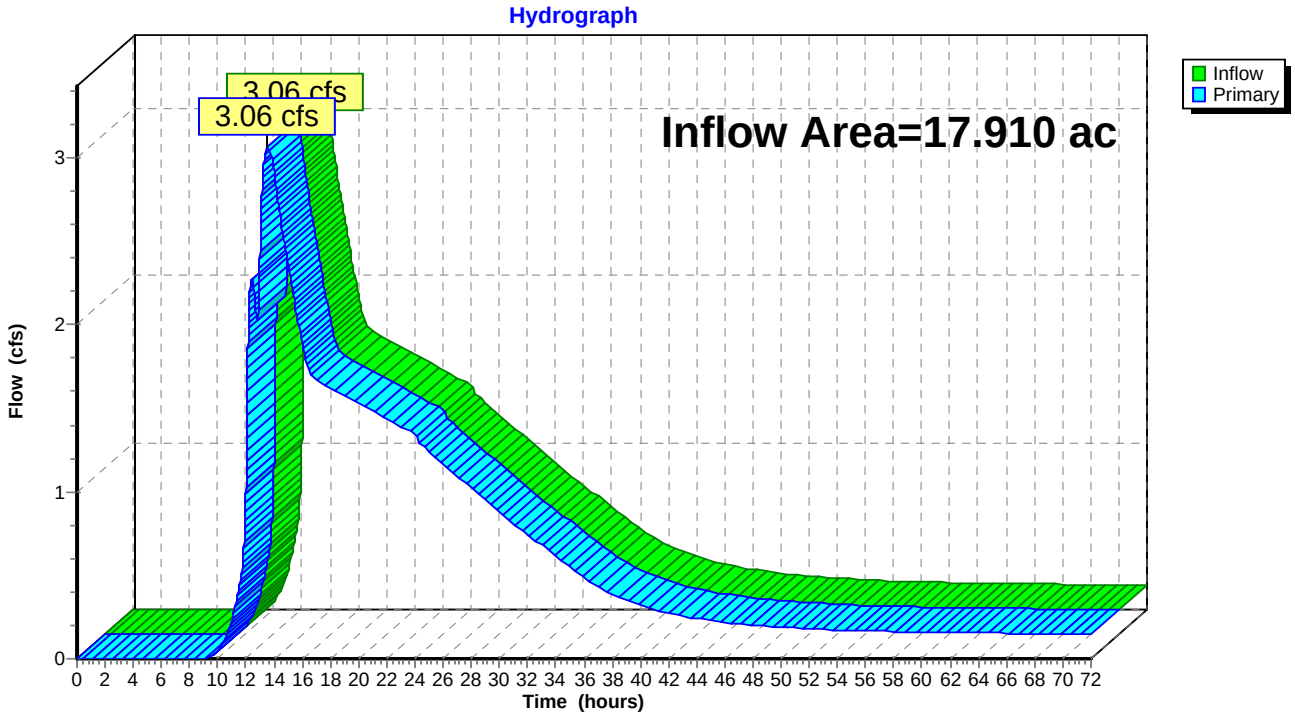


Summary for Link L-P1: PDA-1

Inflow Area = 17.910 ac, 65.61% Impervious, Inflow Depth > 2.26" for 100-Year event
Inflow = 3.06 cfs @ 13.55 hrs, Volume= 3.366 af
Primary = 3.06 cfs @ 13.55 hrs, Volume= 3.366 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link L-P1: PDA-1

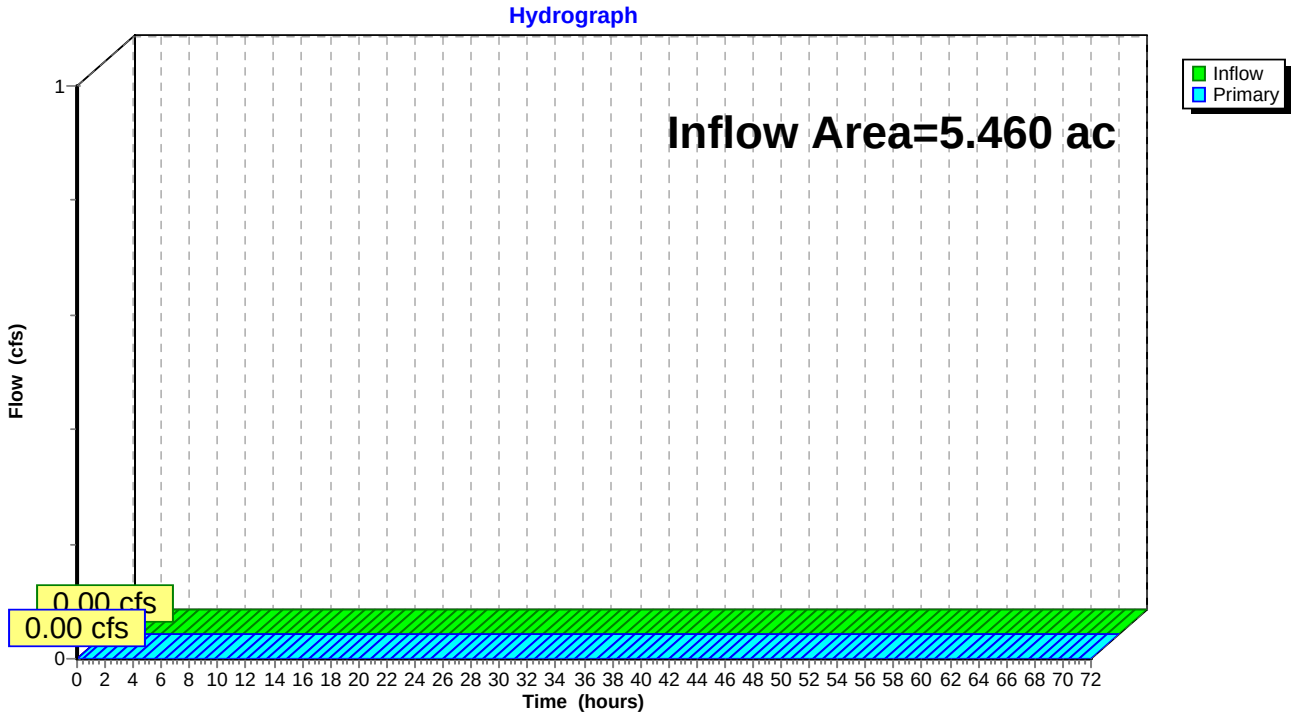


Summary for Link L-P2: PDA-2

Inflow Area = 5.460 ac, 2.75% Impervious, Inflow Depth = 0.00" for 100-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link L-P2: PDA-2



B. Design Calculations

- **Emergency Spillway Calculations**
- **Infiltration Rate and Basin Drain Time Calculations**
- **Recharge Calculations**
- **Storm Drain Sizing and Inlet Capacity Check**
- **Pipe Capacity Check for Underground Basin**
- **Scour Hole Design**
- **Township-Specific Requirements Evaluation**
- **Sediment Basin Design**
- **Low-Impact Development Checklist**

EMERGENCY SPILLWAY CALCULATIONS

BASIN #1 EMERGENCY SPILLWAY CHECK FOR 100-YEAR STORM EVENT

Summary for Pond 1P: Basin #1

Inflow Area = 10.370 ac, 81.00% Impervious, Inflow Depth = 7.54" for 100-Year event
Inflow = 52.12 cfs @ 12.16 hrs, Volume= 6.513 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 59.65' @ 25.10 hrs Surf.Area= 107,607 sf Storage= 283,716 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	56.90'	432,566 cf	**Basin #1 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.90	97,675	0	0
57.00	98,767	9,822	9,822
58.00	102,067	100,417	110,239
59.00	105,401	103,734	213,973
60.00	108,770	107,086	321,059
61.00	114,245	111,508	432,566

Device	Routing	Invert	Outlet Devices
#1	Primary	56.80'	**15.0" Round Culvert X 0.00** L= 12.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 56.80' / 56.68' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	58.50'	**2.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	60.00'	**36.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	60.30'	**100.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=56.90' TW=52.00' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=56.90' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

BASIN #1 EMERGENCY SPILLWAY CHECK FOR 10-YEAR STORM EVENT

Summary for Pond 1P: Basin #1

Inflow Area = 10.370 ac, 81.00% Impervious, Inflow Depth = 4.22" for 10-Year event
Inflow = 29.72 cfs @ 12.15 hrs, Volume= 3.648 af
Outflow = 22.77 cfs @ 12.34 hrs, Volume= 3.648 af, Atten= 23%, Lag= 11.4 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 22.77 cfs @ 12.34 hrs, Volume= 3.648 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 60.30' Surf.Area= 110,413 sf Storage= 353,936 cf
Peak Elev= 60.50' @ 12.34 hrs Surf.Area= 111,524 sf Storage= 376,454 cf (22,518 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 32.1 min (791.2 - 759.1)

Volume	Invert	Avail.Storage	Storage Description
#1	56.90'	432,566 cf	**Basin #1 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.90	97,675	0	0
57.00	98,767	9,822	9,822
58.00	102,067	100,417	110,239
59.00	105,401	103,734	213,973
60.00	108,770	107,086	321,059
61.00	114,245	111,508	432,566

Device	Routing	Invert	Outlet Devices
#1	Primary	56.80'	**15.0" Round Culvert X 0.00** L= 12.0' RCP, groove end w/headwall, Ke= 0.200 Inlet / Outlet Invert= 56.80' / 56.68' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	58.50'	**2.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	60.00'	**36.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	60.30'	**100.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=60.30' TW=54.60' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)
  ├─**2=Orifice/Grate** (Passes < 0.21 cfs potential flow)
  └─**3=Orifice/Grate** (Passes < 6.45 cfs potential flow)

Secondary OutFlow Max=22.77 cfs @ 12.34 hrs HW=60.50' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 22.77 cfs @ 1.12 fps)

BASIN #2 EMERGENCY SPILLWAY CHECK FOR 100-YEAR STORM EVENT

Summary for Pond 2P: Basin #2

Inflow Area = 17.090 ac, 68.75% Impervious, Inflow Depth = 2.09" for 100-Year event
Inflow = 23.21 cfs @ 12.16 hrs, Volume= 2.978 af
Outflow = 2.10 cfs @ 14.33 hrs, Volume= 0.864 af, Atten= 91%, Lag= 130.4 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 2.10 cfs @ 14.33 hrs, Volume= 0.864 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 54.68' @ 14.33 hrs Surf.Area= 39,690 sf Storage= 95,364 cf

Plug-Flow detention time= 498.2 min calculated for 0.864 af (29% of inflow)
Center-of-Mass det. time= 285.7 min (1,060.1 - 774.5)

Volume	Invert	Avail.Storage	Storage Description
#1	52.00'	149,696 cf	**Basin #2 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
52.00	32,110	0	0
53.00	34,558	33,334	33,334
54.00	37,053	35,806	69,140
55.00	40,912	38,983	108,122
56.00	42,236	41,574	149,696

Device	Routing	Invert	Outlet Devices
#1	Primary	51.00'	**15.0" Round Culvert X 0.00** L= 17.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 51.00' / 50.66' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	52.40'	**7.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	54.20'	**36.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	54.60'	**35.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=52.00' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=2.10 cfs @ 14.33 hrs HW=54.68' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 2.10 cfs @ 0.72 fps)

BASIN #2 EMERGENCY SPILLWAY CHECK FOR 10-YEAR STORM EVENT

Summary for Pond 2P: Basin #2

Inflow Area = 17.090 ac, 68.75% Impervious, Inflow Depth = 1.07" for 10-Year event
Inflow = 11.86 cfs @ 12.16 hrs, Volume= 1.522 af
Outflow = 9.18 cfs @ 12.35 hrs, Volume= 1.522 af, Atten= 23%, Lag= 11.4 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 9.18 cfs @ 12.35 hrs, Volume= 1.522 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Starting Elev= 54.60' Surf.Area= 39,368 sf Storage= 92,066 cf
Peak Elev= 54.82' @ 12.35 hrs Surf.Area= 40,227 sf Storage= 100,921 cf (8,855 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 31.2 min (800.5 - 769.3)

Volume	Invert	Avail.Storage	Storage Description
#1	52.00'	149,696 cf	**Basin #2 (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
52.00	32,110	0	0
53.00	34,558	33,334	33,334
54.00	37,053	35,806	69,140
55.00	40,912	38,983	108,122
56.00	42,236	41,574	149,696

Device	Routing	Invert	Outlet Devices
#1	Primary	51.00'	**15.0" Round Culvert X 0.00** L= 17.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 51.00' / 50.66' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	52.40'	**7.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	54.20'	**36.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	54.60'	**35.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=54.60' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)
  ├─**2=Orifice/Grate** (Passes < 1.78 cfs potential flow)
  └─**3=Orifice/Grate** (Passes < 9.93 cfs potential flow)

Secondary OutFlow Max=9.17 cfs @ 12.35 hrs HW=54.82' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 9.17 cfs @ 1.18 fps)

INFILTRATION RATE AND BASIN DRAIN TIME CALCULATIONS

Infiltration Rate and Basin Drain Time Calculation

Per Darcy's Law Q= K*I*A

K= the hydraulic conductivity of soil in feet per second (fps)
K = tested permeability rate in (inch/hour) / (factor of safety * 12 * 3600)
I = the hydraulic gradient (minimum = 1)
A = The area of infiltration in square feet (sf)
Factor of Safety used = 3

For Basin #1

The minimum tested permeability rate is 4.7 inch/hour

K = 3.63E-05 ft/s
$I_{(min)}$= 1
A = 97,675 sf

Q = 3.54 cfs

The total basin storage up to to elevation of 60.30' is 353,936 cf
It would take about 353,936/(3.54 x 3600) = 27.8 hours to drain the entire basin volume via infiltration only.
(This approach is conservative as any discharge from outlet structure is ignored.)

For Basin #2

the minimum tested permeability rate is 11.8 inch/hour

K = 9.10E-05 ft/s
$I_{(min)}$= 1
A = 32,110 sf

Q = 2.92 cfs

The total basin storage upto to elevation of 54.60' is 92,066 cf
It would take about 92,066/(2.92 x 3600) = 8.7 hours to drain the entire basin volume via infiltration only.
(This approach is conservative as any discharge from outlet structure is ignored.)

RECHARGE CALCULATIONS

Toms River is not listed in the table, Manchester Twp. is used.

New Jersey Groundwater Recharge Spreadsheet
Version 2.0
November 2003

Annual Groundwater Recharge Analysis (based on GSR-32)

Select Township ↓	Average Annual P (in)	Climatic Factor
OCEAN CO., MANCHESTER TWP	47.8	1.53

Project Name:	Grunin
Description:	Toms River, NJ
Analysis Date:	06/13/19

Pre-Developed Conditions

Land Segment	Area (acres)	TR-55 Land Cover	Soil	Annual Recharge (in)	Annual Recharge (cu.ft)
1	1.86	Impervious areas	Lakewood	0.0	-
2	1.07	Open space	Lakewood	17.2	66,659
3	20.45	Woods	Lakewood	16.7	1,241,065
4	0				
5	0				
6	0				
7	0				
8	0				
9	0				
10	0				
11	0				
12	0				
13	0				
14	0				
15	0				
Total =	23.4			Total Annual Recharge (in)	Total Annual Recharge (cu-ft)
				15.4	1,307,724

Post-Developed Conditions

Land Segment	Area (acres)	TR-55 Land Cover	Soil	Annual Recharge (in)	Annual Recharge (cu.ft)
1	8.92	Impervious areas	Lakewood	0.0	-
2	10.27	Open space	Lakewood	17.2	639,797
3	4.19	Woods	Lakewood	16.7	254,282
4	0				
5	0				
6	0				
7	0				
8	0				
9	0				
10	0				
11	0				
12	0				
13	0				
14	0				
15	0				
Total =	23.4			Total Annual Recharge (in)	Total Annual Recharge (cu.ft)
				10.5	894,079

Annual Recharge Requirements Calculation ↓

% of Pre-Developed Annual Recharge to Preserve =	100%	Total Impervious Area (sq.ft) 388,555
Post-Development Annual Recharge Deficit=	***413,645***	(cubic feet)

Recharge Efficiency Parameters Calculations (area averages)

RWC=	2.66	(in)	DRWC=	0.87	(in)
ERWC =	0.62	(in)	EDRWC=	0.20	(in)

Procedure to fill the Pre-Development and Post-Development Conditions Tables

For each land segment, first enter the area, then select TR-55 Land Cover, then select Soil. Start from the top of the table and proceed downward. Don't leave blank rows (with A=0) in between your segment entries. Rows with A=0 will not be displayed or used in calculations. For impervious areas outside of standard lots select "Impervious Areas" as the Land Cover. Soil type for impervious areas are only required if an infiltration facility will be built within these areas.

Areas within EDA-1 and EDA-2 were calculated under the existing condition, similarly areas within PDA-1 and PDA-2 were calculated under the proposed condition.

This is the annual recharge deficit for the proposed development.

Project Name	Description	Analysis Date	BMP or LID Type
Grunin	Toms River, NJ	06/13/19	

Recharge BMP Input Parameters

Parameter	Symbol	Value	Unit
BMP Area	ABMP	97675.0	sq.ft
BMP Effective Depth, this is the design variable	dBMP	0.9	in
Upper level of the BMP surface (negative if above ground)	dBMPu	12.0	in
Depth of lower surface of BMP, must be>=dBMPu	dEXC	48.0	in
Post-development Land Segment Location of BMP , Input Zero if Location is distributed or undetermined	SegBMP	2	unitless

Root Zone Water capacity Calculated Parameters

Parameter	Symbol	Value	Unit
Empty Portion of RWC under Post-D Natural Recharge	ERWC	0.48	in
ERWC Modified to consider dEXC	EDRWC	0.00	in
Empty Portion of RWC under Infilt. BMP	RERWC	0.00	in

Recharge Design Parameters

Parameter	Symbol	Value	Unit
Inches of Runoff to capture	Qdesign	0.32	in
Inches of Rainfall to capture	Pdesign	0.42	in
Recharge Provided Avg. over Imp. Area		18.5	in
Runoff Captured Avg. over imp. Area		18.5	in

BMP Calculated Size Parameters

ABMP/Aimp	Aratio	0.36	unitless
BMP Volume	VBMP	7,180	cu.ft

CALCULATION CHECK MESSAGES

Volume Balance-> OK
dBMP Check---> OK
dEXC Check---> OK
BMP Location---> OK

Parameters from Annual Recharge Worksheet

Post-D Deficit Recharge (or desired recharge volume)	Vdef	413,645	cu.ft
Post-D Impervious Area (or target Impervious Area)	Aimp	268,330	sq.ft
Root Zone Water Capacity	RWC	2.05	in
RWC Modified to consider dEXC	DRWC	0.00	in
Climatic Factor	C-factor	1.53	no units
Average Annual P	Pavg	47.8	in
Recharge Requirement over Imp. Area	dr	12.8	in

System Performance Calculated Parameters

Annual BMP Recharge Volume		413,645	cu.ft
Avg BMP Recharge Efficiency		100.0%	Represents % Infiltration Recharged
%Rainfall became Runoff		78.3%	%
%Runoff Infiltrated		49.4%	%
%Runoff Recharged		34.1%	%
%Rainfall Recharged		26.7%	%

OTHER NOTES

Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensetive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses.

How to solve for different recharge volumes: By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP.
To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration clik the "Default Vdef & Aimp" button.

The proposed Basin #1 is sufficient to satisfy the groundwater recharge requirement for the entire site, the calculated required depth is only 0.9 inch, while proposed Basin #1 has a recharge depth about 58.50-56.90 = 1.6' or 19.2 inches. OK

STORM DRAIN SIZING CALCULATIONS

BOHLER ENGINEERING

Stormwater Collection System Calculations

Project: Grunin Properties - Proposed Retail Development
Job #: JM170508
Location: Toms River/Manchester
Design Storm: 25 year

Computed By: AJH
Checked By: JZ
Date: 6/13/2019

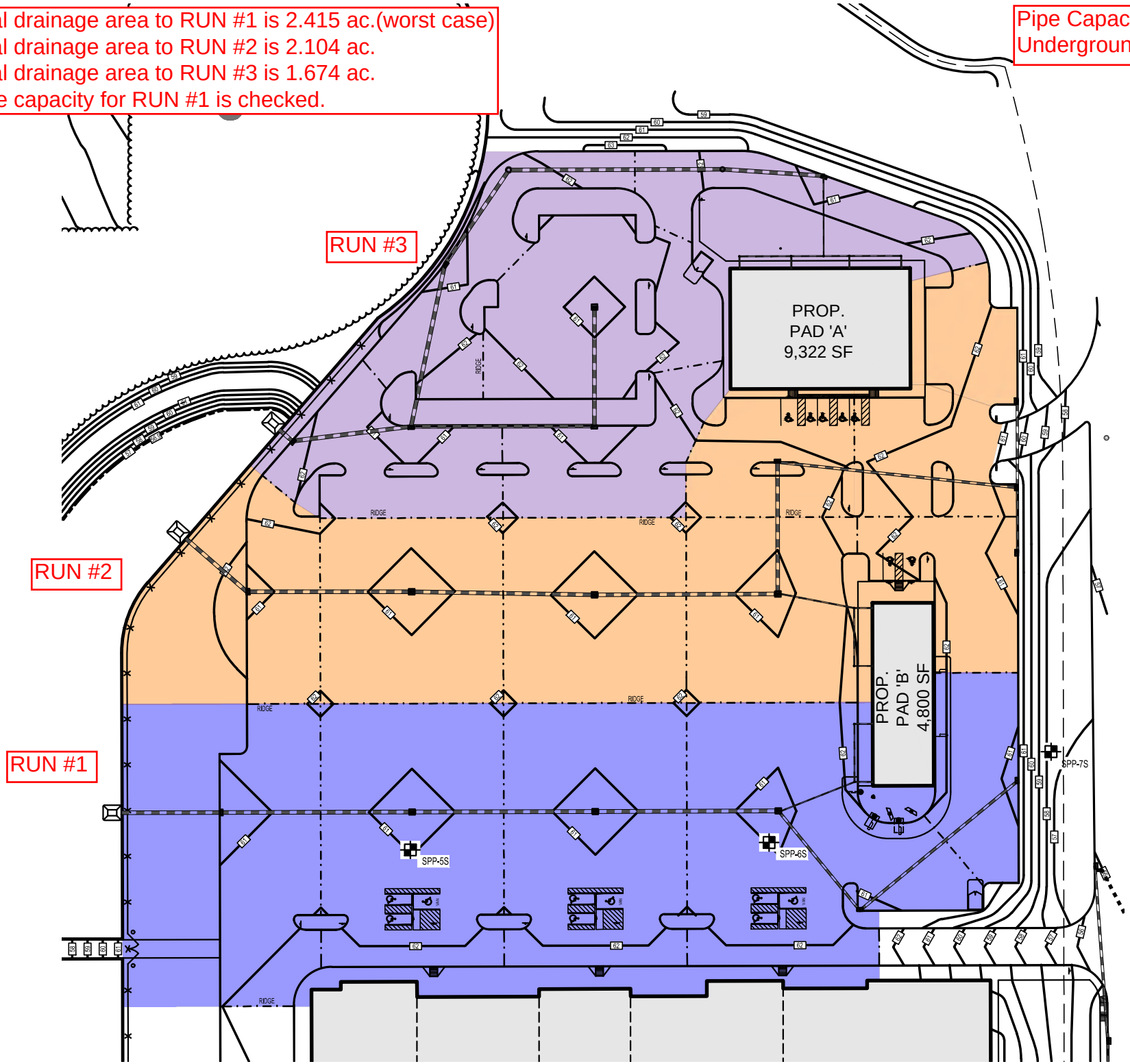
NOTES:
1) Design method used is Rational Method
2) "B1" denotes existing structure.
2) Refer to Weighted Runoff Coefficient table for calculation of incremental areas and C values

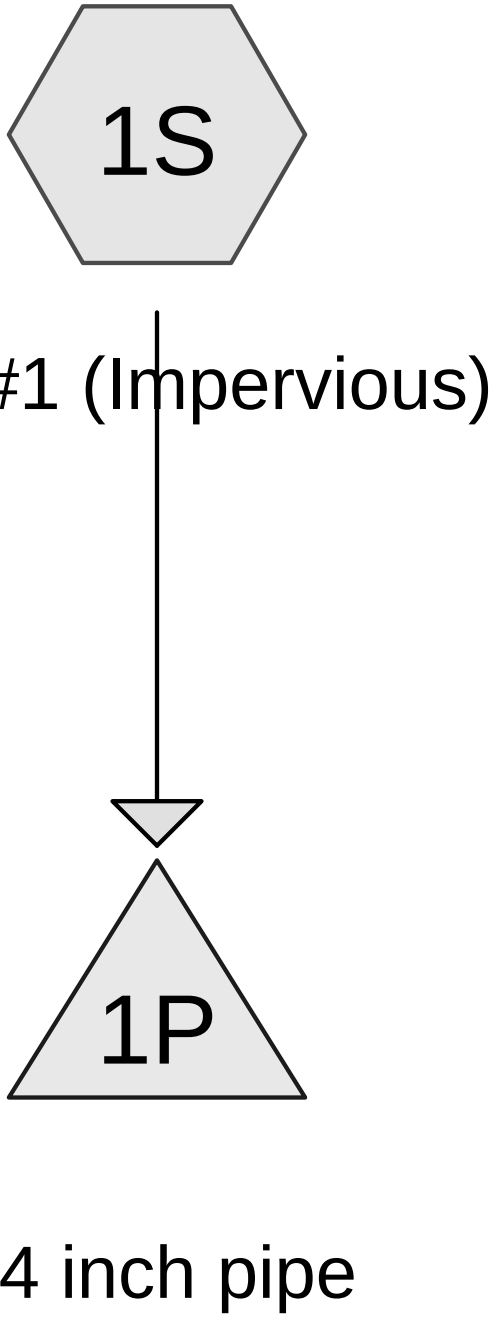
PIPE SECTION		SUBCATCHMENT AREA	INCREMENTAL		CUMULATIVE	TIME OF CONCENTRATION			I	PEAK RUNOFF		PIPING INPUT			PIPING DATA		
FROM	TO	Area (Acres)	"C"	A x C Ac	A x C (acres)	Tc to Inlet (min)	Tc in Pipe (min.)	Final Tc (min)	(In/Hr)	Q to Inlet (CFS)	Q cum. for Pipe (CFS)	Dia. (In)	Length (Ft)	Man. "n"	Slope (%)	Pipe Capacity (cfs)	Pipe Velocity (fps)
Drainage System																	
B1	B2	0.00 Ac.	0.99	0.00	0.00	10.00	0.24	10.00	6.60	0.00	0.00	15	65	0.013	0.75	5.59	4.56
B2	B3	0.52 Ac.	0.66	0.34	0.34	10.00	0.45	10.24	6.60	2.24	2.24	15	123	0.013	0.75	5.59	4.56
B3	B4	0.00 Ac.	0.99	0.00	0.34	10.00	0.42	10.69	6.50	0.00	2.21	15	114	0.013	0.75	5.59	4.56
B4	B5	0.34 Ac.	0.86	0.29	0.63	10.00	0.63	11.11	6.40	1.86	4.03	15	171	0.013	0.75	5.59	4.56
B-RD	B5	1.00 Ac.	0.99	1.17	1.17	10.00	0.10	10.00	6.60	7.72	7.72	18	57	0.013	1.00	10.50	5.94
B5	B6	0.29 Ac.	0.94	0.27	2.07	10.00	0.09	11.74	6.30	1.70	13.04	18	48	0.013	2.15	15.40	8.72
B7	B8	0.61 Ac.	0.60	0.37	0.37	10.00	0.58	10.00	6.60	2.44	2.44	15	115	0.013	0.40	4.08	3.33
B8	B9	0.24 Ac.	0.77	0.18	0.55	10.00	0.53	10.58	6.50	1.17	3.58	15	105	0.013	0.40	4.08	3.33
B9	B10	0.36 Ac.	0.57	0.21	0.76	10.00	0.18	11.11	6.40	1.34	4.86	18	41	0.013	0.40	6.64	3.76
B10	B11	0.10 Ac.	0.99	0.10	0.86	10.00	0.46	11.29	6.40	0.64	5.50	18	103	0.013	0.40	6.64	3.76
B11	B12	0.11 Ac.	0.99	0.11	0.97	10.00	0.18	11.75	6.30	0.69	6.11	18	41	0.013	0.40	6.64	3.76

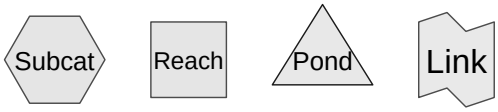
PIPE CAPACITY CHECK FOR UNDERGROUND BASIN

The total drainage area to RUN #1 is 2.415 ac.(worst case)
The total drainage area to RUN #2 is 2.104 ac.
The total drainage area to RUN #3 is 1.674 ac.
The pipe capacity for RUN #1 is checked.

Pipe Capacity Check for Underground Basin







Routing Diagram for Inlet Capacity RUN#1
Prepared by Bohler Engineering NJ, LLC, Printed 6/18/2019
HydroCAD® 10.00-23 s/n 02612 © 2018 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: Run #1 (Impervious)

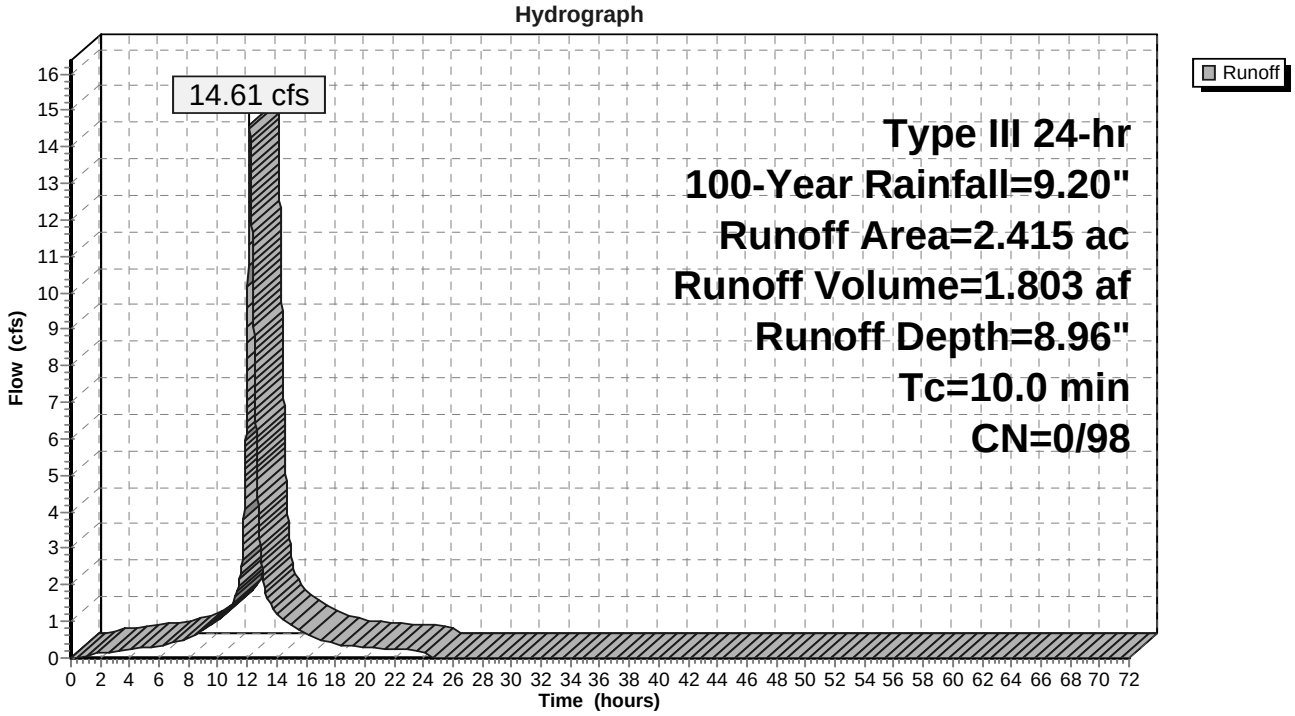
Runoff = 14.61 cfs @ 12.15 hrs, Volume= 1.803 af, Depth= 8.96"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=9.20"

Area (ac)	CN	Description
2.415	98	Paved parking, HSG A
2.415	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: Run #1 (Impervious)



Summary for Pond 1P: 24 inch pipe

Inflow Area = 2.415 ac,100.00% Impervious, Inflow Depth = 8.96" for 100-Year event
Inflow = 14.61 cfs @ 12.15 hrs, Volume= 1.803 af
Outflow = 14.61 cfs @ 12.16 hrs, Volume= 1.768 af, Atten= 0%, Lag= 0.1 min
Primary = 14.61 cfs @ 12.16 hrs, Volume= 1.768 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 59.96' @ 12.16 hrs Surf.Area= 70 sf Storage= 1,592 cf

Plug-Flow detention time= 24.9 min calculated for 1.768 af (98% of inflow)
Center-of-Mass det. time= 12.0 min (761.3 - 749.4)

WATER ELEVATION IS BELOW GRATE ELEVATION

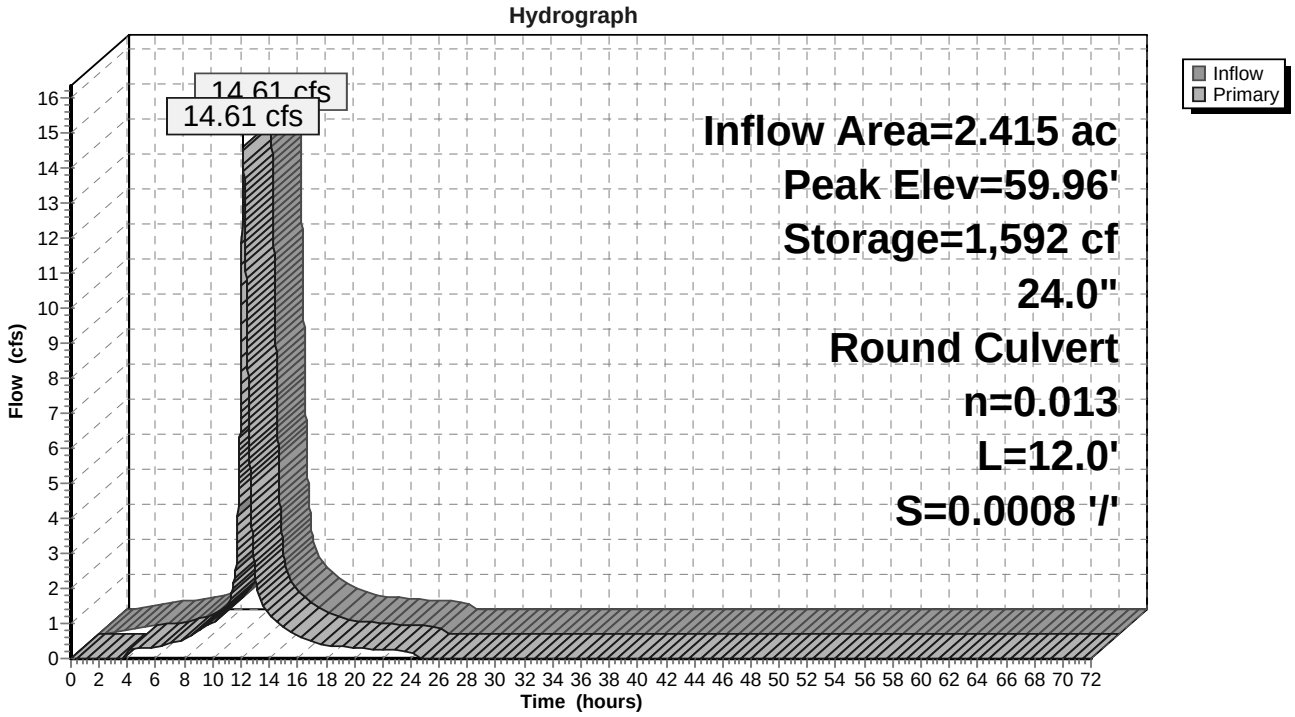
Volume	Invert	Avail.Storage	Storage Description
#1	56.91'	1,385 cf	**24.0" Round Pipe Storage** L= 441.0' S= 0.0010 '/'
#2	57.00'	245 cf	**4.00'W x 3.50'L x 3.50'H Prismatoid** x 5
		1,630 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	56.91'	**24.0" Round Culvert** L= 12.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 56.91' / 56.90' S= 0.0008 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=14.61 cfs @ 12.16 hrs HW=59.96' TW=59.36' (Fixed TW Elev= 59.36')
└─**1=Culvert** (Inlet Controls 14.61 cfs @ 4.65 fps)

50-YEAR WATER ELEVATION IN BASIN #1 IS USED FOR TAIL WATER

Pond 1P: 24 inch pipe



SCOUR HOLE DESIGN

BOHLER ENGINEERING

Date: 6/13/2019
Project: Grunin
Project No: JM170508

35 Technology Drive, Warren, NJ 07059
(908) 668-8300

Calculated By: AJH
Checked By: JZ

Conduit Outlet Protection Calculations

Scour Hole # 1

Design Parameters:

Design Storm Flow for 25 Year, Q	10.94	cfs
Vertical Dimension of Outlet Pipe, D_o	24	in
Horizontal Dimension of Outlet Pipe, W_o	24	in
Tailwater Depth, TW[1]	0.40	ft
Scour Hole Depth, y (1/2 D_o or D_o)	12	in

Apron Dimension Calculations:

Minimum Bottom Width, $W_1 = 2W_o$	W_1 = 4.00 ft
Minimum Bottom Length, $L_1 = 3D_o$	L_1 = 6.00 ft
Minimum Top Width *(max side slope of 3:1)*, W_2	W_2 = 10.00 ft
Minimum Top Length *(max side slope of 3:1)*, L_2	L_2 = 12.00 ft

Rip Rap Stone Size Calculations:

Unit Dicharge, $q = Q/D_o$ = 5.47 cfs per foot

- **Case I: $y = 1/2\ D_o$**

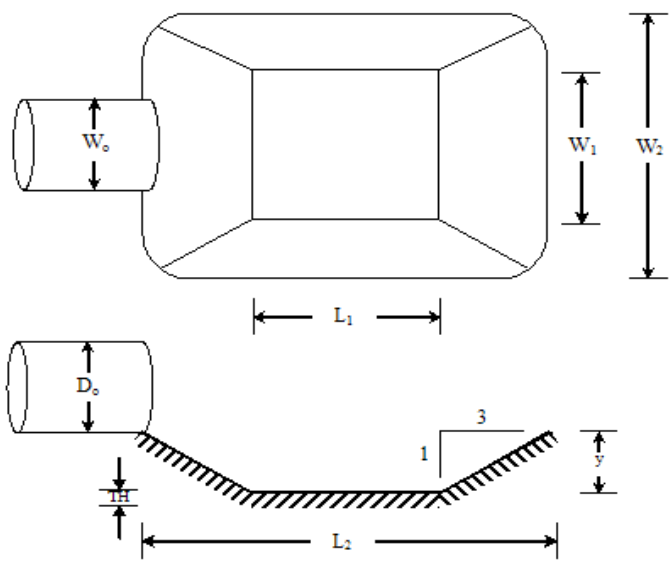
  Median Stone, $d_{50} = \dfrac{0.0125\ q^{1.33}}{TW}$ = 3.59 in Therefore, use **$d50$ = 6 in**

  Apron Thickness, $TH = 2 \times d_{50}$ with filter fabric . . . . . **TH = 12 in**

- **Case II: $y = D_o$**

  Median Stone, $d_{50} = \dfrac{0.0082\ q^{1.33}}{TW}$ =

  Apron Thickness, $TH = 2 \times d_{50}$ with filter fabric . . . . . .



Notes:

1. The side slopes shall be 3:1 or flatter.
2. The bottom grade shall be 0.0% (level).
3. There shall be no overfall at the end of the apron or at the end of the culvert.
4. Fifty (50) percent by weight of the rip-rap mixture shall be smaller than the median size stone designated as d_{50}. The largest stone size in the mixture shall be 1.5 times the d_{50} size. The rip-rap shall be reasonably well graded.
5. The thickness of the rip-rap apron may be two (2) times the median stone diameter provided that the apron is constructed on a bedding of four (4) inches of 3/4 inch clean stone on approved filter fabric material.
6. Rip-rap and filter fabric shall meet the standards of the governing Soil Conservation District as well as the requirements of the local municipality.
7. Where the scour hole is to be placed within an existing or proposed waterway:
   a. The scour hole sidewalls should be eliminated to maintain a smooth hydraulic line along the waterway bottom to avoid inviting turbulent flow from a sudden depression in the waterway.
   b. If the flow in the waterway is greater than the flow from the proposed outlet, the rip-rap used to construct the scour hole should be sized based on the greater flow value according to the standard rip-rap.

Footnote:

1. Tailwater depth shall be the 2 year storm if discharging into a detention basin. For areas where tailwater cannot be computed, use $TW = 0.2D_o$.

BOHLER ENGINEERING

35 Technology Drive, Warren, NJ 07059
(908) 668-8300

Date: 6/13/2019
Project: Grunin
Project No: JM170508

Calculated By: AJH
Checked By: JZ

Conduit Outlet Protection Calculations

Scour Hole # 2

Design Parameters:

Design Storm Flow for 25 Year, Q	12.96	cfs
Vertical Dimension of Outlet Pipe, D_o	24	in
Horizontal Dimension of Outlet Pipe, W_o	24	in
Tailwater Depth, TW[1]	0.40	ft
Scour Hole Depth, y (1/2 D_o or D_o)	12	in

Apron Dimension Calculations:

Minimum Bottom Width, $W_1 = 2W_o$	W_1 = 4.00 ft
Minimum Bottom Length, $L_1 = 3D_o$	L_1 = 6.00 ft
Minimum Top Width *(max side slope of 3:1)*, W_2	W_2 = 10.00 ft
Minimum Top Length *(max side slope of 3:1)*, L_2	L_2 = 12.00 ft

Rip Rap Stone Size Calculations:

Unit Dicharge, $q = Q/D_o$ = 6.48 cfs per foot

- **Case I: $y = 1/2\ D_o$**

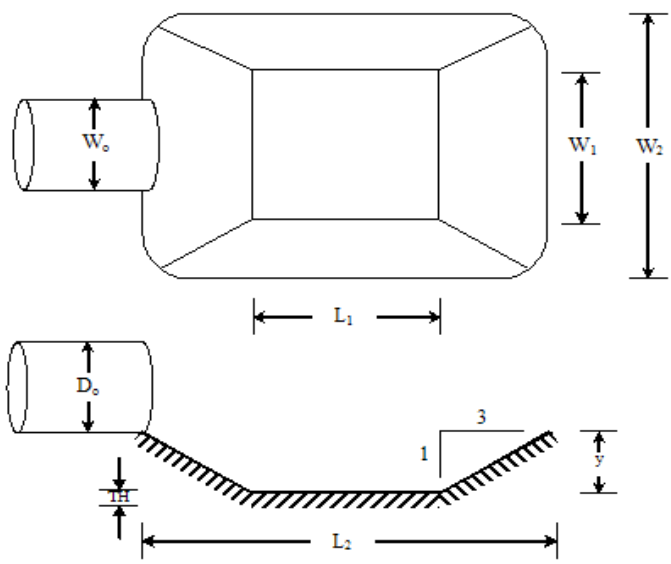
  Median Stone, $d_{50} = \dfrac{0.0125\ q^{1.33}}{TW}$ = 4.50 in Therefore, use **$d50$ = 6 in**

  Apron Thickness, $TH = 2 \times d_{50}$ with filter fabric . . . . . **TH = 12 in**

- **Case II: $y = D_o$**

  Median Stone, $d_{50} = \dfrac{0.0082\ q^{1.33}}{TW}$ =

  Apron Thickness, $TH = 2 \times d_{50}$ with filter fabric . . . . . .



Notes:

1. The side slopes shall be 3:1 or flatter.
2. The bottom grade shall be 0.0% (level).
3. There shall be no overfall at the end of the apron or at the end of the culvert.
4. Fifty (50) percent by weight of the rip-rap mixture shall be smaller than the median size stone designated as d_{50}. The largest stone size in the mixture shall be 1.5 times the d_{50} size. The rip-rap shall be reasonably well graded.
5. The thickness of the rip-rap apron may be two (2) times the median stone diameter provided that the apron is constructed on a bedding of four (4) inches of 3/4 inch clean stone on approved filter fabric material.
6. Rip-rap and filter fabric shall meet the standards of the governing Soil Conservation District as well as the requirements of the local municipality.
7. Where the scour hole is to be placed within an existing or proposed waterway:
   a. The scour hole sidewalls should be eliminated to maintain a smooth hydraulic line along the waterway bottom to avoid inviting turbulent flow from a sudden depression in the waterway.
   b. If the flow in the waterway is greater than the flow from the proposed outlet, the rip-rap used to construct the scour hole should be sized based on the greater flow value according to the standard rip-rap.

Footnote:

1. Tailwater depth shall be the 2 year storm if discharging into a detention basin. For areas where tailwater cannot be computed, use $TW = 0.2D_o$.

BOHLER ENGINEERING

35 Technology Drive, Warren, NJ 07059
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Date: 6/13/2019
Project: Grunin
Project No: JM170508

Calculated By: AJH
Checked By: JZ

Conduit Outlet Protection Calculations

Scour Hole # 3

Design Parameters:

Design Storm Flow for 25 Year, Q	14.85	cfs
Vertical Dimension of Outlet Pipe, D_o	24	in
Horizontal Dimension of Outlet Pipe, W_o	24	in
Tailwater Depth, TW[1]	0.40	ft
Scour Hole Depth, y (1/2 D_o or D_o)	12	in

Apron Dimension Calculations:

Minimum Bottom Width, $W_1 = 2W_o$	W_1 = 4.00 ft
Minimum Bottom Length, $L_1 = 3D_o$	L_1 = 6.00 ft
Minimum Top Width *(max side slope of 3:1)*, W_2	W_2 = 10.00 ft
Minimum Top Length *(max side slope of 3:1)*, L_2	L_2 = 12.00 ft

Rip Rap Stone Size Calculations:

Unit Dicharge, $q = Q/D_o$ = 7.43 cfs per foot

- **Case I: $y = 1/2\ D_o$**

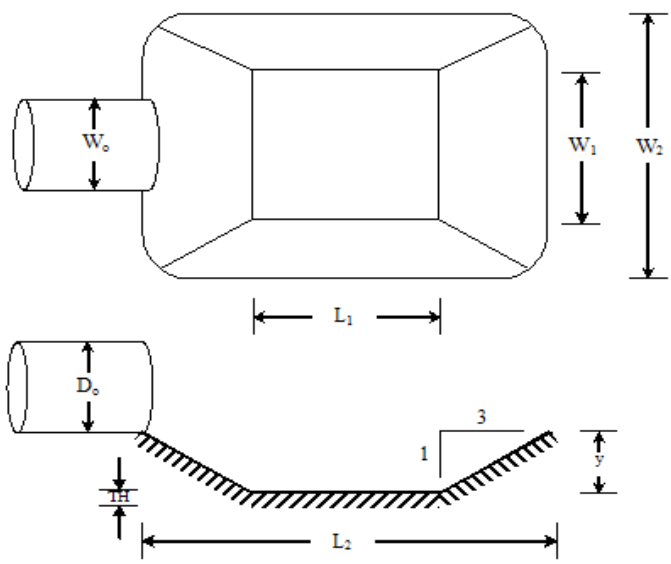
  Median Stone, $d_{50} = \dfrac{0.0125\ q^{1.33}}{TW}$ = 5.40 in Therefore, use **d50 = 6 in**

  Apron Thickness, $TH = 2 \times d_{50}$ with filter fabric . . . . . **TH = 12 in**

- **Case II: $y = D_o$**

  Median Stone, $d_{50} = \dfrac{0.0082\ q^{1.33}}{TW}$ =

  Apron Thickness, $TH = 2 \times d_{50}$ with filter fabric . . . . . .



Notes:

1. The side slopes shall be 3:1 or flatter.
2. The bottom grade shall be 0.0% (level).
3. There shall be no overfall at the end of the apron or at the end of the culvert.
4. Fifty (50) percent by weight of the rip-rap mixture shall be smaller than the median size stone designated as d_{50}. The largest stone size in the mixture shall be 1.5 times the d_{50} size. The rip-rap shall be reasonably well graded.
5. The thickness of the rip-rap apron may be two (2) times the median stone diameter provided that the apron is constructed on a bedding of four (4) inches of 3/4 inch clean stone on approved filter fabric material.
6. Rip-rap and filter fabric shall meet the standards of the governing Soil Conservation District as well as the requirements of the local municipality.
7. Where the scour hole is to be placed within an existing or proposed waterway:
   a. The scour hole sidewalls should be eliminated to maintain a smooth hydraulic line along the waterway bottom to avoid inviting turbulent flow from a sudden depression in the waterway.
   b. If the flow in the waterway is greater than the flow from the proposed outlet, the rip-rap used to construct the scour hole should be sized based on the greater flow value according to the standard rip-rap.

Footnote:

1. Tailwater depth shall be the 2 year storm if discharging into a detention basin. For areas where tailwater cannot be computed, use $TW = 0.2D_o$.

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Calculated By: AJH
Checked By: JZ

Conduit Outlet Protection Calculations

Scour Hole # 4

Design Parameters:

Design Storm Flow for 25 Year, Q	5.62	cfs
Vertical Dimension of Outlet Pipe, D_o	18	in
Horizontal Dimension of Outlet Pipe, W_o	18	in
Tailwater Depth, TW[1]	0.30	ft
Scour Hole Depth, y (1/2 D_o or D_o)	9	in

Apron Dimension Calculations:

Minimum Bottom Width, $W_1 = 2W_o$	W_1 =	3.00 ft
Minimum Bottom Length, $L_1 = 3D_o$	L_1 =	4.50 ft
Minimum Top Width *(max side slope of 3:1)*, W_2	W_2 =	7.50 ft
Minimum Top Length *(max side slope of 3:1)*, L_2	L_2 =	9.00 ft

Rip Rap Stone Size Calculations:

Unit Dicharge, $q = Q/D_o$ = 3.75 cfs per foot

- **Case I: $y = 1/2\ D_o$**

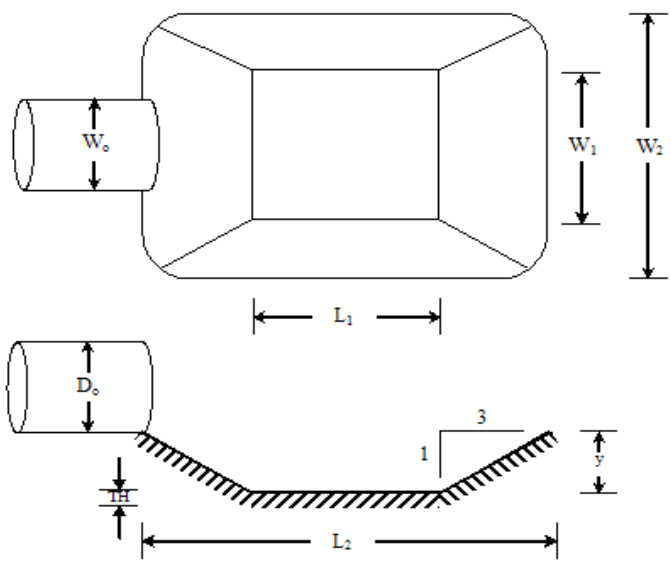
  Median Stone, $d_{50} = \dfrac{0.0125\ q^{1.33}}{TW}$ = 2.90 in Therefore, use **d50 = 6 in**

  Apron Thickness, $TH = 2 \times d_{50}$ with filter fabric . . . . . **TH = 12 in**

- **Case II: $y = D_o$**

  Median Stone, $d_{50} = \dfrac{0.0082\ q^{1.33}}{TW}$ =

  Apron Thickness, $TH = 2 \times d_{50}$ with filter fabric . . . . . .



Notes:

1. The side slopes shall be 3:1 or flatter.
2. The bottom grade shall be 0.0% (level).
3. There shall be no overfall at the end of the apron or at the end of the culvert.
4. Fifty (50) percent by weight of the rip-rap mixture shall be smaller than the median size stone designated as d_{50}. The largest stone size in the mixture shall be 1.5 times the d_{50} size. The rip-rap shall be reasonably well graded.
5. The thickness of the rip-rap apron may be two (2) times the median stone diameter provided that the apron is constructed on a bedding of four (4) inches of 3/4 inch clean stone on approved filter fabric material.
6. Rip-rap and filter fabric shall meet the standards of the governing Soil Conservation District as well as the requirements of the local municipality.
7. Where the scour hole is to be placed within an existing or proposed waterway:
   a. The scour hole sidewalls should be eliminated to maintain a smooth hydraulic line along the waterway bottom to avoid inviting turbulent flow from a sudden depression in the waterway.
   b. If the flow in the waterway is greater than the flow from the proposed outlet, the rip-rap used to construct the scour hole should be sized based on the greater flow value according to the standard rip-rap.

Footnote:

1. Tailwater depth shall be the 2 year storm if discharging into a detention basin. For areas where tailwater cannot be computed, use $TW = 0.2D_o$.

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Project: Grunin
Project No: JM170508

Calculated By: AJH
Checked By: JZ

Conduit Outlet Protection Calculations

Scour Hole # 5

Design Parameters:

Design Storm Flow for 25 Year, Q	12.97	cfs
Vertical Dimension of Outlet Pipe, D_o	18	in
Horizontal Dimension of Outlet Pipe, W_o	18	in
Tailwater Depth, TW[1]	0.30	ft
Scour Hole Depth, y (1/2 D_o or D_o)	9	in

Apron Dimension Calculations:

Minimum Bottom Width, $W_1 = 2W_o$	W_1 =	3.00 ft
Minimum Bottom Length, $L_1 = 3D_o$	L_1 =	4.50 ft
Minimum Top Width *(max side slope of 3:1)*, W_2	W_2 =	7.50 ft
Minimum Top Length *(max side slope of 3:1)*, L_2	L_2 =	9.00 ft

Rip Rap Stone Size Calculations:

Unit Dicharge, $q = Q/D_o$ = 8.65 cfs per foot

- **Case I: $y = 1/2\ D_o$**

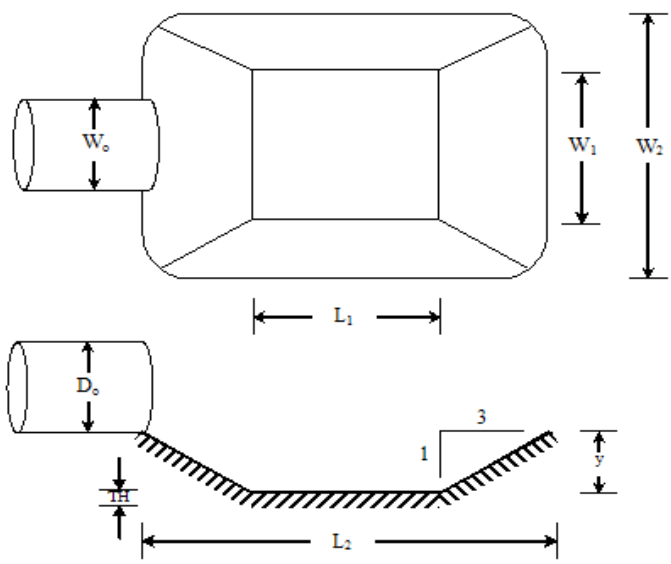
  Median Stone, $d_{50} = \dfrac{0.0125\ q^{1.33}}{TW}$ = 8.81 in Therefore, use **$d50$ = 9 in**

  Apron Thickness, $TH = 2 \times d_{50}$ with filter fabric . . . . . **TH = 18 in**

- **Case II: $y = D_o$**

  Median Stone, $d_{50} = \dfrac{0.0082\ q^{1.33}}{TW}$ =

  Apron Thickness, $TH = 2 \times d_{50}$ with filter fabric . . . . . .



Notes:

1. The side slopes shall be 3:1 or flatter.
2. The bottom grade shall be 0.0% (level).
3. There shall be no overfall at the end of the apron or at the end of the culvert.
4. Fifty (50) percent by weight of the rip-rap mixture shall be smaller than the median size stone designated as d_{50}. The largest stone size in the mixture shall be 1.5 times the d_{50} size. The rip-rap shall be reasonably well graded.
5. The thickness of the rip-rap apron may be two (2) times the median stone diameter provided that the apron is constructed on a bedding of four (4) inches of 3/4 inch clean stone on approved filter fabric material.
6. Rip-rap and filter fabric shall meet the standards of the governing Soil Conservation District as well as the requirements of the local municipality.
7. Where the scour hole is to be placed within an existing or proposed waterway:
   a. The scour hole sidewalls should be eliminated to maintain a smooth hydraulic line along the waterway bottom to avoid inviting turbulent flow from a sudden depression in the waterway.
   b. If the flow in the waterway is greater than the flow from the proposed outlet, the rip-rap used to construct the scour hole should be sized based on the greater flow value according to the standard rip-rap.

Footnote:

1. Tailwater depth shall be the 2 year storm if discharging into a detention basin. For areas where tailwater cannot be computed, use $TW = 0.2D_o$.

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Date: 6/13/2019
Project: Grunin
Project No: JM170508

Calculated By: AJH
Checked By: JZ

Conduit Outlet Protection Calculations

Scour Hole # 6

Design Parameters:

Design Storm Flow for 25 Year, Q	5.93	cfs
Vertical Dimension of Outlet Pipe, D_o	18	in
Horizontal Dimension of Outlet Pipe, W_o	18	in
Tailwater Depth, TW[1]	0.30	ft
Scour Hole Depth, y (1/2 D_o or D_o)	9	in

Apron Dimension Calculations:

Minimum Bottom Width, $W_1 = 2W_o$	W_1 =	3.00 ft
Minimum Bottom Length, $L_1 = 3D_o$	L_1 =	4.50 ft
Minimum Top Width *(max side slope of 3:1)*, W_2	W_2 =	7.50 ft
Minimum Top Length *(max side slope of 3:1)*, L_2	L_2 =	9.00 ft

Rip Rap Stone Size Calculations:

Unit Dicharge, $q = Q/D_o$ = 3.95 cfs per foot

- **Case I: $y = 1/2\ D_o$**

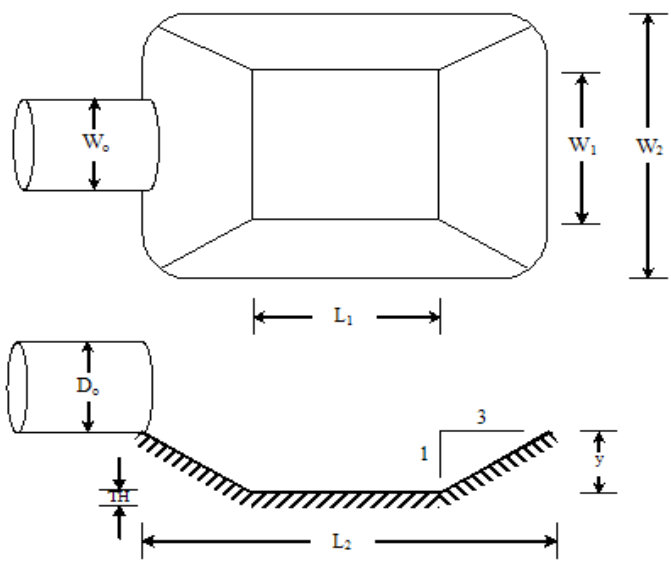
  Median Stone, $d_{50} = \dfrac{0.0125\ q^{1.33}}{TW}$ = 3.11 in Therefore, use **d50 = 6 in**

  Apron Thickness, $TH = 2 \times d_{50}$ with filter fabric . . . . . **TH = 12 in**

- **Case II: $y = D_o$**

  Median Stone, $d_{50} = \dfrac{0.0082\ q^{1.33}}{TW}$ =

  Apron Thickness, $TH = 2 \times d_{50}$ with filter fabric . . . . . .



Notes:

1. The side slopes shall be 3:1 or flatter.
2. The bottom grade shall be 0.0% (level).
3. There shall be no overfall at the end of the apron or at the end of the culvert.
4. Fifty (50) percent by weight of the rip-rap mixture shall be smaller than the median size stone designated as d_{50}. The largest stone size in the mixture shall be 1.5 times the d_{50} size. The rip-rap shall be reasonably well graded.
5. The thickness of the rip-rap apron may be two (2) times the median stone diameter provided that the apron is constructed on a bedding of four (4) inches of 3/4 inch clean stone on approved filter fabric material.
6. Rip-rap and filter fabric shall meet the standards of the governing Soil Conservation District as well as the requirements of the local municipality.
7. Where the scour hole is to be placed within an existing or proposed waterway:
   a. The scour hole sidewalls should be eliminated to maintain a smooth hydraulic line along the waterway bottom to avoid inviting turbulent flow from a sudden depression in the waterway.
   b. If the flow in the waterway is greater than the flow from the proposed outlet, the rip-rap used to construct the scour hole should be sized based on the greater flow value according to the standard rip-rap.

Footnote:

1. Tailwater depth shall be the 2 year storm if discharging into a detention basin. For areas where tailwater cannot be computed, use $TW = 0.2D_o$.

TOWNSHIP-SPECIFIC REQUIREMENTS EVALUATION

There are several requirements for the detention and retention facilities design per Toms River and Manchester Township ordinance.

Per Township of Manchester:

- Only one half (0.5) of the area devoted to the detention or retention facilities shall be considered non-impervious.
  - In this design, the 50% of the basin Area is considered as impervious area (with a CN number of 98)

SATISFIED

- Retention facilities shall be required to provide one hundred (100%) percent storage capacity for the fifty (50) year storm.
  - In this design, all basins are designed so that the 100-year storm event can be managed.

SATISFIED

Per Township of Toms River:

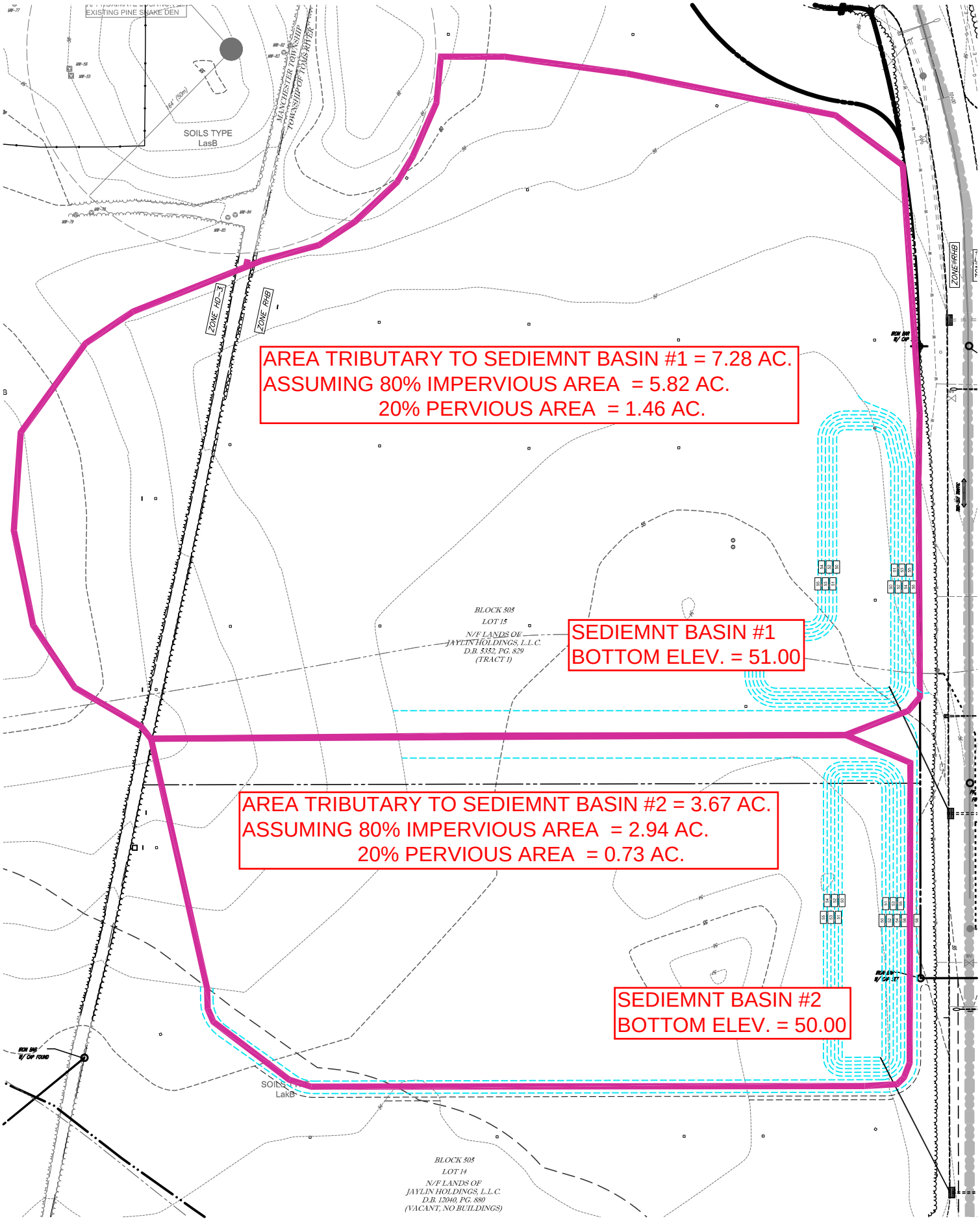
- For detention facilities, the design storm frequency shall be 24 hours storm with return period not less than 50 years for the tributary area not exceeding 50 acres.
  - In this design, the tributary drainage area to any of the basin is less than 50 acres, and all stormwater management basins are designed with Type III 24-hr storm up to the 100-year storm event.

SATISFIED

- For retention facilities, the required capacity must be doubled.
  - In this design, there is no retention facilities proposed in the Township of Toms River.

SATISFIED

SEDIMENT BASIN DESIGN


EXISTING PINE SNAKE DEN
SOILS TYPE
LasB
MANCHESTER TOWNSHIP
TOWNSHIP OF TOMS RIVER
ZONE HD-3
ZONE RHB
ZONE HRHB
AREA TRIBUTARY TO SEDIEMNT BASIN #1 = 7.28 AC.
ASSUMING 80% IMPERVIOUS AREA = 5.82 AC.
20% PERVIOUS AREA = 1.46 AC.
BLOCK 505
LOT 15
N/F LANDS OF
JAYLIN HOLDINGS, L.L.C.
D.B. 5352, PG. 829
(TRACT 1)
SEDIEMNT BASIN #1
BOTTOM ELEV. = 51.00
AREA TRIBUTARY TO SEDIEMNT BASIN #2 = 3.67 AC.
ASSUMING 80% IMPERVIOUS AREA = 2.94 AC.
20% PERVIOUS AREA = 0.73 AC.
SEDIEMNT BASIN #2
BOTTOM ELEV. = 50.00
IRON BAR W/ CAP FOUND
LakB
BLOCK 505
LOT 14
N/F LANDS OF
JAYLIN HOLDINGS, L.L.C.
D.B. 12040, PG. 880
(VACANT, NO BUILDINGS)

BOHLER ENGINEERING

35 Technology Drive, Warren, NJ 07059
(908) 668-8300

Date:	11/22/2017
Project:	TOMES RIVER
Project No:	JM170508
Calculated By:	JZ
Checked By:	GD

Sediment Storage Capacity Calculations

Sediment Basin # 1

TRAP EFFICIENCY METHOD:

Sediment type:		Sand (Type A)
Trap efficiency value:		80%
Curve used:	(see Curve 26-1)	Median Grained Curve
Ratio of capacity to annual inflow (C/I):	(see Curve 26-1)	0.0600
Average annual surface runoff (R):	(see Figure 26-1)	25.0 in
Watershed area (A):		7.28 Ac.
Avergae annual surface runoff, $I = \frac{R \times A}{12}$ =		15.17 Ac ft
Total capacity, C = I × C/I =		0.91 Ac ft

SEDIMENT STORAGE CAPACITY METHOD:

1. DETEMINE VOLUME FOR SEDIMENT STORAGE USING METHOD 2

a. Determine drainage area, DA, and average annual erosion, A:

Drainage area, (DA):		7.28 Ac.
Land use type:		Construction areas
Average annual erosion, (A):		50.0 ton/ac/yr
(DA) × (A) =		364 tons/yr

b. Determine delivery rate, DR:

Watershed area (A):		0.01 sq mi
Sediment delivery ratio:	(refer to Curve 26-2)	Sandy
DR =	(refer to Curve 26-2)	37%

c. Determine sediment density, γ:

Soil texture:	(refer to Table 26-1)	Sand, aerated
γ =		92.5 lbs/cf

d. Determine the minimum volume for sediment storage for the planned life of the structure:

V = (DA) (A) (DR) (TE) (1/γ) (2,000 lbs/ton) (1/43,560 sf/ac) = 0.053 Ac ft

2. Determine the minimum volume for temporary floodway storage:

2-year, 24 hour Rainfall intensity:		3.3 inches
Soil type:		Lakewood
Soil group:		A
CN:		92
Volume 2-yr design storm:	56,528 CF	1.298 Ac ft
Total volume required (including sediment):		1.351 Ac ft

DETERMINE THE LARGER VOLUME OF THE TWO METHODS:

TOTAL VOLUME REQUIRED:		1.351 Ac ft
		or 58,830 CF

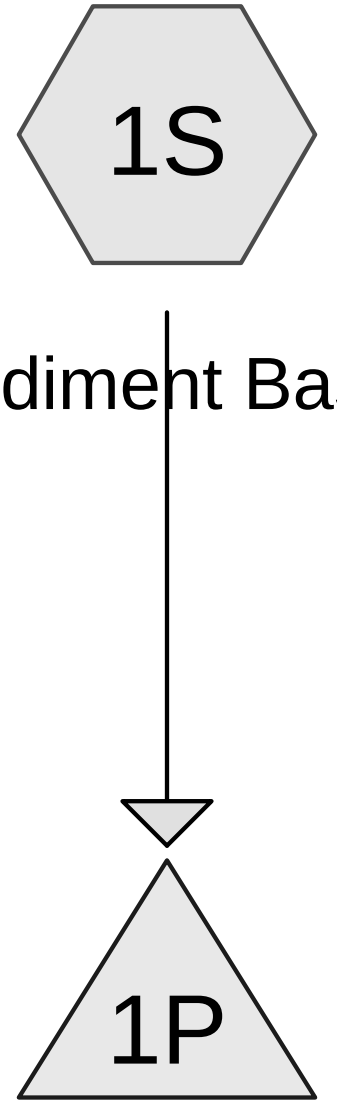
DEWATERING:

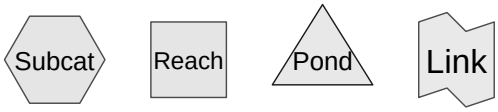
Trap efficiency value:		50%
Curve:	(refer to Curve 26-1)	Median Grained Curve
Ratio of capacity to annual inflow, (C/I):	(refer to Curve 26-1)	0.0135
Average annual surface runoff, (R):	(refer to Figure 26-1)	25.0 in
Watershed area, (A):		7.28 Ac.
Avergae annual surface runoff, $I = \frac{R \times A}{12}$ =		15.17 Ac ft
Total capacity, C = I × C/I =		0.20 Ac ft
	or	8,919 CF

SEDIMENT BASIN BOTTOM ELEVATION:					51.00
ELEVATION OF SEDIMENT STORAGE:					53.00
THE TOTAL VOLUME FROM	51.00	to	53.00 :		0.68 Ac ft
				or	29,713 CF
ELEVATION OF EMERGENCY SPILLWAY:					55.50
THE TOTAL VOLUME FROM	53.00	to	55.50 :		1.10 Ac ft
				or	48,076 CF
TOTAL VOLUME OF THE SEDIMENTAL BASIN					1.79 Ac ft
				or	**77,789 CF**
ELEVATION OF 4" DEWATERING ORFICE:					**53.00**
ELEVATION TOP OF RISER:					**54.50**

SEDIMENT BASIN # 1

ELEVATION	AREA (SF)	INCR. VOL. (CF)	TOTAL VOLUME (CF)
51	12993		
52	14842	13918	13918
53	16749	15796	29713
54	18711	17730	47443
55	20731	19721	67164
56	22806	21769	88933





Drainage Diagram for Sediment Basin
Prepared by Bohler Engineering, Printed 11/22/2017
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Summary for Subcatchment 1S: To Sediment Basin #1

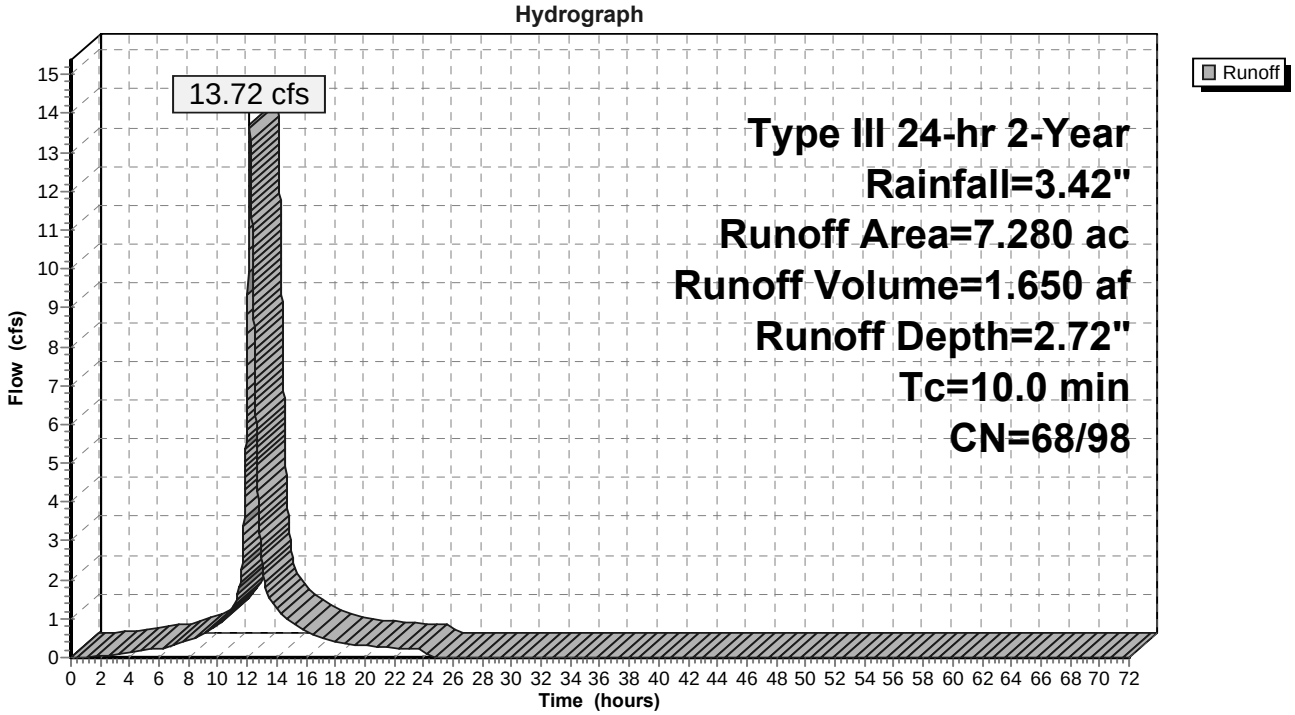
Runoff = 13.72 cfs @ 12.16 hrs, Volume= 1.650 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.42"

Area (ac)	CN	Description
5.820	98	Paved parking, HSG A
1.460	68	<50% Grass cover, Poor, HSG A
7.280	92	Weighted Average
1.460	68	20.05% Pervious Area
5.820	98	79.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 1S: To Sediment Basin #1



Summary for Pond 1P: Sediment Basin #1

Inflow Area = 7.280 ac, 79.95% Impervious, Inflow Depth = 2.72" for 2-Year event
Inflow = 13.72 cfs @ 12.16 hrs, Volume= 1.650 af
Outflow = 0.48 cfs @ 17.22 hrs, Volume= 0.947 af, Atten= 96%, Lag= 303.6 min
Primary = 0.48 cfs @ 17.22 hrs, Volume= 0.947 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 54.47' @ 17.22 hrs Surf.Area= 19,667 sf Storage= 56,528 cf

Plug-Flow detention time= 953.3 min calculated for 0.947 af (57% of inflow)
Center-of-Mass det. time= 837.7 min (1,610.3 - 772.6)

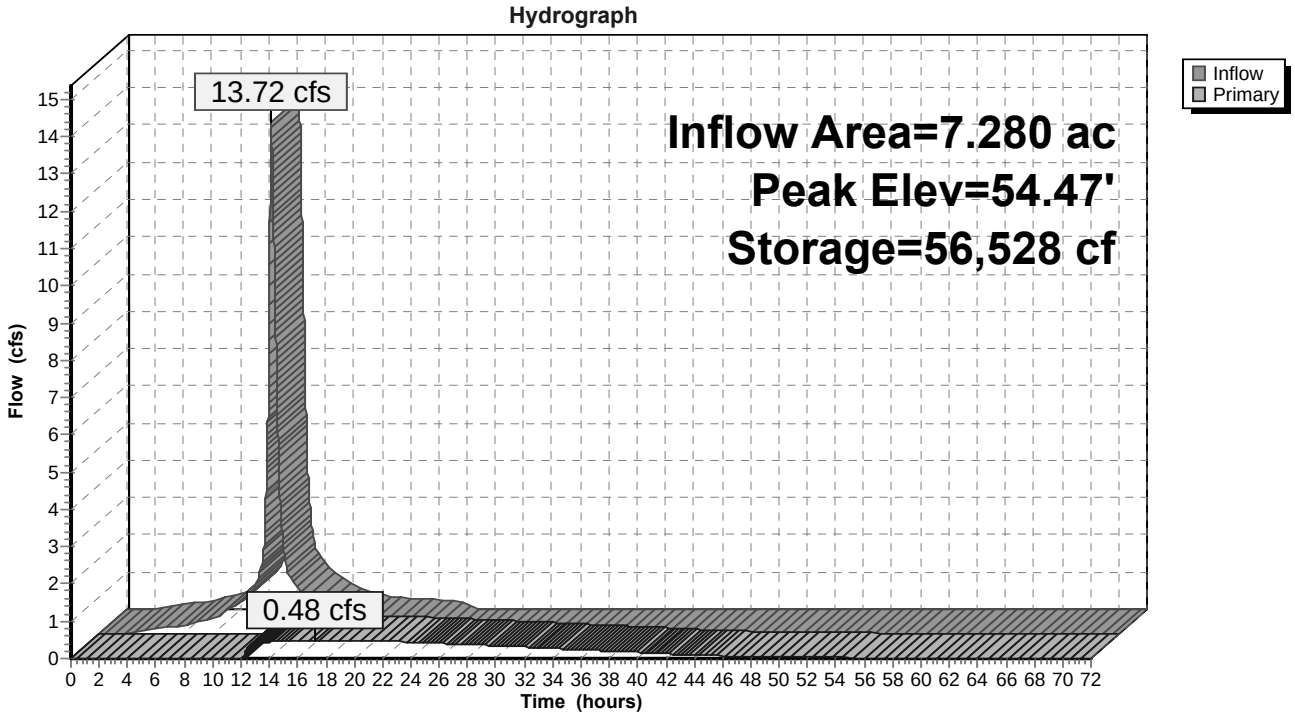
Volume	Invert	Avail.Storage	Storage Description
#1	51.00'	88,933 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
51.00	12,993	0	0
52.00	14,842	13,918	13,918
53.00	16,749	15,796	29,713
54.00	18,711	17,730	47,443
55.00	20,731	19,721	67,164
56.00	22,806	21,769	88,933

Device	Routing	Invert	Outlet Devices
#1	Primary	52.00'	**15.0" Round Culvert** L= 110.0' CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 51.60' S= 0.0036 '/' Cc= 0.900 n= 0.011
#2	Device 1	53.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	54.50'	**15.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.48 cfs @ 17.22 hrs HW=54.47' (Free Discharge)
└─**1=Culvert** (Passes 0.48 cfs of 6.34 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.48 cfs @ 5.50 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 1P: Sediment Basin #1



BOHLER ENGINEERING

35 Technology Drive, Warren, NJ 07059
(908) 668-8300

Date:	11/22/2017
Project:	TOMES RIVER
Project No:	JM170508
Calculated By:	JZ
Checked By:	GD

Sediment Storage Capacity Calculations

Sediment Basin # 2

TRAP EFFICIENCY METHOD:

Sediment type:		Sand (Type A)
Trap efficiency value:		80%
Curve used:	(see Curve 26-1)	Median Grained Curve
Ratio of capacity to annual inflow (C/I):	(see Curve 26-1)	0.0600
Average annual surface runoff (R):	(see Figure 26-1)	25.0 in
Watershed area (A):		3.67 Ac.
Avergae annual surface runoff, $I = \frac{R \times A}{12}$ =		7.65 Ac ft
Total capacity, C = I × C/I =		0.46 Ac ft

SEDIMENT STORAGE CAPACITY METHOD:

1. DETEMINE VOLUME FOR SEDIMENT STORAGE USING METHOD 2

a. Determine drainage area, DA, and average annual erosion, A:

Drainage area, (DA):		3.67 Ac.
Land use type:		Construction areas
Average annual erosion, (A):		50.0 ton/ac/yr
(DA) × (A) =		184 tons/yr

b. Determine delivery rate, DR:

Watershed area (A):		0.01 sq mi
Sediment delivery ratio:	(refer to Curve 26-2)	Sandy
DR =	(refer to Curve 26-2)	40%

c. Determine sediment density, γ:

Soil texture:	(refer to Table 26-1)	Sand, aerated
γ =		92.5 lbs/cf

d. Determine the minimum volume for sediment storage for the planned life of the structure:

V = (DA) (A) (DR) (TE) (1/γ) (2,000 lbs/ton) (1/43,560 sf/ac) = 0.029 Ac ft

2. Determine the minimum volume for temporary floodway storage:

2-year, 24 hour Rainfall intensity:	Ocean County	3.3 inches
Soil type:		Lakewood
Soil group:		A
CN:		92
Volume 2-yr design storm:	24,632 CF	0.565 Ac ft
Total volume required (including sediment):		0.595 Ac ft

DETERMINE THE LARGER VOLUME OF THE TWO METHODS:

TOTAL VOLUME REQUIRED: 0.595 Ac ft
or 25,910 CF

DEWATERING:

Trap efficiency value:		50%
Curve:	(refer to Curve 26-1)	Median Grained Curve
Ratio of capacity to annual inflow, (C/I):	(refer to Curve 26-1)	0.0135
Average annual surface runoff, (R):	(refer to Figure 26-1)	25.0 in
Watershed area, (A):		3.67 Ac.
Avergae annual surface runoff, $I = \frac{R \times A}{12}$ =		7.65 Ac ft
Total capacity, C = I × C/I =		0.10 Ac ft
	or	4,496 CF

SEDIMENT BASIN BOTTOM ELEVATION: 50.00

ELEVATION OF SEDIMENT STORAGE: 51.00

THE TOTAL VOLUME FROM 50.00 to 51.00 : 0.40 Ac ft
or 17,293 CF

ELEVATION OF EMERGENCY SPILLWAY: 55.50

THE TOTAL VOLUME FROM 51.00 to 55.50 : 1.06 Ac ft
or 46,205 CF

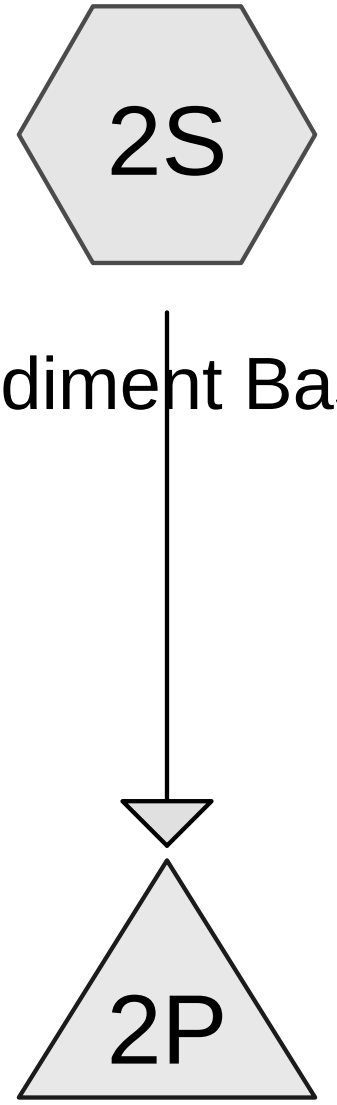
TOTAL VOLUME OF THE SEDIMENTAL BASIN 1.46 Ac ft
or **63,498 CF**

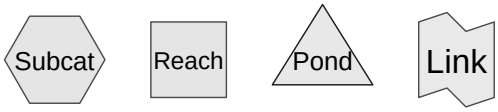
ELEVATION OF 4" DEWATERING ORFICE: **51.00**

ELEVATION TOP OF RISER: **54.50**

SEDIMENT BASIN # 2

ELEVATION	AREA (SF)	INCR. VOL. (CF)	TOTAL VOLUME (CF)
50	7087		
51	8633	7860	7860
52	10233	9433	17293
53	11889	11061	28354
54	13601	12745	41099
55	15370	14486	55585
56	17196	16283	71868





Drainage Diagram for Sediment Basin
Prepared by Bohler Engineering, Printed 11/22/2017
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Summary for Subcatchment 2S: To Sediment Basin #2

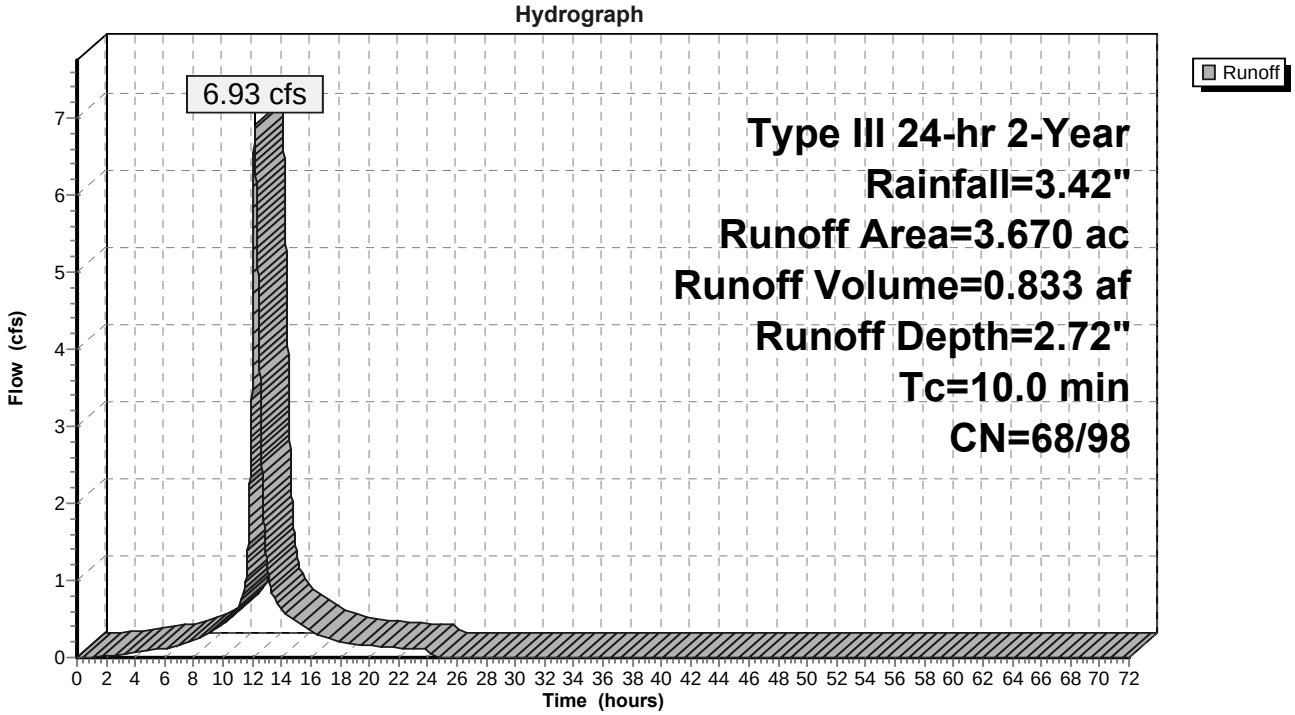
Runoff = 6.93 cfs @ 12.16 hrs, Volume= 0.833 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=Delmarva, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.42"

Area (ac)	CN	Description
2.940	98	Paved parking, HSG A
0.730	68	<50% Grass cover, Poor, HSG A
3.670	92	Weighted Average
0.730	68	19.89% Pervious Area
2.940	98	80.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 2S: To Sediment Basin #2



Summary for Pond 2P: Sediment Basin #2

Inflow Area = 3.670 ac, 80.11% Impervious, Inflow Depth = 2.72" for 2-Year event
Inflow = 6.93 cfs @ 12.16 hrs, Volume= 0.833 af
Outflow = 0.52 cfs @ 14.56 hrs, Volume= 0.648 af, Atten= 93%, Lag= 144.1 min
Primary = 0.52 cfs @ 14.56 hrs, Volume= 0.648 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 52.68' @ 14.56 hrs Surf.Area= 11,359 sf Storage= 24,632 cf

Plug-Flow detention time= 586.8 min calculated for 0.648 af (78% of inflow)
Center-of-Mass det. time= 504.5 min (1,277.0 - 772.5)

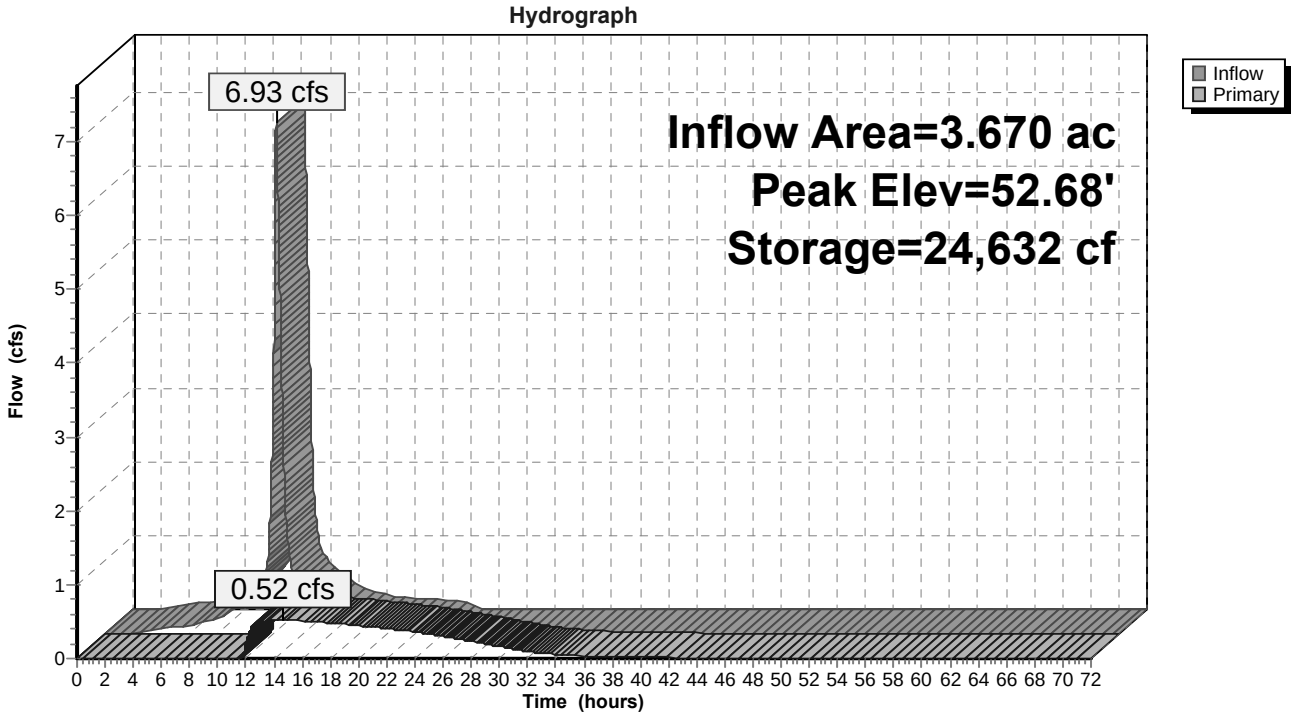
Volume	Invert	Avail.Storage	Storage Description
#1	50.00'	71,868 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
50.00	7,087	0	0
51.00	8,633	7,860	7,860
52.00	10,233	9,433	17,293
53.00	11,889	11,061	28,354
54.00	13,601	12,745	41,099
55.00	15,370	14,486	55,585
56.00	17,196	16,283	71,868

Device	Routing	Invert	Outlet Devices
#1	Primary	50.00'	**15.0" Round Culvert** L= 122.0' CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 49.51' S= 0.0040 '/' Cc= 0.900 n= 0.011
#2	Device 1	51.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	54.50'	**15.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.52 cfs @ 14.56 hrs HW=52.68' (Free Discharge)
└─**1=Culvert** (Passes 0.52 cfs of 6.69 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.52 cfs @ 5.92 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Sediment Basin #2



LOW-IMPACT DEVELOPMENT CHECKLIST

New Jersey Stormwater Best Management Practices Manual

February 2004

http://www.state.nj.us/dep/stormwater/bmp_manual2.htm

A P P E N D I X A

Low Impact Development Checklist

A checklist for identifying nonstructural stormwater management strategies incorporated into proposed land development

According to the NJDEP Stormwater Management Rules at N.J.A.C. 7:8, the groundwater recharge, stormwater quality, and stormwater quantity standards established by the Rules for major land development projects must be met by incorporating nine specific nonstructural stormwater management strategies into the project's design to the maximum extent practicable.

To accomplish this, the Rules require an applicant seeking land development approval from a regulatory board or agency to identify those nonstructural strategies that have been incorporated into the project's design. In addition, if an applicant contends that it is not feasible to incorporate any of the specific strategies into the project's design, particularly for engineering, environmental, or safety reasons, the Rules further require that the applicant provide a basis for that contention.

This checklist has been prepared to assist applicants, site designers, and regulatory boards and agencies in ensuring that the nonstructural stormwater management requirements of the Rules are met. It provides an applicant with a means to identify both the nonstructural strategies incorporated into the development's design and the specific low impact development BMPs (LID-BMPs) that have been used to do so. It can also help an applicant explain the engineering, environmental, and/or safety reasons that a specific nonstructural strategy could not be incorporated into the development's design.

The checklist can also assist municipalities and other land development review agencies in the development of specific requirements for both nonstructural strategies and LID-BMPs in zoning and/or land use ordinances and regulations. As such, where requirements consistent with the Rules have been adopted, they may supersede this checklist.

Finally, the checklist can be used during a pre-design meeting between an applicant and pertinent review personnel to discuss local nonstructural strategies and LID-BMPs requirements in order to optimize the development's nonstructural stormwater management design.

Since this checklist is intended to promote the use of nonstructural stormwater management strategies and provide guidance in their incorporation in land development projects, municipalities are permitted to revise it as necessary to meet the goals and objectives of their specific stormwater management program and plan within the limits of N.J.A.C. 7:8.

Low Impact Development Checklist

A checklist for identifying nonstructural stormwater management strategies incorporated into proposed land development

Municipality: Township of Manchester and Township of Toms River

County: Ocean Date: June 2019

Review board or agency: Toms River Township, Manchester Township, Ocean County, NJDOT, Ocean County SCD, and NJDEP

Proposed land development name: Proposed Retail Development

Lot(s): Manchester (2,3,5, & 9)
Toms River (14 & 15)

Block(s): Manchester (44)
Toms River (505)

Project or application number: TBD

Applicant's name: Jaylin Holdings, LLC c/o Grunin Properties

Applicant's address: Dove Esplanade Bldg #1, 1027 Hooper Avenue, Toms River, NJ 08753

Telephone: (732) 341-5800 Fax: (732) 505-8018

Email address: grunin1@verizon.net

Designer's name: Bohler Engineering (D.F. Wisotsky, P.E.)

Designer's address: 10000 Midlantic Drive, Suite 410W, Mount Laurel, NJ 08054

Telephone: (856) 930-4000 Fax: (856) 930 4001

Email address: dwisotsky@bohlereng.com

Part 1: Description of Nonstructural Approach to Site Design

In narrative form, provide an overall description of the nonstructural stormwater management approach and strategies incorporated into the proposed site's design. Attach additional pages as necessary. Details of each nonstructural strategy are provided in Part 3 below.

The site has been designed to minimize the site disturbance, maintain existing natural features, and minimize impervious coverage, while providing a safe site with appropriate traffic protection measures. In environmentally sensitive portions of the site, retaining walls have been incorporated into the design to limit the disturbance on-site.

The stormwater drainage system proposes two (2) stormwater management basins rather than one (1) centralized basin. Silt fencing, tree protection fencing, and inlet protection devices have been proposed. The limit of disturbance will be clearly defined and maintained during construction. Contractors are instructed to minimize and strictly regulate construction areas, access roads, material and equipment storage areas. In addition, light weight, rubber tired construction equipment will be used whenever possible, with movements limited to a few repetitive routes. To minimize the site's impact on the preserved portions of the site during operation, trash compactors will be utilized to ensure commercial by-products be stored or transported in a confined manner. In addition, trash cans will be provided at all store entrance locations, as these areas are anticipated to experience high pedestrian traffic. Trash can collection will also be provided on a daily basis, as described within the site Operations and Maintenance Manual. Curbed catch basin grates will also be N-eco type, and trash racks will be provided at outlet structures to reduce the opening areas entering and exiting the stormwater drainage system. Lastly, the proposed snake barrier and chain link fence, which separate the developed portion of the site and the preserved portion, will act as a litter fence, to prevent litter from blowing off the site, if any. These measures listed above will provide preventative source control to ensure that the larger pollutants do not do not make their way into the stormwater drainage system.

Part 2: Review of Local Stormwater Management Regulations

Title and date of stormwater management regulations used in development design:

StormwaterManagementRegulationsN.J.A.C.7:8,dated06/20/16andN.J.BestManagementPractices,dated04/04, last revised 9/17

Do regulations include nonstructural requirements? Yes: ✓ No: _____

If yes, briefly describe: As specified in N.J.A.C. 7:8-5.3b. Including minimizing impervious surface, maximize protection of natural drainage features and vegetation, using swales to disconnect impervious area, and increasing time of concentration.

List LID-BMPs prohibited by local regulations: N/A

Pre-design meeting held? Yes: ✓ Date: Several - See Below No: _____

Meeting held with: Meetings were held on several dates including 3/19/08, 4/21/08, 7/10/08, 11/18/08 & 7/2/09 with members of the project team and various members of the NJDEP to discuss the proposed design. Recently the layout was revised to further reduce impervious cover.

Pre-design site walk held? Yes: ✓ Date: Several - See Below No: _____

Site walk held with: Site visits were held on several dates including 06/07/09, 06/18/09, 06/26/09, 08/05/09 and 08/24/09 with members of the project team to observe existing site conditions in preparation for the proposed design. Recently the layout was revised to reduce impervious cover.

Other agencies with stormwater review jurisdiction:

Name: Township of Toms River, Township of Manchester, and Ocean County

Required approval: Site Plan Approval

Name: Ocean County Soil Conservation District

Required approval: Soil Erosion and Sediment Control Certification

Name: NJDOT

Required approval: Major Access Permit

Part 3: Nonstructural Strategies and LID-BMPs in Design

3.1 Vegetation and Landscaping

Effective management of both existing and proposed site vegetation can reduce a development's adverse impacts on groundwater recharges and runoff quality and quantity. This section of the checklist helps identify the vegetation and landscaping strategies and nonstructural LID-BMPs that have been incorporated into the proposed development's design to help maintain existing recharge rates and/or minimize or prevent increases in runoff quantity and pollutant loading.

A. Has an inventory of existing site vegetation been performed? Yes: ✓ No: _____

If yes, was this inventory a factor in the site's layout and design? Yes: ✓ No: _____

B. Does the site design utilize any of the following nonstructural LID-BMPs?

Preservation of natural areas? Yes: ✓ No: _____ If yes, specify % of site: 70.0%

Native ground cover? Yes: ✓ No: _____ If yes, specify % of site: 13.3%

Vegetated buffers? Yes: ✓ No: _____ If yes, specify % of site: 12.5%

C. Do the land development regulations require these nonstructural LID-BMPs?

Preservation of natural areas? Yes: _____ No: ✓ If yes, specify % of site: _____

Native ground cover? Yes: _____ No: ✓ If yes, specify % of site: _____

Vegetated buffers? Yes: _____ No: ✓ If yes, specify % of site: _____

D. If vegetated filter strips or buffers are utilized, specify their functions:

Reduce runoff volume increases through lower runoff coefficient: Yes: _____ No: ✓

Reduce runoff pollutant loads through runoff treatment: Yes: _____ No: ✓

Maintain groundwater recharge by preserving natural areas: Yes: _____ No: ✓

3.2 Minimize Land Disturbance

Minimizing land disturbance is a nonstructural LID-BMP that can be applied during both the development's construction and post-construction phases. This section of the checklist helps identify those land disturbance strategies and nonstructural LID-BMPs that have been incorporated into the proposed development's design to minimize land disturbance and the resultant change in the site's hydrologic character.

A. Have inventories of existing site soils and slopes been performed? Yes: ✓ No: _____

If yes, were these inventories factors in the site's layout and design? Yes: ✓ No: _____

B. Does the development's design utilize any of the following nonstructural LID-BMPs?

Restrict permanent site disturbance by land owners? Yes: ✓ No: _____

If yes, how: Approximately 21.7 acres have been preserved for the Northern Pine Snake found on-site. In addition, a 4' high snake barrier has been provided around the perimeter of the preservation area on-site.

Restrict temporary site disturbance during construction? Yes: ✓ No: _____

If yes, how: Silt fence will be installed prior to construction activities to define the proposed limit of disturbance.

Consider soils and slopes in selecting disturbance limits? Yes: ✓ No: _____

If yes, how: Approximately 46.4 acres of the 71.7 acre development has been preserved per direction received at our pre-design meetings with the NJDEP, and development has been limited to those areas outside of this boundary. In addition, with exception of wetlands areas, the site consists of only Group A soils with the majority of slopes within the range of 1%-5%.

C. Specify percentage of site to be cleared: 27% Regraded: 27%

D. Specify percentage of cleared areas done so for buildings: 11%

For driveways and parking: 31% For roadways: 0.0%

E. What design criteria and/or site changes would be required to reduce the percentages in C and D above?

The site has been designed to minimize the land area to be cleared by this application, with retaining wall provided as necessary. The current plans propose parking which meets the minimum number of spaces required by the Applicant of the building for safe and efficient operation. In order to provide additional reduction in site clearing and impervious coverage, the size or number of parking spaces would have to be reduced, which will make it impractical to build on this site after preserving over 46 acres of undisturbed area for pine snake habitat.

F. Specify site's hydrologic soil group (HSG) percentages:

HSG A: 66.8% HSG B: _____ HSG C: _____ HSG D: 33.2%

G. Specify percentage of each HSG that will be permanently disturbed:

HSG A: 55.0% HSG B: _____ HSG C: _____ HSG D: 0.0%

H. Locating site disturbance within areas with less permeable soils (HSG C and D) and minimizing disturbance within areas with greater permeable soils (HSG A and B) can help maintain groundwater recharge rates and reduce runoff volume increases. In light of the HSG percentages in F and G above, what other practical measures if any can be taken to achieve this?

Approximately 46.4 acres of the 71.7 acre development has been preserved per direction received at our pre-design meetings with the NJDEP and development has been limited to those areas outside of this boundary. In addition, with the exception of wetlands areas classified as HSG D, majority of the site consists of only Group A soils.

I. Does the site include Karst topography? Yes: _____ No: ✓

If yes, discuss measures taken to limit Karst impacts:

3.3 Impervious Area Management

New impervious surfaces at a development site can have the greatest adverse effect on groundwater recharge and stormwater quality and quantity. This section of the checklist helps identify those nonstructural strategies and LID-BMPs that have been incorporated into a proposed development's design to comprehensively manage the extent and impacts of new impervious surfaces.

A. Specify impervious cover at site: Existing: 2.0% Proposed: 15.4%

B. Specify maximum site impervious coverage allowed by regulations: 65% (Manchester) Not Specified (Toms River)

C. Compare proposed street cartway widths with those required by regulations:

N/A - Commercial Development

Type of Street	Proposed Cartway Width (feet)	Required Cartway Width (feet)
Residential access – low intensity		
Residential access – medium intensity		
Residential access – high intensity with parking		
Residential access – high intensity without parking		
Neighborhood		
Minor collector – low intensity without parking		
Minor collector – with one parking lane		
Minor collector – with two parking lanes		
Minor collector – without parking		
Major collector		

D. Compare proposed parking space dimensions with those required by regulations:

Proposed: 9' x 18' Toms River Regulations: 9' x 18' Toms River

E. Compare proposed number of parking spaces with those required by regulations:

Proposed: 570 Regulations: 381

F. Specify percentage of total site impervious cover created by buildings: 3.0%

By driveways and parking: 8.5% By roadways: 0.0%

G. What design criteria and/or site changes would be required to reduce the percentages in F above?

The site has been designed considering the allowable impervious coverage on-site and the Applicant's design requirements for safe and efficient operation based upon their experience throughout New Jersey.

H. Specify percentage of total impervious area that will be unconnected:

Total site: 0% Buildings: 0% Driveways and parking: 7.4% Roads: 0%

Minimal impervious areas have been unconnected because the proposed snake barrier separating the proposed and preserved portions of the site will not allow sheetflow runoff from the impervious areas to the pervious areas.

I. Specify percentage of total impervious area that will be porous:

Total site: 0% Buildings: 0% Driveways and parking: 0% Roads: 0%

J. Specify percentage of total building roof area that will be vegetated: 0%

K. Specify percentage of total parking area located beneath buildings: 0%

No parking has been proposed beneath the building because the Seasonal High Groundwater on-site limits the depth of excavation and the maximum building height specified by the township restricts the height of the building.

L. Specify percentage of total parking located within multi-level parking deck: 0%

3.4 Time of Concentration Modifications

Decreasing a site's time of concentration (Tc) can lead directly to increased site runoff rates which, in turn, can create new and/or aggravate existing erosion and flooding problems downstream. This section of the checklist helps identify those nonstructural strategies and LID-BMPs that have been incorporated into the proposed development's design to effectively minimize such Tc decreases.

When reviewing Tc modification strategies, it is important to remember that a drainage area's Tc should reflect the general conditions throughout the area. As a result, Tc modifications must generally be applied throughout a drainage area, not just along a specific Tc route.

A. Specify percentage of site's total stormwater conveyance system length that will be:

Storm sewer: 81.0% Vegetated swale: 4.7% Natural channel: 0.0%

Stormwater management facility: 14.3% Other: 0.0%

Note: the total length of the stormwater conveyance system should be measured from the site's downstream property line to the downstream limit of sheet flow at the system's headwaters.

B. What design criteria and/or site changes would be required to reduce the storm sewer percentages and increase the vegetated swale and natural channel percentages in A above?

The stormwater drainage system on-site proposes two (2) small basins, rather than one (1) centralized basin. Incorporating additional vegetated swales in the stormwater drainage system would eliminate some of the stormwater basins on-site, reduce the amount of proposed landscape, which was designed in accordance with the applicable ordinance (Manchester/TomsRiver), and require additional disturbance. In addition, the minimal slopes and overall grade change are not conducive to swale design, and space is further limited due to the proposed snake barrier required by the NJDEP ordinance (Toms River and/or Manchester)

C. In conveyance system subareas that have overland or sheet flow over impervious surfaces or turf grass, what practical and effective site changes can be made to:

Decrease overland flow slope: All areas of the site have been designed to minimize slopes on-site. Within impervious areas, the curbline has been designed at 0.75% minimum slope, and other areas to 1.0% minimum slope. Decreasing slopes further may create potential ponding issues, which may negatively impact site safety.

Increase overland flow roughness: The developed portion of the site will experience minimal overland flow. Those areas that do experience overland flow have been planted in accordance with applicable landscaping.

3.5 Preventative Source Controls

The most effective way to address water quality concerns is by pollution prevention. This section of the checklist helps identify those nonstructural strategies and LID-BMPs that have been incorporated into the proposed development's design to reduce the exposure of pollutants to prevent their release into the stormwater runoff.

A. Trash Receptacles

Specify the number of trash receptacles provided: 7

Specify the spacing between the trash receptacles: 1 per tenant

Compare trash receptacles proposed with those required by regulations:

Proposed: 7 Regulations: Not Specified

B. Pet Waste Stations

Specify the number of pet waste stations provided: 0

Specify the spacing between the pet waste stations: N/A

Compare pet waste stations proposed with those required by regulations:

Proposed: 0 Regulations: Not Specified

C. Inlets, Trash Racks, and Other Devices that Prevent Discharge of Large Trash and Debris

Specify percentage of total inlets that comply with the NJPDES storm drain inlet criteria: 100%

D. Maintenance

Specify the frequency of the following maintenance activities:

Street sweeping: Proposed: Once a month Regulations: Not Specified

Litter collection: Proposed: Once a day Regulations: Not Specified

Identify other stormwater management measures on the site that prevent discharge of large trash and debris:

The proposed snake barrier and chain-link fence provided along the perimeter of the preserved portion of the site will also act as a litter fence to contain debris within the maintained portion of the property.

E. Prevention and Containment of Spills

Identify locations where pollutants are located on the site, and the features that prevent these pollutants from being exposed to stormwater runoff:

Pollutant: N/A Location: N/A

Feature utilized to prevent pollutant exposure, harmful accumulation, or contain spills:

Pollutant: N/A Location: N/A

Feature utilized to prevent pollutant exposure, harmful accumulation, or contain spills:

Pollutant: N/A Location: N/A

Feature utilized to prevent pollutant exposure, harmful accumulation, or contain spills:

Pollutant: N/A Location: N/A

Feature utilized to prevent pollutant exposure, harmful accumulation, or contain spills:

Pollutant: N/A Location: N/A

Part 4: Compliance with Nonstructural Requirements of NJDEP Stormwater Management Rules

1. Based upon the checklist responses above, indicate which nonstructural strategies have been incorporated into the proposed development's design in accordance with N.J.A.C. 7:8-5.3(b):

No.	Nonstructural Strategy	Yes	No
1.	Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss.	✓	
2.	Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces.	✓	
3.	Maximize the protection of natural drainage features and vegetation.	✓	
4.	Minimize the decrease in the pre-construction time of concentration.	✓	
5.	Minimize land disturbance including clearing and grading.	✓	
6.	Minimize soil compaction.	✓	
7.	Provide low maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers, and pesticides.	✓	
8.	Provide vegetated open-channel conveyance systems discharge into and through stable vegetated areas.	✓	
9.	Provide preventative source controls.	✓	

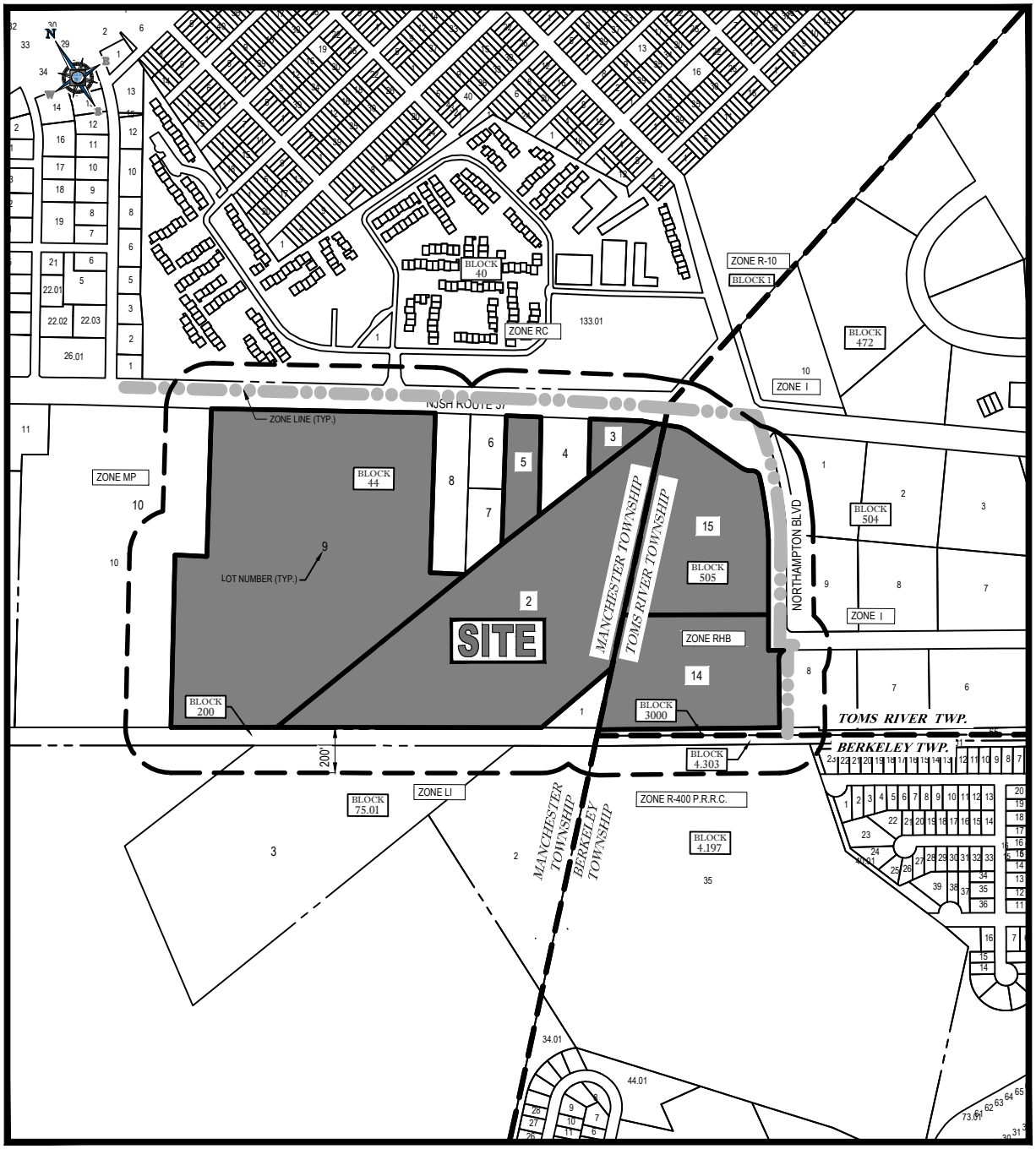
2. For those strategies that have not been incorporated into the proposed development's design, provide engineering, environmental, and/or safety reasons. Attached additional pages as necessary.

The stormwater drainage system on-site proposes two (2) small basins, rather than one (1) centralized basin. Incorporating additional vegetated swales in the stormwater drainage system would eliminate some of the stormwater basins on-site, reduce the amount of proposed landscape, which was designed in accordance with the applicable ordinance (Manchester/Toms River), and require additional disturbance. In addition, the minimal slopes and overall grade change are not conducive to swale design.

C. Maps & Documentation

- **Location Map**
- **USGS & HUC14 Location Map**
- **Soil Map**
- **Drainage Area Maps**
  - **Existing Drainage Area Map**
  - **Proposed Drainage Area Map**

LOCATION MAP

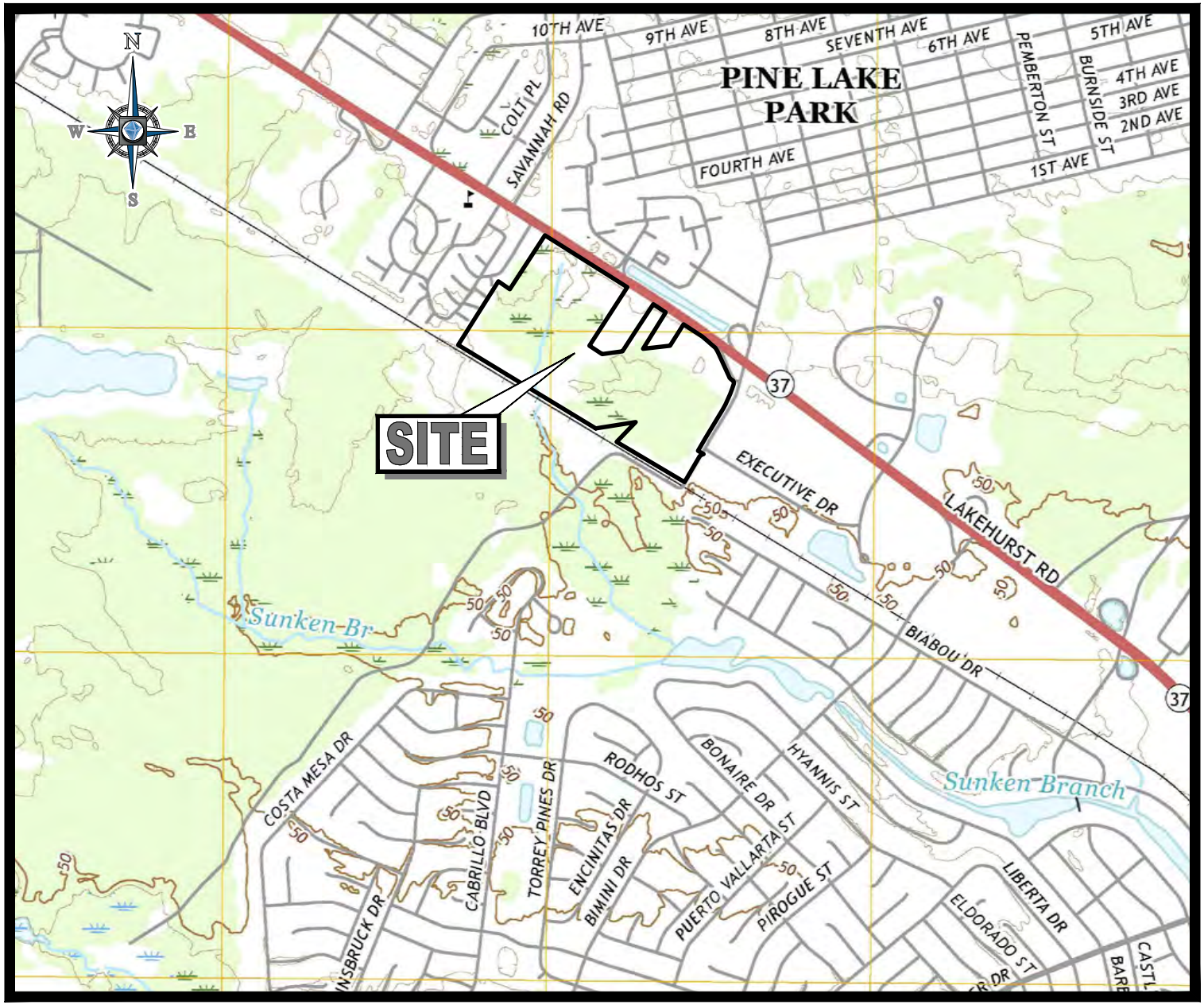


TAX MAP

SCALE: 1" = 500'

SOURCE: GIS PARCEL DATA MAPS

USGS & HUC14 LOCATION MAP



USGS MAP

SCALE: 1" = 2,000'

SOURCE: USGS KESWICK GROVE QUADRANGLE

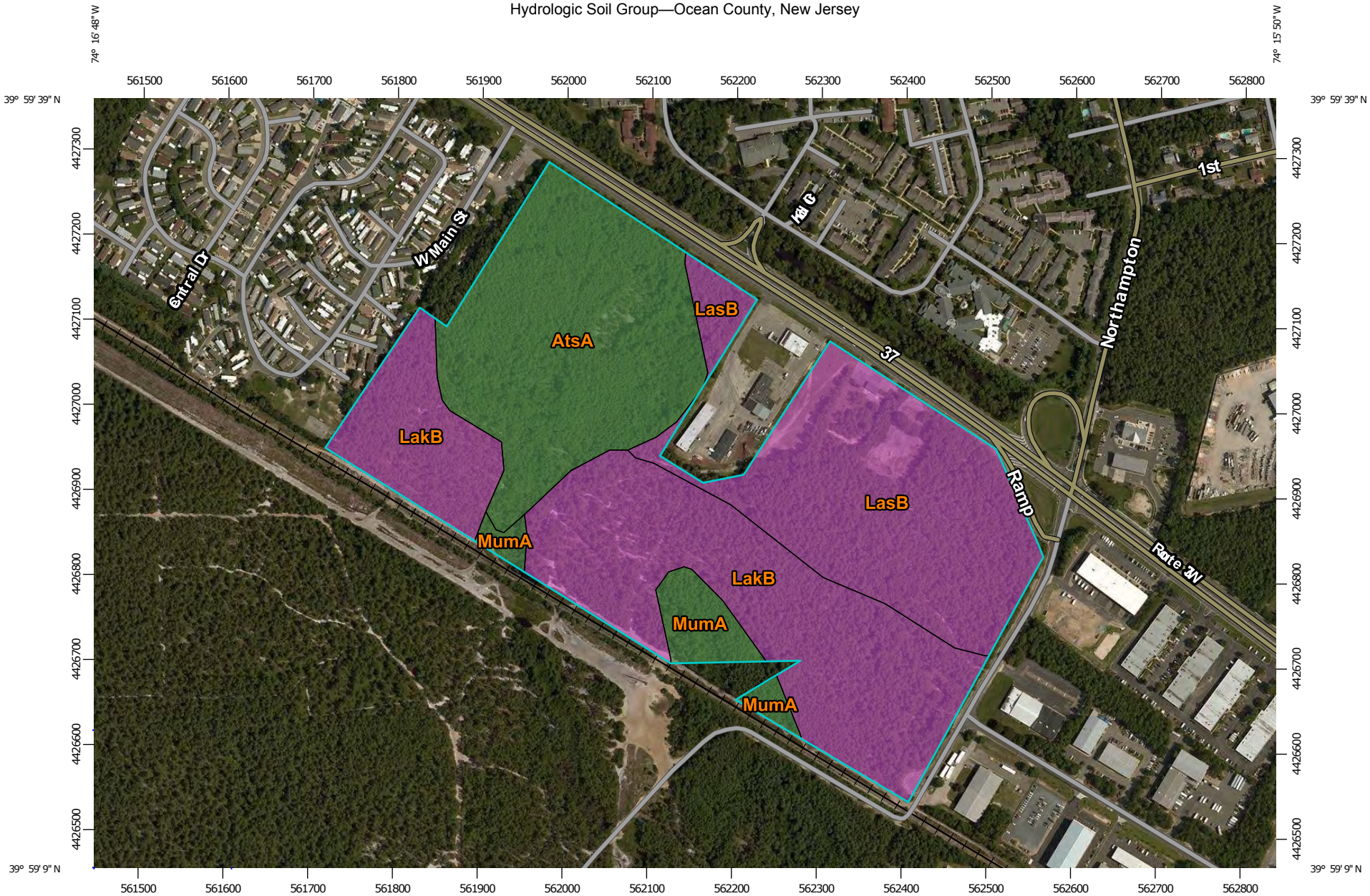
NJ-GeoWeb new jersey department of environmental protection

Details of " Sub-Watersheds (HUC14) "

Attribute	Value
HYDROLOGIC UNIT CODE (14 DIGIT)	02040301080050
WATERSHED MANAGEMENT AREA NO.	13
WATERSHED MANAGEMENT AREA NAME	Barnegat Bay
WATER REGION NO.	3
WATER REGION NAME	Atlantic Coast
SUB-WATERSHED ID	13GA05
SUB-WATERSHED NAME	Wrangel Brook (below Michaels Branch)
WATERSHED ID	13GA
WATERSHED NAME	Toms River (below Oak Ridge Parkway)
Acres	5,932.67266959992
Huc12	020403010304

SOIL MAP

Hydrologic Soil Group—Ocean County, New Jersey



Map Scale: 1:6,380 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Ocean County, New Jersey
Survey Area Data: Version 13, Sep 17, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 8, 2014—Sep 2, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Ocean County, New Jersey (NJ029)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
AtsA	Atsion sand, 0 to 2 percent slopes	A/D	20.3	28.0%
LakB	Lakehurst sand, 0 to 5 percent slopes	A	27.9	38.6%
LasB	Lakewood sand, 0 to 5 percent slopes	A	20.8	28.8%
MumA	Mullica sandy loam, 0 to 2 percent slopes	A/D	3.3	4.6%
Totals for Area of Interest			**72.4**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

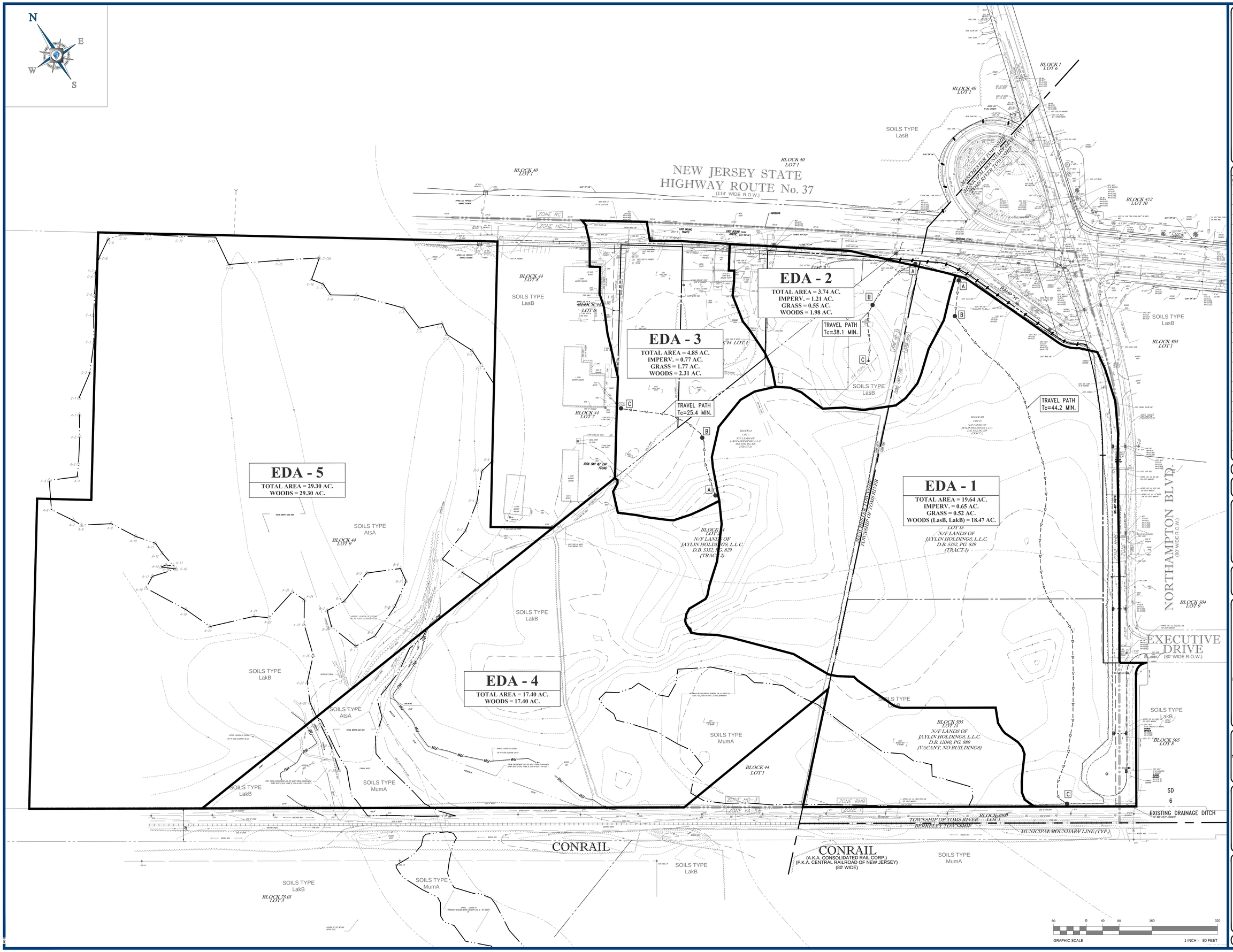
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Tie-break Rule: Higher

DRAINAGE AREA MAPS



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DRAWN BY:	SMC
CHECKED BY:	SLM
DATE:	11/30/2017
SCALE:	AS SHOWN
CAD I.D.:	JM170508-EDA-1A

PROJECT:

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT
NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HD-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RHB)
OCEAN COUNTY, NEW JERSEY

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CONNECTICUT LICENSE No. 22098
NEW YORK LICENSE No. 073745

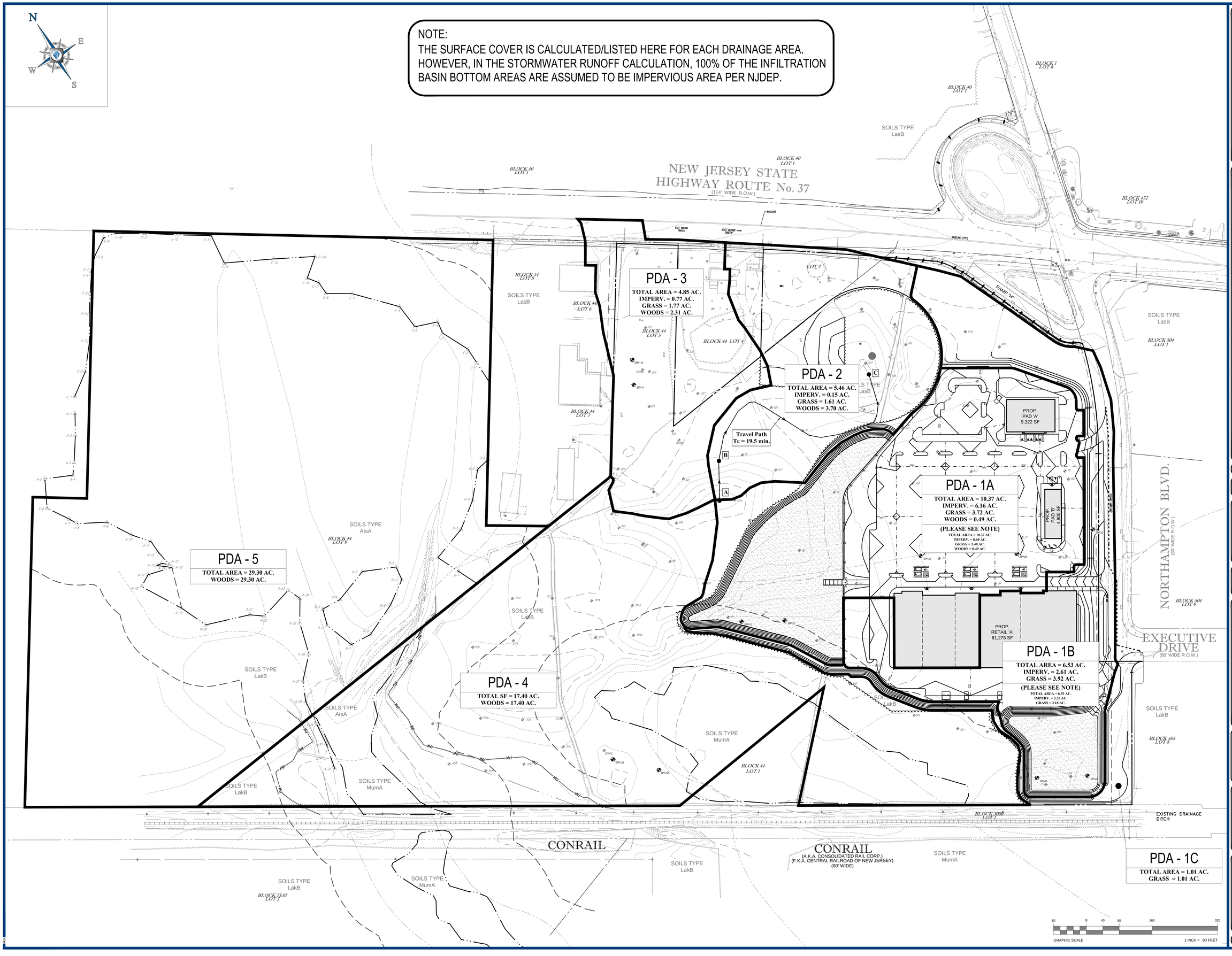
SHEET TITLE:

EXISTING DRAINAGE AREAS MAP

SHEET NUMBER:
1
OF 1

REVISION 1 - 06/12/2019

NOTE:
THE SURFACE COVER IS CALCULATED/LISTED HERE FOR EACH DRAINAGE AREA. HOWEVER, IN THE STORMWATER RUNOFF CALCULATION, 100% OF THE INFILTRATION BASIN BOTTOM AREAS ARE ASSUMED TO BE IMPERVIOUS AREA PER NJDEP.



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SHEET TITLE:

PROPOSED DRAINAGE AREAS MAP

SHEET NUMBER:

1

OF 1

REVISION 1 - 06/12/2019

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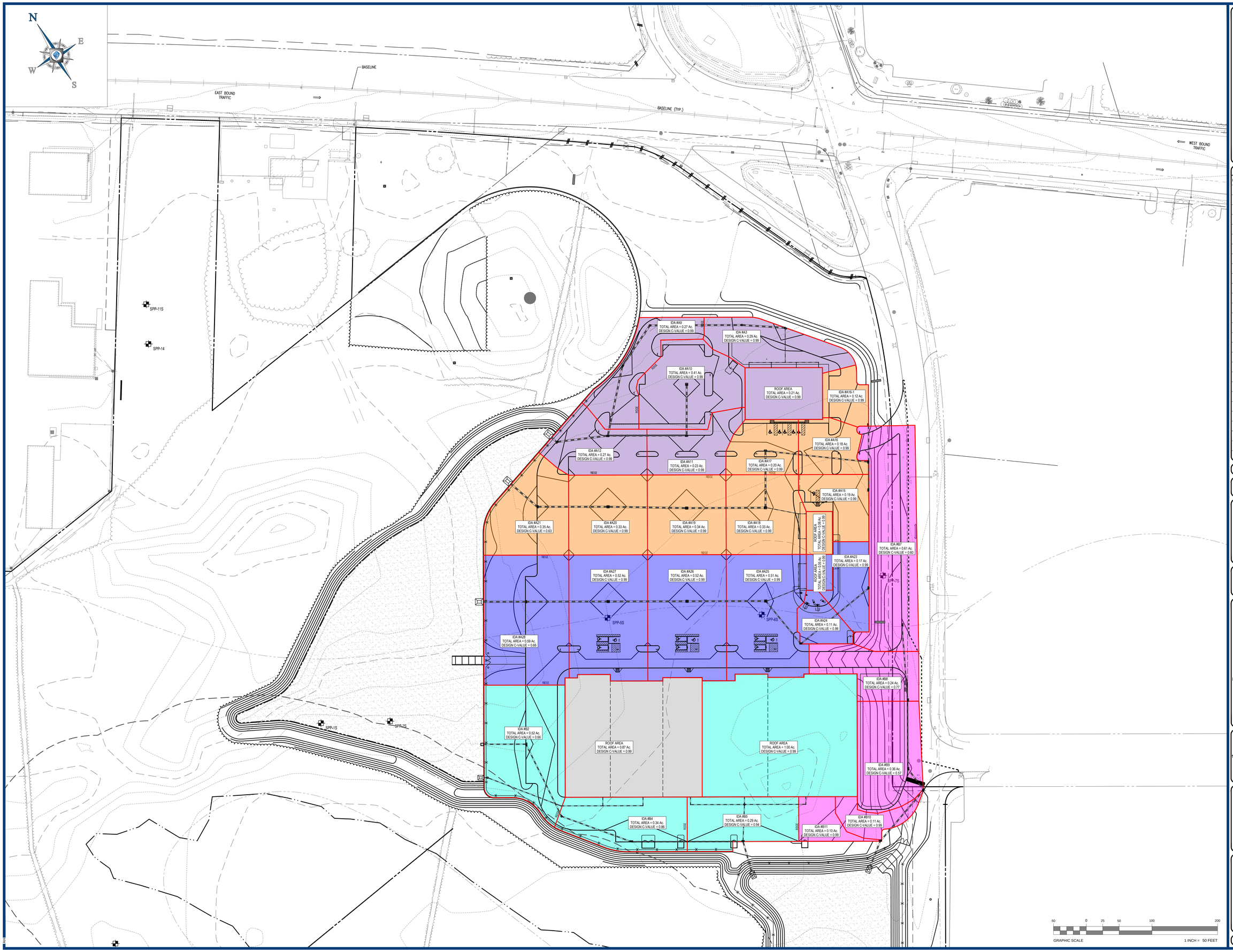
AJH



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REVISIONS

REV	DATE	COMMENT	DRAWN BY / CHECKED BY
1	06/12/2019	REV. PER CLIENT COMMENTS	AJH / GSD

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

ISSUED FOR MUNICIPAL & AGENCY REVIEW & APPROVAL

PROTECT YOURSELF
A PHONE CALL CAN BE YOUR INSURANCE POLICY

WHAT YOU DON'T KNOW CAN HURT YOU
THE STATE OF NEW JERSEY REQUIRES NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE

PROJECT No.:	JM170508
DRAWN BY:	SMC
CHECKED BY:	SLM
DATE:	11/30/2017
SCALE:	AS SHOWN
CAD I.D.:	JM170508-IDA-1A

PROJECT:

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

PROPOSED RETAIL DEVELOPMENT
NJSH RT. 37 & NORTHAMPTON BLVD.
BLOCK 44, LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7.02, 8, & 9, ZONE HD-3)
BLOCK 505, LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 54, ZONE RHB)
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
BOHLER ENGINEERING NJ, LLC
10000 MIDLANTIC DRIVE, SUITE 410W
MOUNT LAUREL, NJ 08054
Phone: (856) 930-4000
Fax: (856) 930-4001
www.BohlerEngineering.com
NJ CERT. OF AUTHORIZATION NO. 24GA28151100

D.F. WISOTSKY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 42951
CONNECTICUT LICENSE No. 22098
NEW YORK LICENSE No. 073745

SHEET TITLE:

PROPOSED INLET DRAINAGE AREAS MAP

SHEET NUMBER:

3
OF 1

REVISION 1 - 06/12/2019

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF LAND USE REGULATION

FRESHWATER WETLAND
TRANSITION AREA WAIVER AVERAGING PLAN

for

Proposed Retail Development
N.J.S.H. Route 37 and Northampton Boulevard

Block 44, Lots 2, 3, 5 and 9
Block 75.01, Lot 3
Township of Manchester
Block 505, Lot 14 and 15
Township of Toms River
Ocean County, New Jersey

Prepared for:

Jaylin Holdings, LLC
c/o Grunin Properties
Dover Esplanade Building
1027 Hooper Avenue
Toms River, New Jersey 08753

Prepared by:

BOHLER
ENGINEERING

10000 Midlantic Drive, Suite 410W
Mount Laurel, New Jersey 08054
856-930-4000

December 2017
Last Revised June 2019
BENJ #JM170508

State of New Jersey
Department of Environmental Protection

Revised: April 15, 2019 Website: www.nj.gov/dep/landuse

FRESHWATER WETLANDS APPLICATION CHECKLIST

Transition area waiver – Transition area averaging plan

CALL NJDEP AT (609) 777-0454 IF YOU HAVE ANY QUESTIONS

To apply for a transition area waiver, please submit the information below to:

Postal Mailing Address	Street Address (Courier & Hand Carry Only)	Electronic Submission
NJ Department of Environmental Protection Division of Land Use Regulation P.O. Box 420, Code 501-02A Trenton, New Jersey 08625-0420 **Attn: Application Support**	NJ Department of Environmental Protection Division of Land Use Regulation 501 East State Street Station Plaza 5, 2nd Floor Trenton, New Jersey 08609 **Attn: Application Support**	Access the submission system at https://njdeponline.com. Follow the registration process and create an account. To submit an application, select the service "Apply for a Land Use Permit or Authorization."

CALL NJDEP AT (609) 777-0454 IF YOU HAVE ANY QUESTIONS

1. A completed application form (Paper submissions ONLY)

2. A completed Property Owner Certification form (Electronic submissions ONLY)
   - Acceptable file formats include pdf, jpg, and png.

3. Public notice:
   - **Electronic Submissions:** A completed Public Notice form. Documentation that notice of the application has been provided in accordance with N.J.A.C. 7:7A-17 must be attached to the form (see below for details). Acceptable file formats include pdf, jpg, and png.
   - **Paper Submissions:** Documentation that notice of the application has been provided in accordance with N.J.A.C. 7:7A-17 (see below for details).

Both electronic and paper submissions require documentation of public notice as follows:

i. Notice to municipal clerk (N.J.A.C. 7:7A-17.3(a))

A copy of the entire application, as submitted to the Department, must be provided to the municipal clerk in each municipality in which the site is located. For electronic submissions, the application consists of a description of the project, the specific permit(s)/authorization(s) being sought, and all items that will be uploaded to the online service, including all required items on this checklist.

- Documentation of compliance with this requirement shall consist of a copy of the certified United States Postal Service white mailing receipt, or other written receipt, for each copy of the application sent.

ii. Notice to governmental entities and property owners (N.J.A.C. 7:7A-17.3(b) and (c))

A brief description of the proposed project, a legible copy of the site plan, and the form notice letter described at N.J.A.C. 7:7A-17.3(e)1iii must be sent to the following recipients:

A. The construction official of each municipality in which the site is located;
B. The environmental commission, or other government agency with similar responsibilities, of each municipality in which the site is located;
C. The planning board of each municipality in which the site is located;
D. The planning board of each county in which the site is located;
E. The local Soil Conservation District if the regulated activity or project will disturb 5,000 square feet or more of land; and
F. Adjacent property owners:
If the application is for one of the following projects (listed at N.J.A.C 7:7A-17.3(c)1-5), notice shall be sent to all owners of real property, including easements, located within 200 feet of any proposed above-ground structure, except for any conveyance lines suspended above the ground or small utility support structures (e.g. telephone poles):

- A linear project of one-half mile or longer
- A trail or boardwalk of one-half mile or longer
- A public project on a site of 50 acres or more
- An industrial or commercial project on a site of 100 acres or more
- A project to remove sediment or debris from a channel of one-half mile or longer

For any other project, notice shall be sent to all owners of real property, including easements, located within 200 feet of the site of the proposed regulated activity.

The owners of real property, including easements, shall be those on a list that was certified by the municipality, with a date of certification no more than one year prior to the date the application is submitted.

- Documentation of compliance with this requirement shall consist of:

1. A copy of the certified United States Postal Service white mailing receipt for each public notice that was mailed, or other written receipt;
2. A certified list of all owners of real property, including easements, located within 200 feet of the property boundary of the site (including name, mailing address, lot, and block) prepared by the municipality for each municipality in which the project is located. The date of certification of the list shall be no earlier than one year prior to the date the application is submitted to the Department; and
3. A copy of the form notice letter.

- The form notice letter required under N.J.A.C. 7:7A-17.3(e)1iii shall read as follows:

"This letter is to provide you with legal notification that an application for a transition area waiver <<has been/will be>> submitted to the New Jersey Department of Environmental Protection, Division of Land Use Regulation for the development shown on the enclosed plan(s). A brief description of the proposed project follows: <<INSERT DESCRIPTION OF THE PROPOSED PROJECT>>

The complete permit application package can be reviewed at either the municipal clerk's office in the municipality in which the site subject to the application is located, or by appointment at the Department's Trenton Office. The Department of Environmental Protection welcomes comments and any information that you may provide concerning the proposed development and site. Please submit your written comments within 15 calendar days of receiving this letter to:

New Jersey Department of Environmental Protection
Division of Land Use Regulation
P.O. Box 420, Code 501-02A
Trenton, New Jersey 08625
Attn: (Municipality in which the property is located) Supervisor"

iii. Newspaper notice (N.J.A.C. 7:7A-17.4)

Newspaper notice, in the form of a legal notice or display advertisement in the official newspaper of the municipality(ies) in which the project site is located, or if no official newspaper exists, in a newspaper with general circulation in the municipality(ies), is required for the following projects:

A. A linear project of one-half mile or longer
B. A shore protection development, including beach nourishment, beach and dune maintenance, or dune creation of one-half mile or longer
C. A public project on a site of 50 acres or more
D. An industrial or commercial project on a site of 100 acres or more
E. Maintenance dredging of a State navigation channel of one-half mile or longer

If your project is not one listed above, newspaper notice is not required.

- Documentation of newspaper notice shall consist of:
  1. A copy of the published newspaper notice; and
  2. The date and name of the newspaper in which notice was published.

- The newspaper notice may be either a legal notice or display advertisement and must read as follows:

"Take notice that an application for a transition area waiver <<has been/ will be>> submitted to the New Jersey Department of Environmental Protection, Division of Land Use Regulation for the development described below:

APPLICANT:

PROJECT NAME:

PROJECT DESCRIPTION:

PROJECT STREET ADDRESS:

BLOCK: *LOT:*

MUNICIPALITY: *COUNTY:*

The complete permit application package can be reviewed at either the municipal clerk's office in the municipality in which the site subject to the application is located, or by appointment at the Department's Trenton Office. The Department of Environmental Protection welcomes comments and any information that you may provide concerning the proposed development and site. Please submit your written comments within 15 calendar days of the date of this notice to:

New Jersey Department of Environmental Protection
Division of Land Use Regulation
P.O. Box 420, Code 501-02A
501 East State Street
Trenton, New Jersey 08625
Attn: (Municipality in which the property is located) Supervisor"

4. Application fees:

- **Electronic Submissions:** The appropriate application fee, as specified in N.J.A.C. 7:7A-18.1, payable through the online service via credit card or e-check, or to receive a bill, select "Bill Me" on the payment screen. Bills will be sent to the Fee Billing Contact identified in the service and must be paid directly to the Department of Treasury.

- **Paper Submissions:** The appropriate application fee, as specified in N.J.A.C. 7:7A-18.1, in the form of a check (personal, bank, certified, or attorney), money order, or government purchase order made payable to "Treasurer State of New Jersey."

5. Site plans:

All site plans must include the scale of the site plans, a north arrow, the name of the person who prepared the plans, date the site plans were prepared, and the applicant's name and the block, lot, and municipality in which the site is located. In addition, the site plans shall include the following information, both on and adjacent to the site, in accordance with N.J.A.C. 7:7A-16.7(a)4:

i. Existing features:
   A. Lot Lines and right of-way lines;
   B. Delineation of wetlands, transition areas, and State open waters;
   C. Land cover and vegetation.

ii. Proposed regulated activities:
   A. Changes in lot lines;
   B. Location and area of any transition areas that will be disturbed;
   C. Size, location, and detail of any proposed activities;
   D. The proposed area in which the standard transition area will be reduced, and the proposed area that will be added to the transition area as compensation;
   E. Details of any planting to restore temporarily disturbed areas in accordance with N.J.A.C. 7:7A-11.8.

iii. Topography:
   A. Existing and proposed topography. All topography must reference NGVD or include the appropriate conversion factor to NGVD.

iv. Soil erosion and sediment control:
   A. Details of any proposed soil erosion and sediment control measures.

- **Electronic Submissions:** Acceptable file formats include pdf and zip. Site plans must be certified in accordance with N.J.A.C. 7:7A-16.2(j) and prepared according to the Department's site plan specifications for electronic site plans. All plans must be digitally signed and sealed by a New Jersey licensed professional engineer, surveyor, or architect, as appropriate, pursuant to N.J.A.C. 13:40-7.2 through 7.4, with signatures and seals that meet the requirements of N.J.A.C. 13:40-8.1A. Site plans with electronic signatures, such as scans of site plans with a handwritten signature, will not be accepted.

- **Paper Submissions:** Three sets of site plans, certified in accordance with N.J.A.C. 7:7A-16.2(j). Prior to issuance of any permit, the Department will require four to five sets of final site plans. The site plans must be signed and sealed by a New Jersey licensed professional engineer, surveyor, or architect, as appropriate, pursuant to N.J.A.C. 13:40-7.2 through 7.4.

6. Photographs:
   i. Color photographs depicting:
      A. The existing site conditions; and
      B. The location of the proposed disturbance.
   ii. A photo location map showing the location and direction from which each photograph was taken.

- **Electronic Submissions:** Acceptable file formats include pdf, doc, docx, jpg, zip, ppt, and pptx.
- **Paper Submissions:** One set of photographs mounted on 8½-inch by 11-inch paper. Copies of photographs are acceptable provided they are color copies. Black and white copies of photographs are not acceptable.

---

7. A compliance statement that includes:
   i. The total square footage of the standard transition area, determined in accordance with N.J.A.C. 7:7A-3.3;
   ii. The total square footage of transition area to be disturbed by the proposed project, including grading;
   iii. The total square footage by which the transition area will be reduced, and the total square footage of increased transition area which will be provided in compensation for the reduction;
   iv. If the site is located in a municipality with the endangered plant known as swamp pink (*Helonias bullata*), which are listed in Known Locations of Swamp Pink in NJ, a signed statement from the applicant certifying that the proposed activities will not result in any direct or indirect adverse impacts to swamp pink or its documented habitat;
   v. If the site is located in a municipality with the endangered bog turtle (these municipalities are listed in Known Locations of Bog Turtles in NJ), a signed statement from the applicant, certifying that the proposed activities will not result in any direct or indirect adverse impacts to bog turtles or to their documented habitat;
   vi. If the site is located in an area designated a Wild and Scenic River, or under study for such designation, a letter from the National Park Service approving the proposed activities;
   vii. If the application reflects any of the characteristics at N.J.A.C. 7:7A-19.5(l), a Phase IA historical and archaeological survey, and an architectural survey, defined at N.J.A.C. 7:7A-1.3; and
   viii. A copy of the deed and/or other legal documents pertaining to the site.

- **Electronic Submissions:** The compliance statement should be uploaded under the attachment type "Environmental Report with Site Location Maps." Acceptable file formats include pdf, doc, docx, rtf, and zip.

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8. Color copies of the following maps:
   i. The tax map for the property;
   ii. A copy of the portion of the county road map showing the property location; and
   iii. A copy of the USGS quad map(s) that includes the site, with the site clearly outlined to scale.

- **Electronic Submissions:** The required maps should be uploaded with the compliance statement under the attachment type "Environmental Report with Site Location Maps." Acceptable file formats include pdf, doc, docx, rtf, and zip.

9. Location of wetlands:

Documentation that a line delineation or line verification Letter of Interpretation (LOI) has been issued for the site

- **Electronic Submissions:** Acceptable file formats include pdf, jpg, and png.

10. Calculations and analyses:

    i. If the project is a major development as defined by N.J.A.C. 7:8-1.2, a demonstration of compliance with the requirements of the Stormwater Management Rules, N.J.A.C. 7:8.

All calculations or analyses submitted as part of an application must include the certification set forth at N.J.A.C. 7:7-23.2(j). Any necessary stormwater calculations must be signed and sealed by a New Jersey licensed professional engineer.

- **Electronic Submissions:** Acceptable file formats include pdf, doc, docx, rtf, and zip unless stormwater calculations are necessary. Stormwater calculations must be digitally signed and sealed in accordance with N.J.A.C. 13:40-8.1A. Stormwater calculations with electronic signatures, such as scans of calculations with a handwritten signature, will not be accepted. Therefore, when calculations are necessary, the acceptable file formats are limited to pdf and zip.

11. Natural Heritage Program Letter:

A copy of an NJDEP, Office of Natural Lands Management Natural Heritage Database data request response for endangered or threatened species of flora or fauna, including a Landscape Map report, if available

- **Electronic Submissions:** Acceptable file formats include pdf, jpg, and png.

12. Additional requirements:

    i. Highlands applicability determination (highlands exemption) – applies only if the project is located within the Highlands Preservation Area

        - **Electronic Submissions:** Acceptable file formats include pdf, jpg, and png.

    ii. Conservation restriction – applies only if the proposed project is subject to an existing conservation restriction

        - **Electronic Submissions:** Acceptable file formats include pdf, jpg, and png.

    iii. Written consent from municipality – applies only if the project includes a gas pipeline and any section of that pipeline is located within a municipally-owned right-of-way. Written consent shall consist of one of the following:

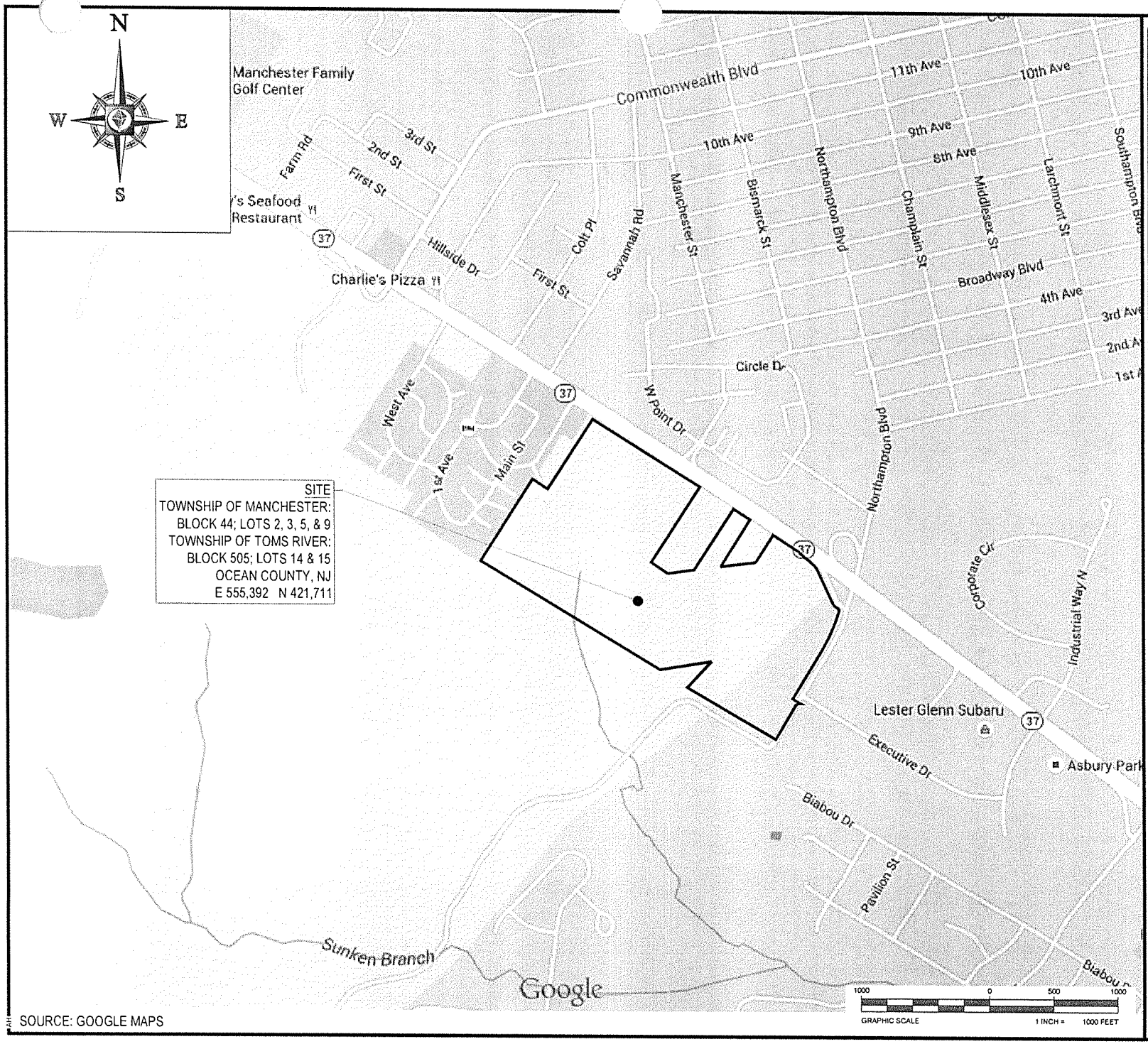
        A. Written consent from the municipality in the form of a resolution of the governing body or an ordinance

        B. A municipal designation of the route pursuant to N.J.S.A. 48:9-25.4

        C. A Board of Public Utilities designation of route pursuant to N.J.S.A. 48:9-25.4

        - **Electronic Submissions:** Acceptable file formats include pdf, jpg, and png.

13. A computer disk containing a copy of the entire application (Paper submissions ONLY)



SOURCE: GOOGLE MAPS

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SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING LANDSCAPE ARCHITECTURE
HIGHWAY MANAGEMENT TRANSPORTATION SERVICES
SUSTAINABLE DESIGN PERMITTING SERVICES

REVISIONS

REV.	DATE	COMMENT	DRAWN BY / CHECKED BY
1	06/16/2019	REV. PER CLIENT COMMENTS	AJH / GSD

PROJECT No.:	JM170508
DRAWN BY:	SLM
CHECKED BY:	MM
DATE:	11/30/2017
SCALE:	AS SHOWN
CAD I.D.:	JM170508-EIE-1A

PROJECT:
PRELIMINARY & FINAL SITE PLAN
FOR
GRUNIN PROPERTIES

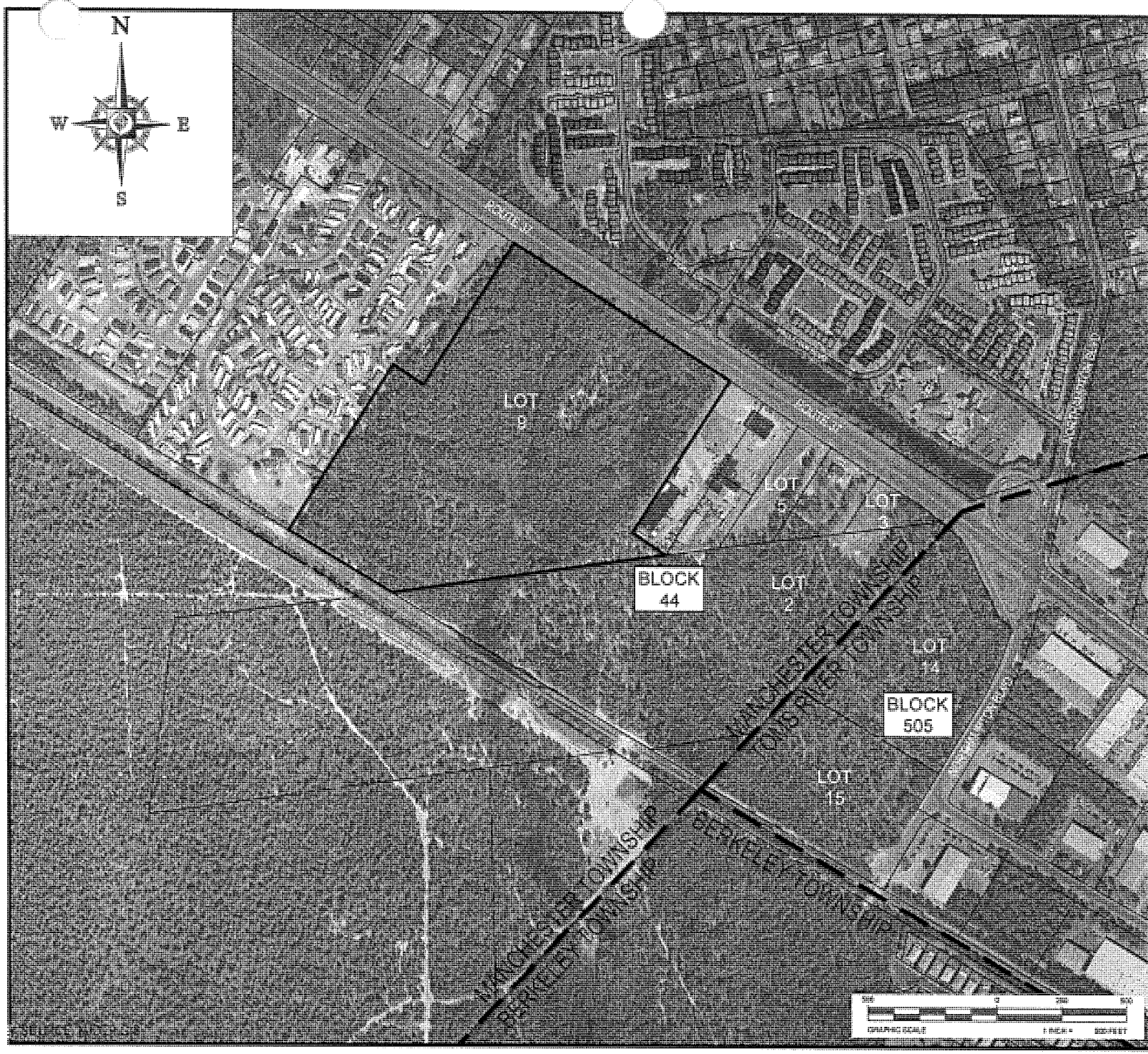
LOCATION OF SITE
MANCHESTER TOWNSHIP
TOMS RIVER TOWNSHIP
NJSH RT#37 & NORTHAMPTON BLVD.
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
BOHLER ENGINEERING NJ, LLC
10000 MIDLANTIC DRIVE, SUITE 410W
MOUNT LAUREL, NJ 08054
Phone: (856) 930-4000
Fax: (856) 930-4001
www.BohlerEngineering.com
NJ CERT. OF AUTHORIZATION NO. 24GA28164700

FIGURE
A-1

SHEET TITLE:
ROAD MAP

SHEET NUMBER:
1 OF 6



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REVISIONS

REV	DATE	COMMENT
1	08/30/10	REV. PER CLIENT COMMENTS

PROJECT No.: 2007-11038
DRAWN BY: SLB
CHECKED BY: MM
DATE: 11/09/2007
SCALE: AS SHOWN
CADD FILE: 2007-11038-FIG A-2

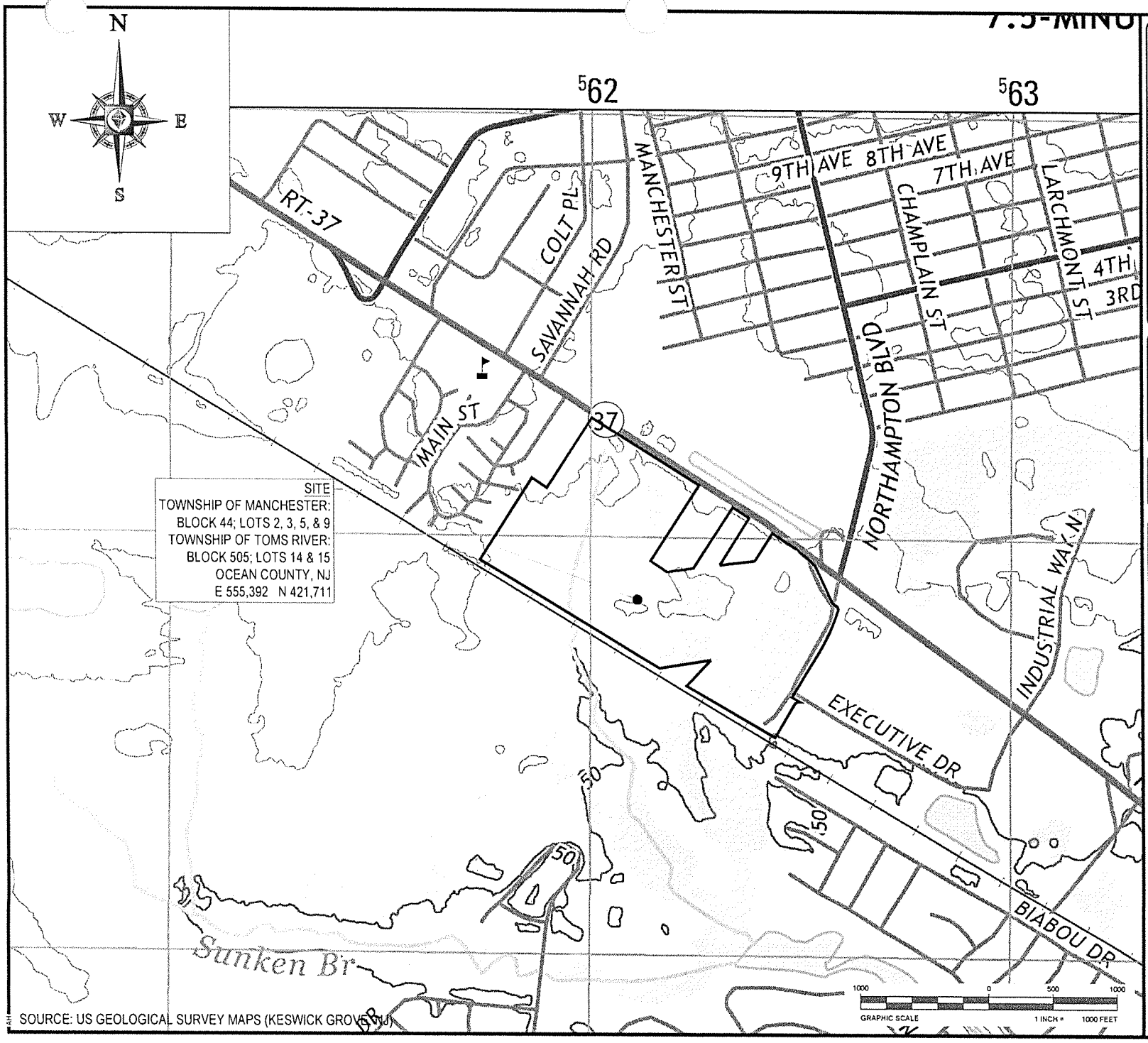
PROJECT
PRELIMINARY & FINAL SITE PLAN
FOR
GRUNIN PROPERTIES
LOCATION OF SITE
MANCHESTER TOWNSHIP
TOMS RIVER TOWNSHIP
HUSHPUCKET & NORTHAMPTON BLVD.
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
1000 MEDICAL DRIVE, SUITE 100B
MOUNT LAUREL, NJ 08054
Phone: (856) 830-4800
Fax: (856) 830-4801
www.BohlerEngineering.com

FIGURE A-2

SHEET TITLE:
AERIAL PHOTO

SHEET NUMBER:
2 OF 8



SOURCE: US GEOLOGICAL SURVEY MAPS (KESWICK GROVE, NJ)

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING PROGRAM MANAGEMENT LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN PERMITTING SERVICES TRANSPORTATION SERVICES

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DATE:	11/30/2017
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CAD I.D.:	JM170508-EIE-1A

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FOR
GRUNIN PROPERTIES

LOCATION OF SITE
MANCHESTER TOWNSHIP
TOMS RIVER TOWNSHIP
NJSH RT#37 & NORTHAMPTON BLVD.
OCEAN COUNTY, NEW JERSEY

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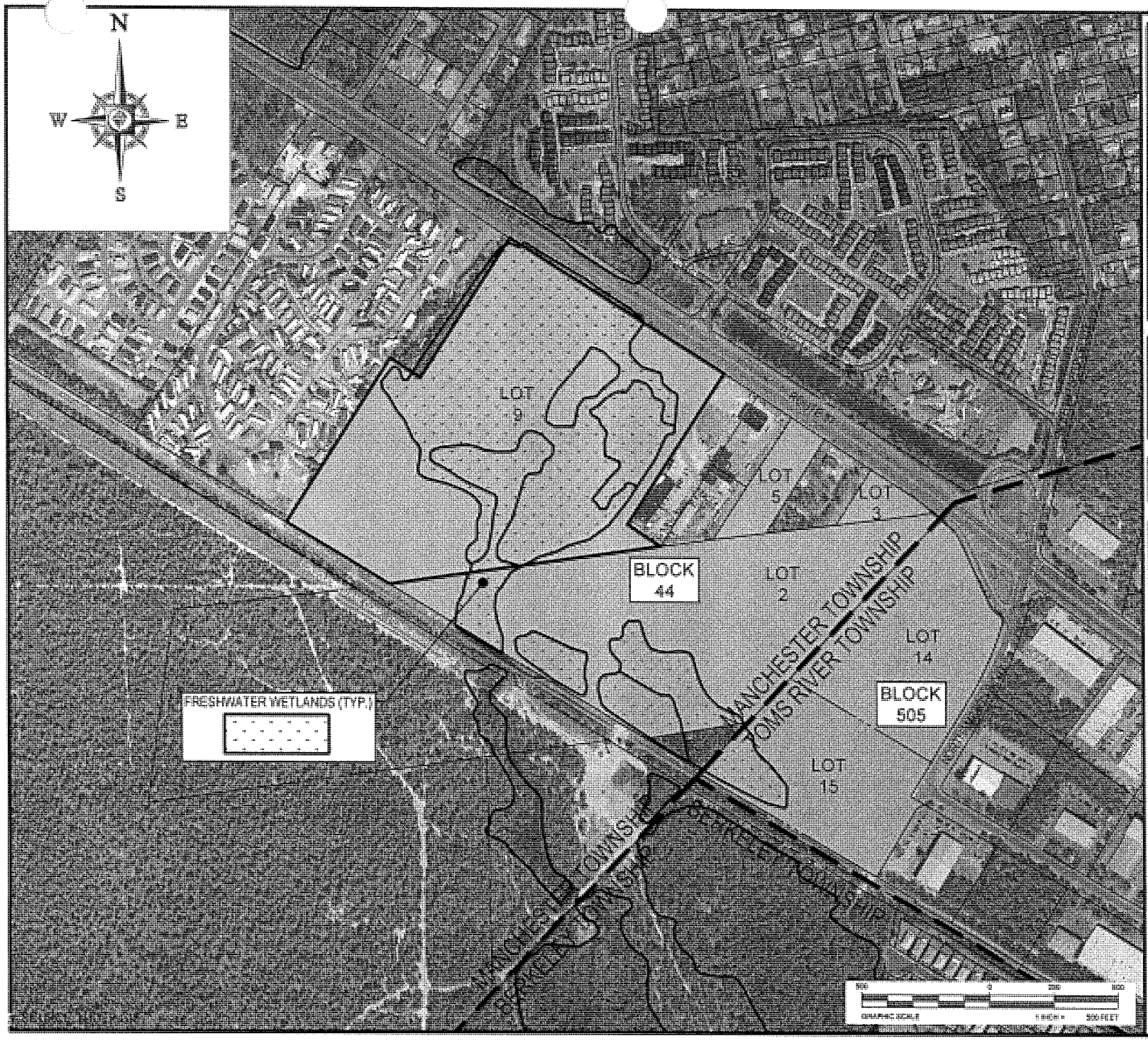
Fax: (856) 930-4001
www.BohlerEngineering.com
NJ CERT OF AUTHORIZATION NO. 24GA28161700

FIGURE
A-3

SHEET TITLE
USGS SITE LOCATION MAP

SHEET NUMBER:
3 OF 6



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REVISIONS

REV.	DATE	COMMENT	
1	[illegible]	REV PER CLIENT COMMENTS	[illegible]

PROJECT No.: [illegible]
DRAWN BY: [illegible]
CHECKED BY: [illegible]
DATE: [illegible]
SCALE: AS SHOWN
CAD I.D.: [illegible]

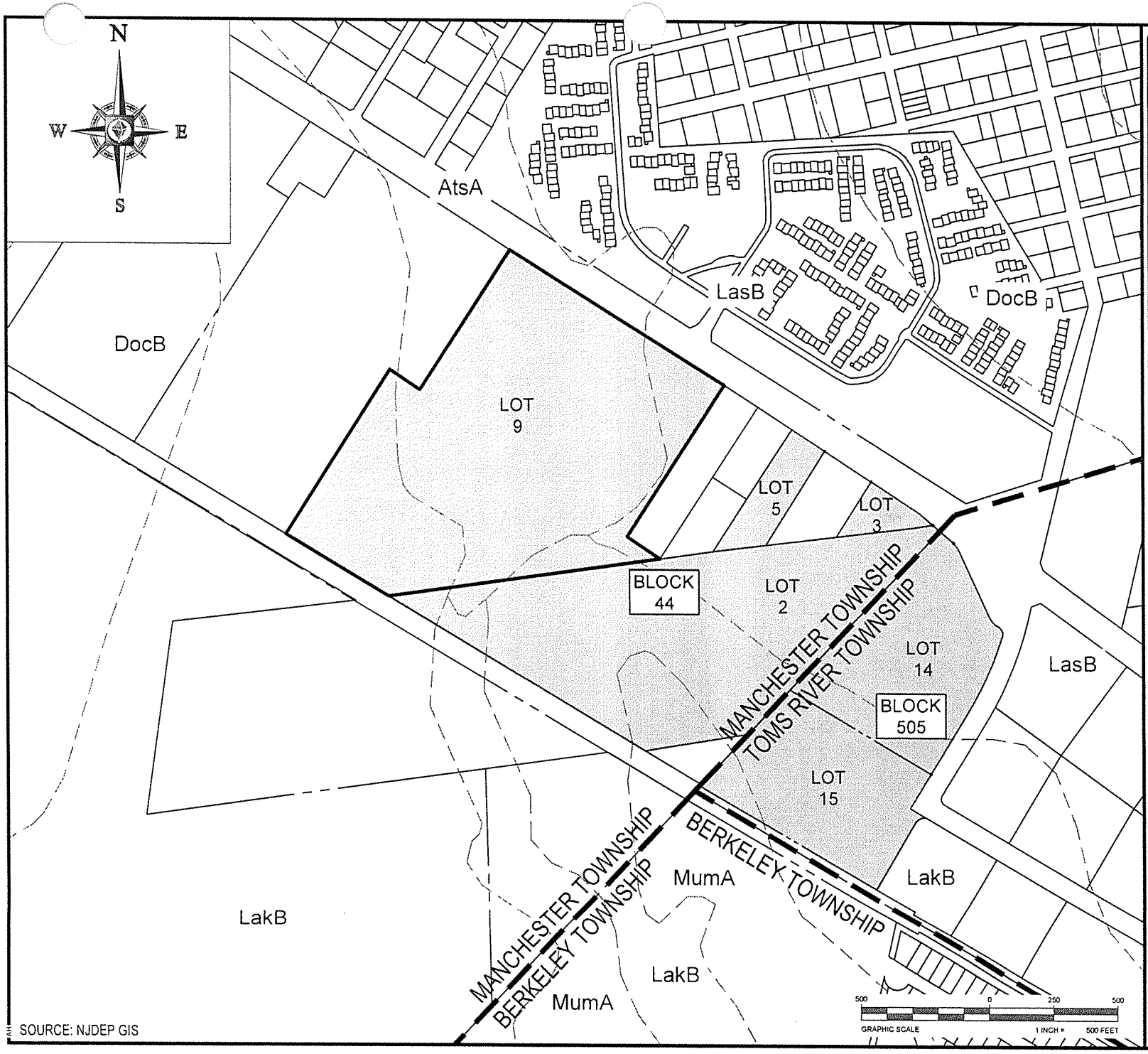
PROJECT
PRELIMINARY & FINAL SITE PLAN
FOR
GRUNIN PROPERTIES
LOCATION OF SITE
MANCHESTER TOWNSHIP
TOMS RIVER TOWNSHIP
HUGH STREET & NORTHAMPTON BLVD.
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING
[illegible] MIDLAND DRIVE, SUITE 410
MOUNT LAUREL, NJ 08054
Phone: [illegible]
Fax: [illegible]
www.BohlerEngineering.com

FIGURE A-4

SHEET TITLE
NJ GEOWEB WETLANDS MAPPING

SHEET NUMBER:
4 OF 4



SOURCE: NJDEP GIS

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING PROGRAM MANAGEMENT LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN PERMITTING SERVICES TRANSPORTATION SERVICES

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LOCATION OF SITE
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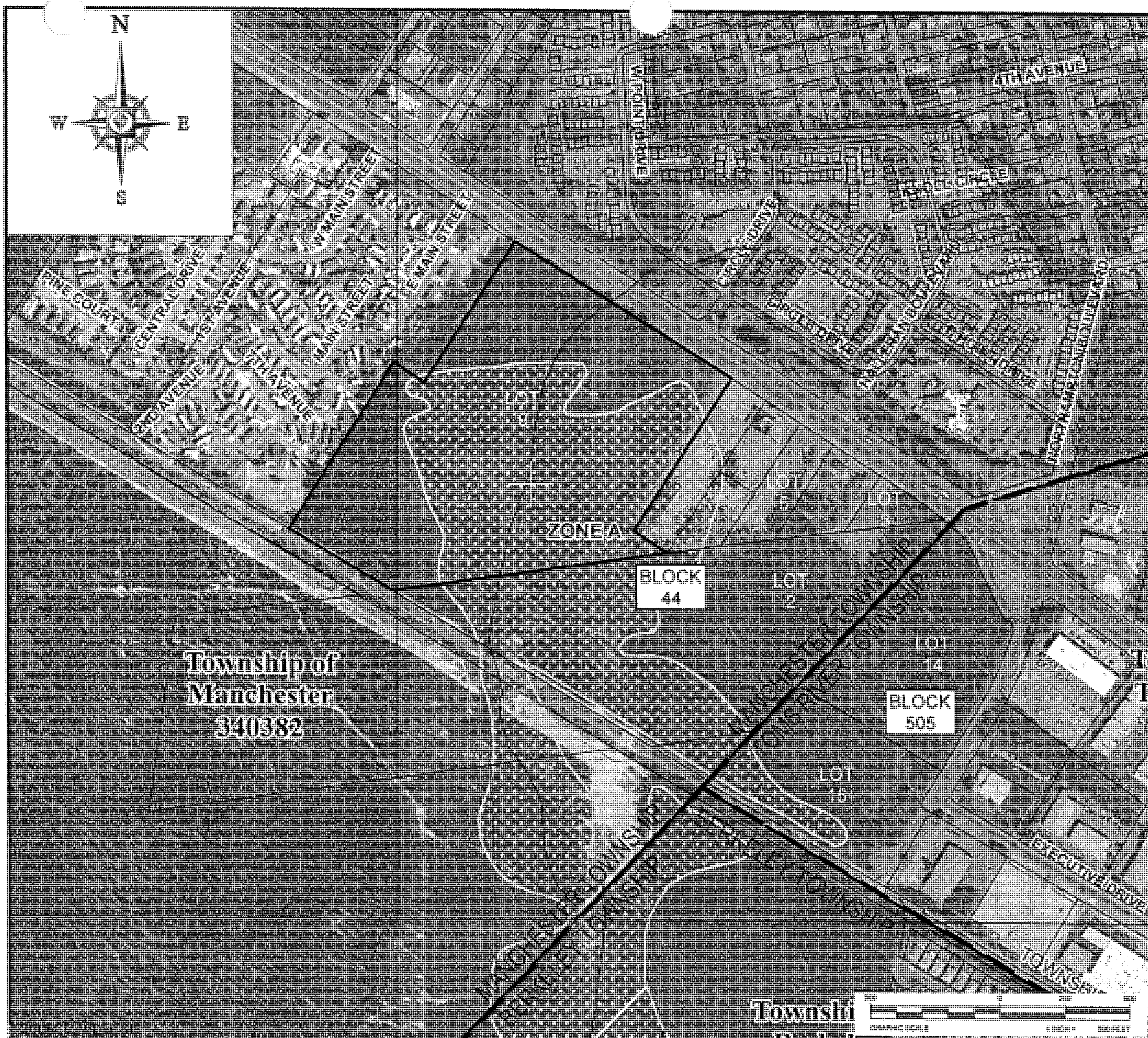
NJ CERT. OF AUTHORIZATION NO. 24GA28161700

FIGURE
A-5

SHEET TITLE:
NRCS SOILS MAP

SHEET NUMBER:
5 OF 6



BOHLER ENGINEERING

REVISIONS

REV	DATE	COMMENT
1		REV PER CLIENT COMMENTS

PRELIMINARY & FINAL SITE PLAN

FOR

GRUNIN PROPERTIES

LOCATION OF SITE
MANCHESTER TOWNSHIP
TOMS RIVER TOWNSHIP
RUSH STREET & NORTHAMPTON BLVD.
OCEAN COUNTY, NEW JERSEY

BOHLER ENGINEERING

MOUNT LAUREL, NJ

www.BohlerEngineering.com

FIGURE
A-6

SHEET TITLE:

FEMA MAP

SHEET NUMBER:

6 OF 6

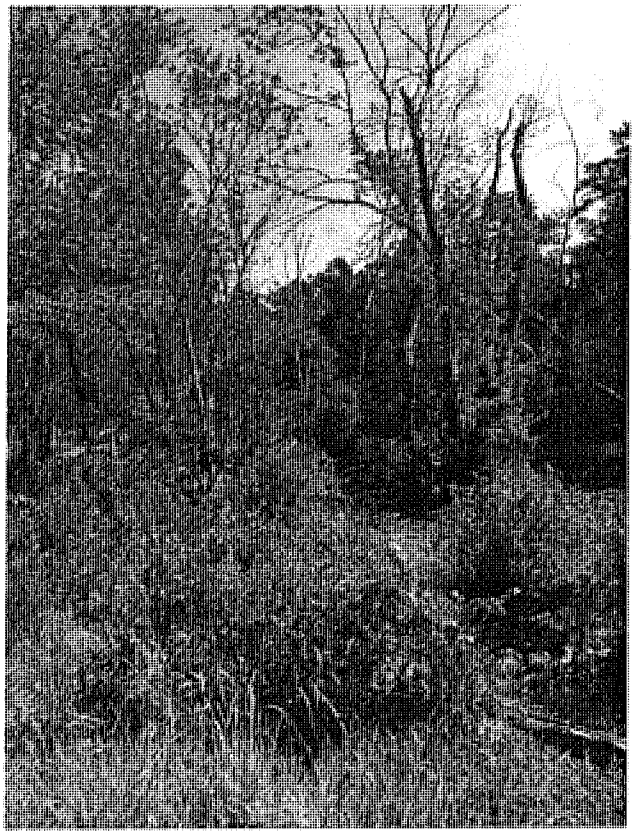


Photo 1

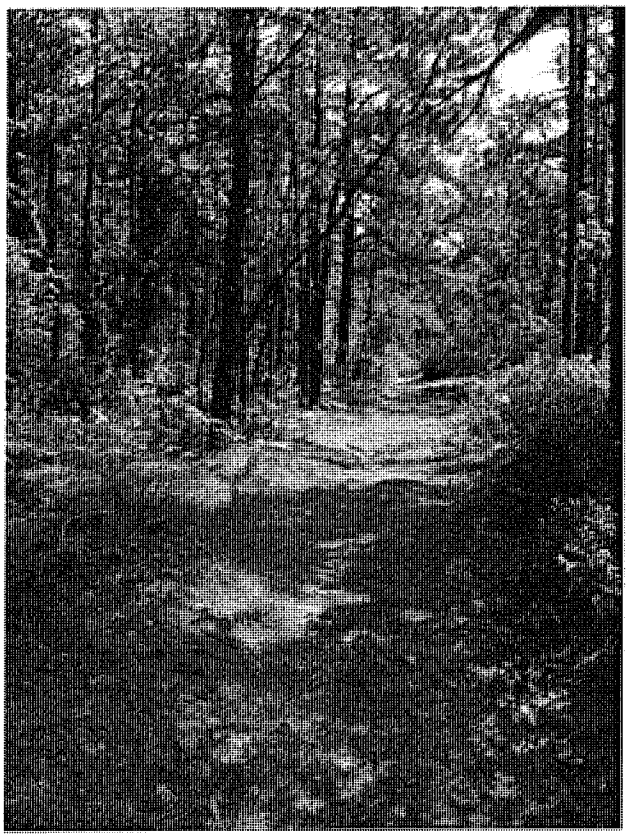


Photo 2

Grunin Properties

Block 505/44, Lots 14 & 15/2, 3, 5, 9	Toms River and Manchester, Ocean County, NJ
BENJ #JM170508	BOHLER ENGINEERING
Prepared by: MM — Date: 4/8/2016	
Checked by: GD — Scale: NTS	

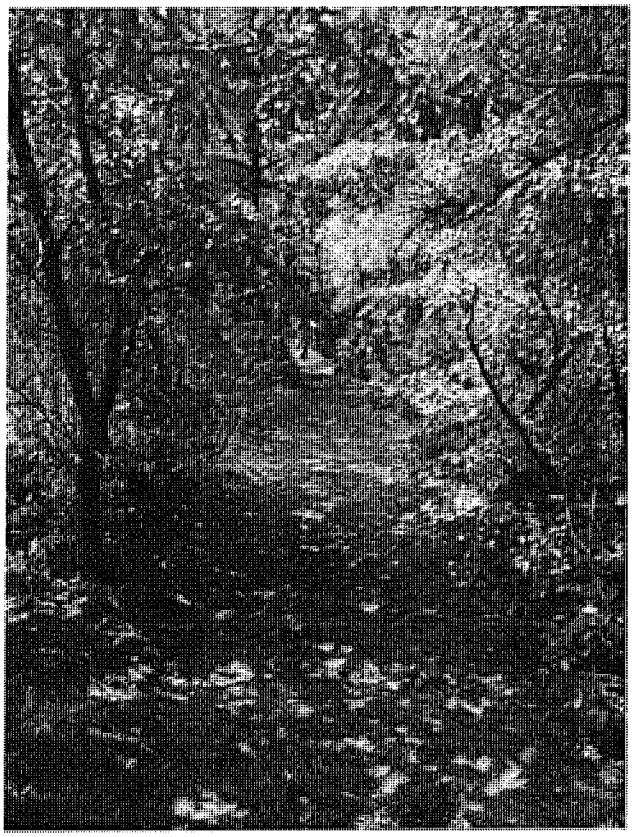


Photo 3

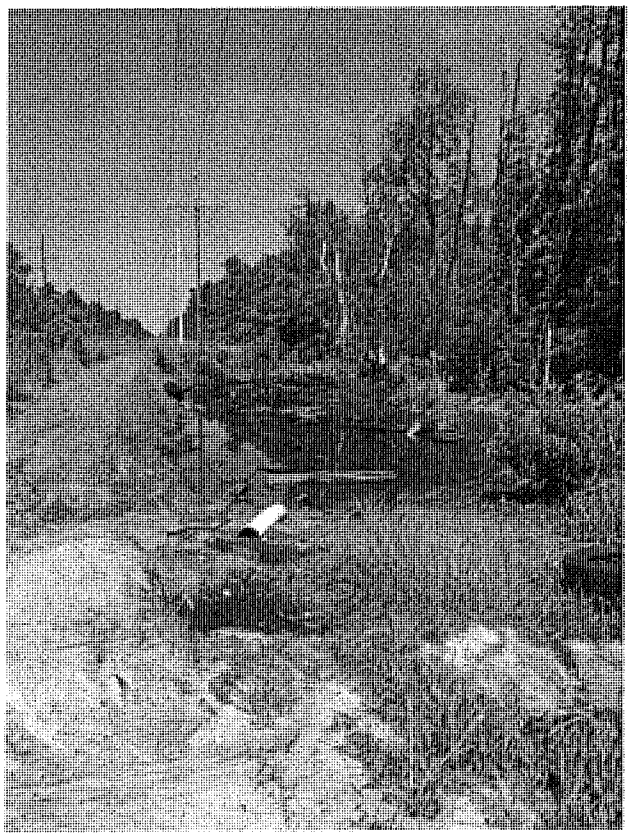
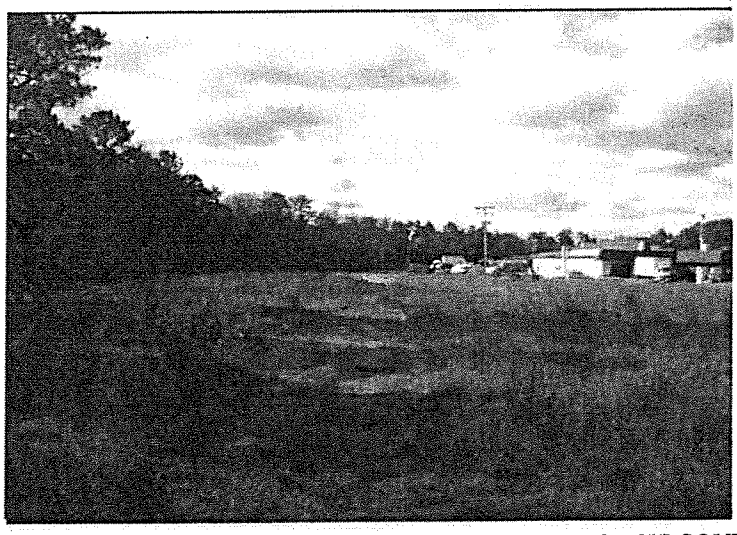


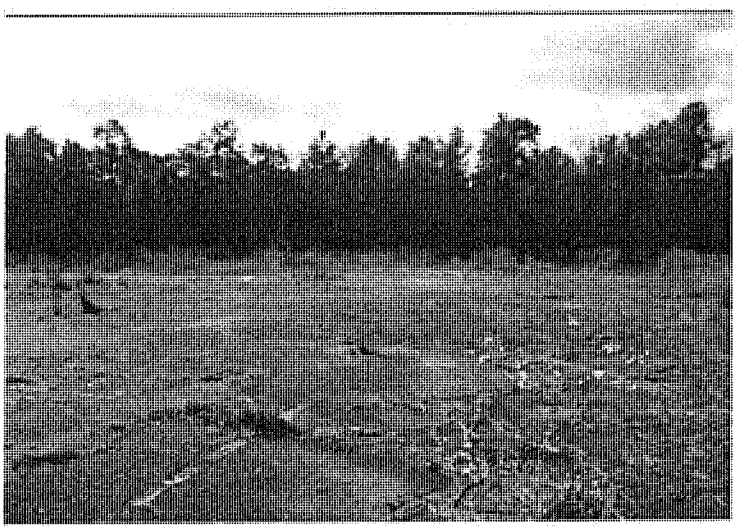
Photo 4

Grunin Properties

Block 505/44, Lots 14 & 15/2, 3, 5, 9	**Toms River and Manchester, Ocean County, NJ**
BENJ #JM170508	BOHLER ENGINEERING
Prepared by: MM	Date: 4/8/2016
Checked by: GD	Scale: NTS



5. NORTHWESTERN PORTION OF SITE (LOT 5); VIEW TO THE SOUTH.

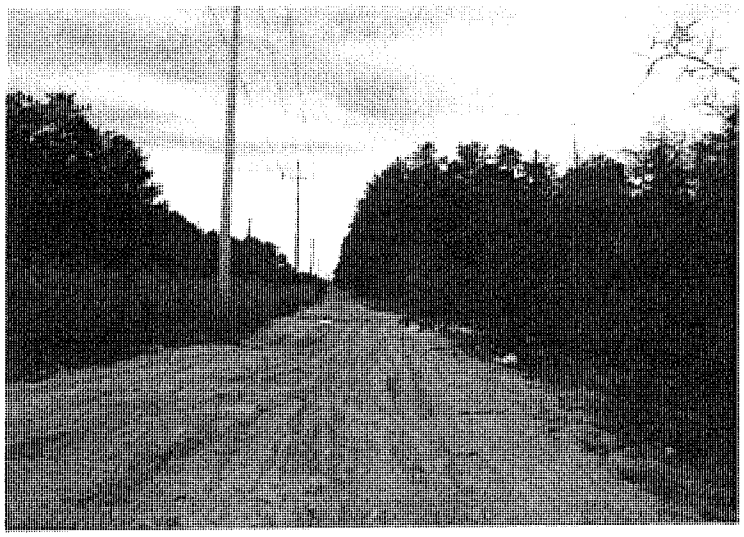


6. NORTHERN PORTION OF SITE (LOT 2); VIEW TO THE SOUTHEAST.

7. UNPAVED PATHWAY IN EASTERN PORTION OF SITE; VIEW TO THE WEST

8. SOUTHERN PORTION OF LOT 4; VIEW TO THE SOUTHWEST.

9. OUT-OF-SERVICE POTABLE WELL LOCATED ON LOT 3.



10. SOUTHERN PROPERTY BOUNDARY; VIEW TO THE WEST.

11. SOUTHEASTERN PORTION OF SITE (LOT 14); VIEW TO THE NORTH. NOTE MISCELLANEOUS DEBRIS.

12. SOUTHWESTERN PORTION OF SITE (LOT 2); VIEW TO THE NORTH.

13. WETLAND AREAS LOCATED IN SOUTHWESTERN PORTION OF THE SITE (LOT 2).

14. WETLAND AREA LOCATED IN SOUTHERN PORTION OF SITE (LOT 14).

15. ABANDONED GROUNDWATER MONITOR WELLS LOCATED ON LOT 2.

16. ABANDONED GETTY GASOLINE STATION LOCATED ON LOT 4 (ADJOINING); VIEW TO THE SOUTHWEST.

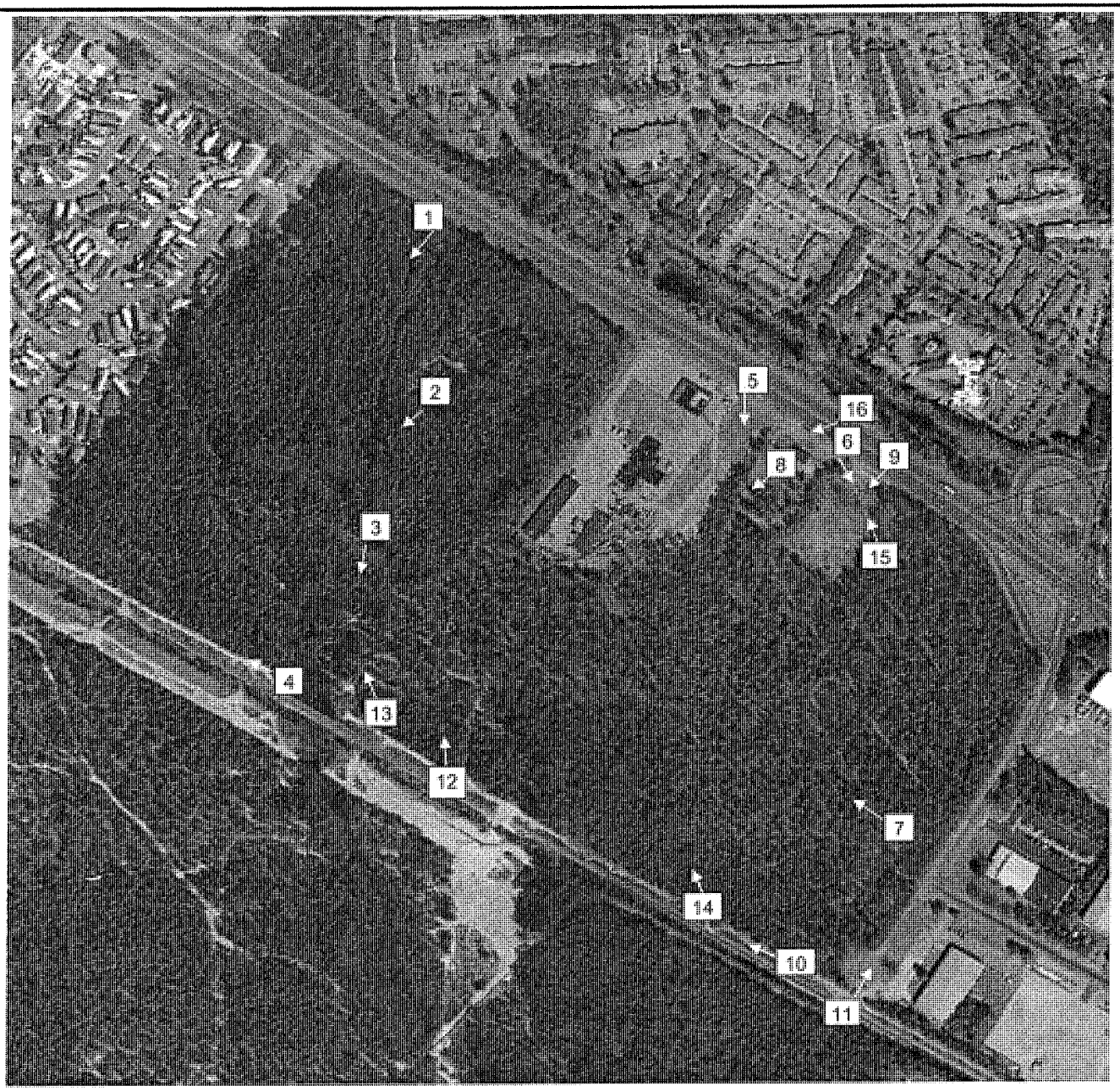


Photo Location Map

Grunin Properties

Block 505/44, Lots 14 & 15/2, 3, 5, 9	Toms River and Manchester, Ocean County, NJ
BENJ #JM170508	BOHLER ENGINEERING
Prepared by: MM — Date: 4/8/2016	
Checked by: GD — Scale: NTS	

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Parks & Forestry
State Forestry Service
Mail Code 501-04
Office of Natural Lands Management – Natural Heritage Program
P.O. Box 420
Trenton, NJ 08625-0420
Tel. (609) 984-1339 Fax. (609) 984-1427

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

November 28, 2017

Michelle Measday
Bohler Engineering, P.C.
35 Technology Drive
Warren, NJ 07059

Re: Proposed Mixed Use Retail
Block(s) - 505; 44; 75.01, Lot(s) - 14 & 15; 2-5 & 9; 3
Toms River and Manchester Townships, Ocean County

Dear Ms. Measday:

Thank you for your data request regarding rare species information for the above referenced project site.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.3) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the Natural Heritage Data Request Form into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Landscape Project habitat mapping and the Biotics Database for occurrences of any rare wildlife species or wildlife habitat on the referenced site. The Natural Heritage Database was searched for occurrences of rare plant species or ecological communities that may be on the project site. Please refer to Table 1 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented on site. A detailed report is provided for each category coded as 'Yes' in Table 1.

We have also checked the Landscape Project habitat mapping and Biotics Database for occurrences of rare wildlife species or wildlife habitat in the immediate vicinity (within ¼ mile) of the referenced site. Additionally, the Natural Heritage Database was checked for occurrences of rare plant species or ecological communities within ¼ mile of the site. Please refer to Table 2 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented within the immediate vicinity of the site. Detailed reports are provided for all categories coded as 'Yes' in Table 2. These reports may include species that have also been documented on the project site.

We have also checked the Landscape Project habitat mapping and Biotics Database for all occurrences of rare wildlife species or wildlife habitat within one mile of the referenced site. Please refer to Table 3 (attached) to determine if any rare wildlife species or wildlife habitat is documented within one mile of the project site. Detailed reports are provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on the project site.

For requests submitted as part of a Flood Hazard Area Control Act (FHACA) rule application, we report records for all rare plant species and ecological communities tracked by the Natural Heritage Program that may be on, or in the immediate vicinity of, your project site. A subset of these plant species are also covered by the FHACA rules when the records are located within one mile of the project site. One mile searches for FHACA plant species will only report precisely located occurrences for those wetland plant species identified under the FHACA regulations as being critically dependent on the

watercourse. Please refer to Table 3 (attached) to determine if any precisely located rare wetland plant species covered by the FHACA rules have been documented. Detailed reports are provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on, or in the immediate vicinity of, the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1, 2 and 3 (attached) to determine if any priority sites are located on, in the immediate vicinity, or within one mile of the project site.

A list of rare plant species and ecological communities that have been documented from the county (or counties), referenced above, can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2010.pdf.

Beginning May 9, 2017, the Natural Heritage Program reports for wildlife species will utilize data from Landscape Project Version 3.3. If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive web application at the following URL, https://njdep.maps.arcgis.com/apps/webappviewer/index.html?id=0e6a44098c524ed99bf739953cb4d4c7, or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

For additional information regarding any Federally listed plant or animal species, please contact the U.S. Fish & Wildlife Service, New Jersey Field Office at http://www.fws.gov/northeast/njfieldoffice/endangered/consultation.html.

PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Robert J. Cartica
Administrator

c: NHP File No. 17-3907483-13099

Table 1: On Site Data Request Search Results (6 Possible Reports)

Report Name	Included	Number of Pages
1. Possibly on Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites On Site	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.3	Yes	1 page(s) included
5. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	Yes	1 page(s) included

Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Amphibia								
	Pine Barrens Treefrog	Hyla andersonii	Breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Occupied Habitat	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Vernal Pool Breeding	3	NA	State Threatened	G4	S2
Aves								
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
Reptilia								
	Corn Snake	Pantherophis guttatus	Occupied Habitat	4	NA	State Endangered	G5	S1
	Northern Pine Snake	Pituophis melanoleucus melanoleucus	Occupied Habitat	3	NA	State Threatened	G4T4	S2

Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.3

Vernal Pool Habitat Type	Vernal Pool Habitat ID
Vernal habitat area	2806

Total number of records: 1

Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Invertebrate Animals					
Catocala herodias gerhardi	Herodias or Pine Barrens Underwing			G3T3	S3
Cicindela patruela consentanea	New Jersey Pine Barrens Tiger Beetle			G3T1T3	S2S3
Grammia placentia	Placentia Tiger Moth			G3G4	S1S3
Lithophane lemmeri	Lemmer's Noctuid Moth			G3G4	S2
Metarranthis pilosaria	Coastal Bog Metarranthis			G3G4	S3S4
Ptichodis bistrigata	Southern Ptichodis			G3	S1S3
Zanclognatha dentata	A Noctuid Moth			G3G4	S3

Total number of records: 7

Table 2: Vicinity Data Request Search Results (6 possible reports)

Report Name	Included	Number of Pages
1. Immediate Vicinity of the Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites within the Immediate Vicinity	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat In the Immediate Vicinity of Project Site Based on Search of Landscape Project 3.3	Yes	1 page(s) included
5. Rare Wildlife Species or Wildlife Habitat In the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species In the Immediate Vicinity of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	Yes	1 page(s) included

Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Amphibia								
	Pine Barrens Treefrog	Hyla andersonii	Breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Occupied Habitat	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Vernal Pool Breeding	3	NA	State Threatened	G4	S2
Aves								
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Snowy Egret	Egretta thula	Foraging	2	NA	Special Concern	G5	S3B,S4N
Reptilia								
	Corn Snake	Pantherophis guttatus	Occupied Habitat	4	NA	State Endangered	G5	S1
	Northern Pine Snake	Pituophis melanoleucus melanoleucus	Occupied Habitat	3	NA	State Threatened	G4T4	S2

Vernal Pool Habitat In the Immediate Vicinity of Project Site Based on Search of Landscape Project 3.3

Vernal Pool Habitat Type	Vernal Pool Habitat ID
Vernal habitat area	2806
Potential vernal habitat area	1250

Total number of records: 2

Other Animal Species
In the Immediate Vicinity of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Invertebrate Animals					
Catocala herodias gerhardi	Herodias or Pine Barrens Underwing			G3T3	S3
Cicindela patruela consentanea	New Jersey Pine Barrens Tiger Beetle			G3T1T3	S2S3
Grammia placentia	Placentia Tiger Moth			G3G4	S1S3
Lithophane lemmeri	Lemmer's Noctuid Moth			G3G4	S2
Metarranthis pilosaria	Coastal Bog Metarranthis			G3G4	S3S4
Ptichodis bistrigata	Southern Ptichodis			G3	S1S3
Zanclognatha dentata	A Noctuid Moth			G3G4	S3

Total number of records: 7

Table 3: Within 1 Mile for FHACA Searches (6 possible reports)

Report Name	Included	Number of Pages
1. Rare Plant Species Occurrences Covered by the Flood Hazard Area Control Act Rule Within One Mile of the Project Site Based on Search of Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites within 1 mile	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	2 page(s) included
4. Vernal Pool Habitat Within One Mile of the Project Site Based on Search of Landscape Project 3.3	Yes	1 page(s) included
5. Rare Wildlife Species or Wildlife Habitat Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species Within One Mile of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	Yes	1 page(s) included

Rare Wildlife Species or Wildlife Habitat Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Amphibia								
	Pine Barrens Treefrog	Hyla andersonii	Breeding Sighting	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Occupied Habitat	3	NA	State Threatened	G4	S2
	Pine Barrens Treefrog	Hyla andersonii	Vernal Pool Breeding	3	NA	State Threatened	G4	S2
Aves								
	Barred Owl	Strix varia	Breeding Sighting	3	NA	State Threatened	G5	S2B,S2N
	Cooper's Hawk	Accipiter cooperii	Breeding Sighting	2	NA	Special Concern	G5	S3B,S4N
	Glossy Ibis	Plegadis falcinellus	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Least Tern	Sternula antillarum	Foraging	4	NA	State Endangered	G4	S1B,S1N
	Snowy Egret	Egretta thula	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Tricolored Heron	Egretta tricolor	Foraging	2	NA	Special Concern	G5	S3B,S3N
Insecta								
	Dotted Skipper	Hesperia attalus slossonae	Casual Flyby	2	NA	Special Concern	G3G4T3	S3

Rare Wildlife Species or Wildlife Habitat Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Reptilia								
	Corn Snake	Pantherophis guttatus	Occupied Habitat	4	NA	State Endangered	G5	S1
	Northern Pine Snake	Pituophis melanoleucus melanoleucus	Occupied Habitat	3	NA	State Threatened	G4T4	S2

Vernal Pool Habitat Within One Mile of the Project Site Based on Search of Landscape Project 3.3

Vernal Pool Habitat Type	Vernal Pool Habitat ID
Vernal habitat area	2806
Potential vernal habitat area	1250
Potential vernal habitat area	1253
Potential vernal habitat area	1275

Total number of records: 4

Other Animal Species Within One Mile of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Invertebrate Animals					
Catocala herodias gerhardi	Herodias or Pine Barrens Underwing			G3T3	S3
Cicindela patruela consentanea	New Jersey Pine Barrens Tiger Beetle			G3T1T3	S2S3
Grammia placentia	Placentia Tiger Moth			G3G4	S1S3
Lithophane lemmeri	Lemmer's Noctuid Moth			G3G4	S2
Metarranthis pilosaria	Coastal Bog Metarranthis			G3G4	S3S4
Ptichodis bistrigata	Southern Ptichodis			G3	S1S3
Zanclognatha dentata	A Noctuid Moth			G3G4	S3

Total number of records: 7

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF LAND USE REGULATION

FRESHWATER WETLAND
TRANSITION AREA WAIVER AVERAGING PLAN

for

Proposed Retail Development
N.J.S.H. Route 37 and Northampton Boulevard

Block 44, Lots 2, 3, 5 and 9
Block 75.01, Lot 3
Township of Manchester
Block 505, Lot 14 and 15
Township of Toms River
Ocean County, New Jersey

Prepared for:

Jaylin Holdings, LLC
c/o Grunin Properties
Dover Esplanade Building
1027 Hooper Avenue
Toms River, New Jersey 08753

Prepared by:

BOHLER
ENGINEERING

35 Technology Drive
Warren, New Jersey 07059
908-668-8300

December 2017
Last Revised June 2019
BENJ #JM170508

Statement of Compliance for a Transition Area Averaging Plan

This statement has been prepared in accordance with the Freshwater Wetlands Transition Area Waiver Application Checklist in order to receive approval by the NJDEP for an Averaging Plan Transition Area Waiver under NJAC 7:7A-6.2.

We are applying for an Averaging Plan Transition Area Waiver in order to conduct regulated activities within the 150-ft transition area of an exceptional resource value wetland on site. The proposed regulated activities are located within the 150-ft transition area, for which we are requesting a transition area waiver, include grading associated with the construction of retail facility, specifically for the delivery truck drive access and infiltration/detention basins for the proposed development.

The transition area to be modified is shown on the "Wetland Transition Area Plan" as "Proposed Transition Area Reduction Area #1 and #2". The transition area that is being given as compensation for the modified area is shown on the plan as "Wetlands Transition Compensation Area #1". The transition area to be modified has an area of 48,872-SF (1.122-acres), which will be compensated with 50,975-SF (1.170-acres); which minimally exceeds the required 1:1 modification/compensation ratio. As shown, this results in a 2,103-SF (0.048-acre) net-increase in the total transition area for the wetlands found on the property.

Below details the project compliance with regulations outlined under section NJAC 7:7A-6.2 for the Transition Area Waiver Averaging Plan.

7:7A-6.2 Transition area averaging plan waiver

(a) A transition area averaging plan waiver modifies the overall shape of a transition area without reducing its total square footage. The Department may approve a transition area averaging plan waiver for activities adjacent to an intermediate or exceptional resource value freshwater wetlands. A diagram of an example transition area averaging plan is shown in N.J.A.C. 7:7A-6, Appendix A.

(b) The Department shall issue a transition area averaging plan waiver only if the transition area, as modified, will continue to serve the purposes of a transition area set forth in N.J.A.C. 7:7A-2.5. The Department shall presume that the following will result in a transition area that will not serve the purposes set forth in N.J.A.C. 7:7A-2.5, and shall not issue a transition area averaging plan waiver, unless the applicant demonstrates otherwise under N.J.A.C. 7:7A-6(d):

1. *The portion of the existing, pre-activity transition area that will be reduced has a slope greater than 25 percent, as calculated under N.J.A.C. 7:7A-6.4(g);*

   Compliance: The transition area impact area has an existing average slope of 6%. The final grade will be stabilized with seeding.

2. *A new individual subsurface sewage disposal (septic) system that discharges onsite will be placed within the existing, pre-activity transition area;*

   Compliance: No individual septic system is proposed within the pre-activity transition area.

3. *An outfall structure that will discharge unfiltered or untreated stormwater into wetlands will be placed within the existing, pre-activity transition area; or*

Compliance: No outfall structures are proposed onsite that would discharge unfiltered or untreated stormwater into wetland or transition areas.

4. *The proposed averaging compensation area is separated from the wetland by an intervening structure.*

Compliance: No intervening structures are proposed separating the wetland from the proposed compensation area.

(c) *In addition to the presumptions at (b) above, the Department shall also presume that, for a transition area adjacent to an intermediate resource value wetland, the following will result in a substantial impact on the adjacent freshwater wetlands, and the Department shall not issue a transition area averaging plan waiver unless the applicant demonstrates otherwise under N.J.A.C. 7:7A-6.1(d):*

1. *A structure, impervious surface, or stormwater management facility, as defined at N.J.A.C. 7:7A-1.4, will be placed within 20 feet of freshwater wetlands; or*

2. *The transition area averaging plan proposes to:*

   i. *Reduce any portion of the transition area to less than 10 feet wide:*

   ii. *Reduce a transition area to less than 25 feet wide in an area containing critical habitat for fauna or flora, as defined at N.J.A.C. 7:7A-1.4;*

   iii. *Reduce a transition area to 10 feet wide for a continuous distance of 100 linear feet or more along the freshwater wetlands boundary;*

   iv. *Reduce a transition area to less than 25 feet wide within the watershed of a current or proposed National Wildlife Refuge; or*

   v. *Compensate for a decrease in a transition area by increasing the width of any portion of the transition area to more than 75 feet.*

   vi. *Result in an average transition area width that is less than 25 feet.*

Compliance: During the prior CAFRA permit application review by the NJDEP, the Department identified 39 acres of forested habitat as "critical wildlife habitat" due to its functioning as a migratory bird stopover habitat. In response, the Applicant agreed to mitigate for the disturbance by preservation of approximately 21 acres of remaining on-site forest as well as 21 acres on several off site parcels. The Department determined that permanent preservation of 42 acres of forested critical wildlife habitat on and adjacent to the Project for use as migratory song bird stopover habitat represents an appropriate mitigation measure. In addition, the remaining approximately 171 acres of offsite parcels that will be permanently protected by the Applicant are forested critical wildlife habitat.

This application is proposing the permanent protection of an additional 29.3 acres of contiguous forested critical wildlife habitat on Block 44, Lot 9.

(d) *In addition to the presumptions at (b) and (c) above, the Department shall also presume that, for a transition area adjacent to an exceptional resource value wetland, the following will result in a substantial impact on the adjacent freshwater wetlands, and the Department shall not issue a*

transition area averaging plan waiver unless the applicant demonstrates that the activity would qualify for an individual permit under this chapter:

1. *The freshwater wetland adjacent to the transition area is a breeding or nesting habitat for a threatened or endangered species as defined at N.J.A.C. 7:7A-1.4;*

   Compliance: According to the Natural Heritage Database Search response letter, dated November 28, 2017, NJ GeoWeb GIS mapping for the site and threatened/endangered species habitat surveys previously performed onsite, suitable habitat for a State threatened/endangered species has been identified on or within the immediate vicinity of the site for Barred Owl (*Strix varia*, State threatened), Red-shouldered Hawk (*Buteo lineatus*, State endangered-breeding), Indiana Bat (*Myotis sodalis*, Federally/State endangered), Northern long-eared Bat (*Myotis septentrionalis*, Federally threatened) and Wood Turtle (*Glyptemys insculpta*, State threatened).

   The wetland area being impacted under this TAW averaging plan was previously assigned a resource value classification of intermediate with a 50-ft transition area assigned adjacent to wetland limits. Recent data supplied by the New Jersey Division of Land Use cited habitat south of the railroad right-of-way as providing breeding habitat for the Barred Owl. As a result of this finding, NJDEP reclassified this on-site wetland as exceptional resource value due to its size and proximity to the documented Barred Owl habitat. However, the on-site wetland is not documented as providing nesting or breeding habitat for the above species.

   Therefore, the project is in compliance with the above condition.

2. *The freshwater wetland adjacent to the transition area discharges directly to a trout production water or a tributary thereof, except that a transition area averaging plan waiver shall not be disallowed under this subsection if:*

   i. *The freshwater wetlands and transition area remaining adjacent to the trout production water after the averaging is at least 150 feet wide, measured from the top of the bank of the trout production water; or*

   ii. *The wetland drains to a tributary that is separated from the trout production water by an intervening lake; or*

   Compliance: No trout production waters are located on or within the vicinity of the project site.

3. *The transition area averaging plan proposes to:*

   i. *Reduce any portion of the transition area to less than 75 feet wide; or*

   ii. *Compensate for a transition area reduction by increasing the width of any portion of the transition area to more than 225 feet.*

   Compliance: Proposed transition area impact and compensation comply with the above conditions.

(e) *Each transition area averaging plan shall be specific to a particular freshwater wetland and its associated transition area. To determine whether a freshwater wetland area is all one wetland or made up of multiple separate wetlands, the Department shall consider the factors listed at N.J.A.C.*

7:7A-6.1(f). If an applicant proposes to expand a transition area to compensate for a reduction elsewhere, the expanded portion of the transition area shall:

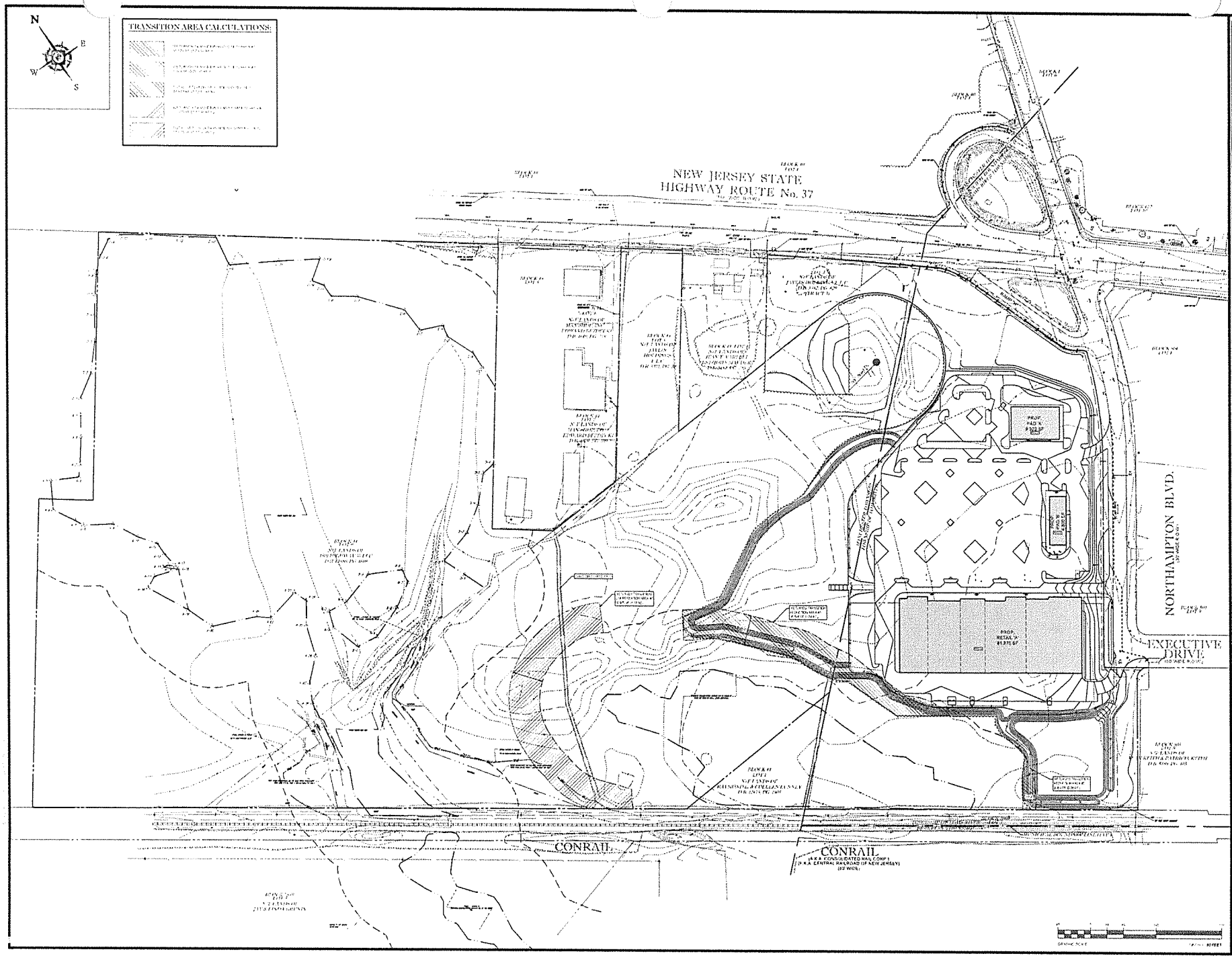
1. *Be an extension of the same transition area that is being reduced, located adjacent to the same freshwater wetlands as the reduced transition area;*

2. *Be located on the same site, as defined at N.J.A.C. 7:7A-1.4, as the reduction;*

3. *Be owned in fee simple by the applicant, unless the applicant demonstrates sufficient legal authority over the site to carry out all requirements of this chapter. For example, the expanded portion of the transition area shall not be subject to a utility easement or other encumbrance; and*

4. *Have the same ecological characteristics as the reduced portion of the transition area, including the vegetation types, or have characteristics that are equivalent or better as regards the transition area's ability to serve the functions listed at N.J.A.C.7:7A-2.5. For example, if a forested portion of the transition area is reduced, the expanded portion of the transition area must also be forested.*

Compliance: Transition area compensation is located adjacent to the same freshwater wetlands as the reduced transition area, it is proposed onsite, owned by the applicant and has similar ecological characteristics, as the reduced portion.


N
E
W
S
TRANSITION AREA CALCULATIONS:
NEW JERSEY STATE
HIGHWAY ROUTE No. 37
NORTHAMPTON BLVD.
EXECUTIVE
DRIVE
CONRAIL
CONRAIL
(A.K.A. CONSOLIDATED RAIL CORP.)
(F.K.A. CENTRAL RAILROAD OF NEW JERSEY)
(60 WIDE)
PROP. RETAIL "A"
PROP. RETAIL "B"
PROP. RETAIL "C"
BOHLER
ENGINEERING
REVISIONS
ISSUED FOR MUNICIPAL &
AGENCY REVIEW & APPROVAL
PRELIMINARY &
FINAL SITE PLAN
FOR
GRUNIN
PROPERTIES
PROPOSED RETAIL
DEVELOPMENT
NORTH RT. 37 & NORTHAMPTON BLVD.
BLOCK 48 LOTS 2, 3, 5, & 9
MANCHESTER TOWNSHIP
(TAX MAP SHEETS 7,22, 8, & 9
ZONE HO-1)
BLOCK 505 LOTS 14 & 15
TOMS RIVER TOWNSHIP
(TAX MAP SHEET 14 ZONE B-HB)
OCEAN COUNTY, NEW JERSEY
BOHLER
ENGINEERING
1000 MIDLANTIC DRIVE, SUITE 410W
MOUNT LAUREL, NJ 08054
Phone (856) 505-8800
Fax (856) 505-8801
www.BohlerEngineering.com
D.F. WISOTSKY
PROFESSIONAL ENGINEER
WETLAND
TRANSITION
AREA PLAN
1
REVISION 1 - 05/18/2010