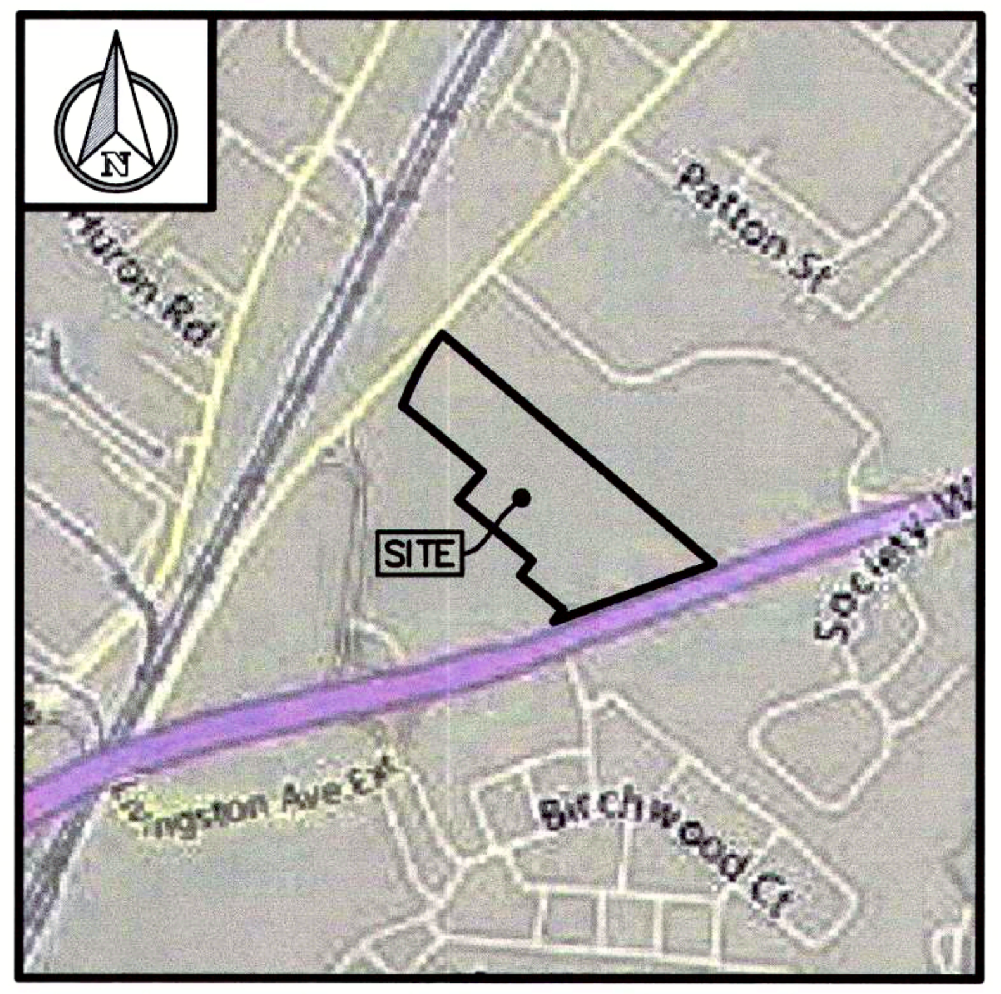
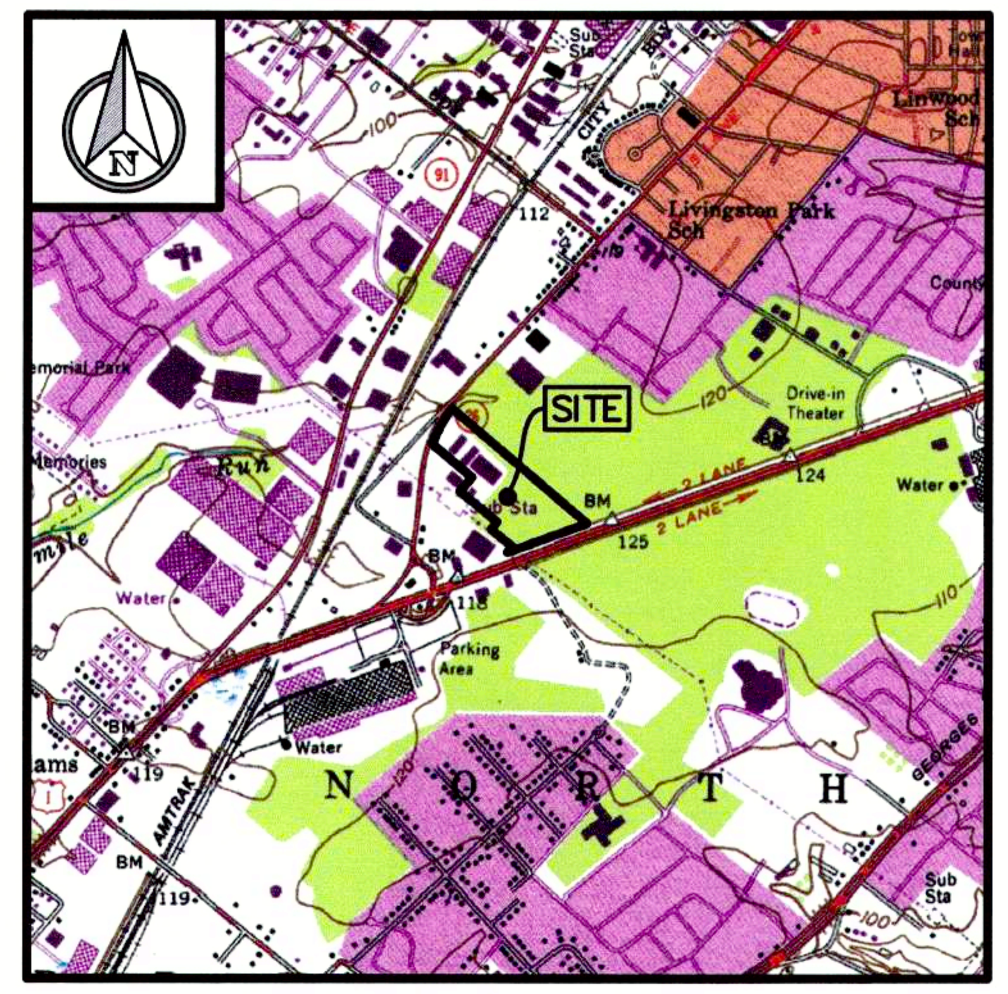
PRELIMINARY/FINAL SITE PLAN
for
LIVINGSTON WAREHOUSE

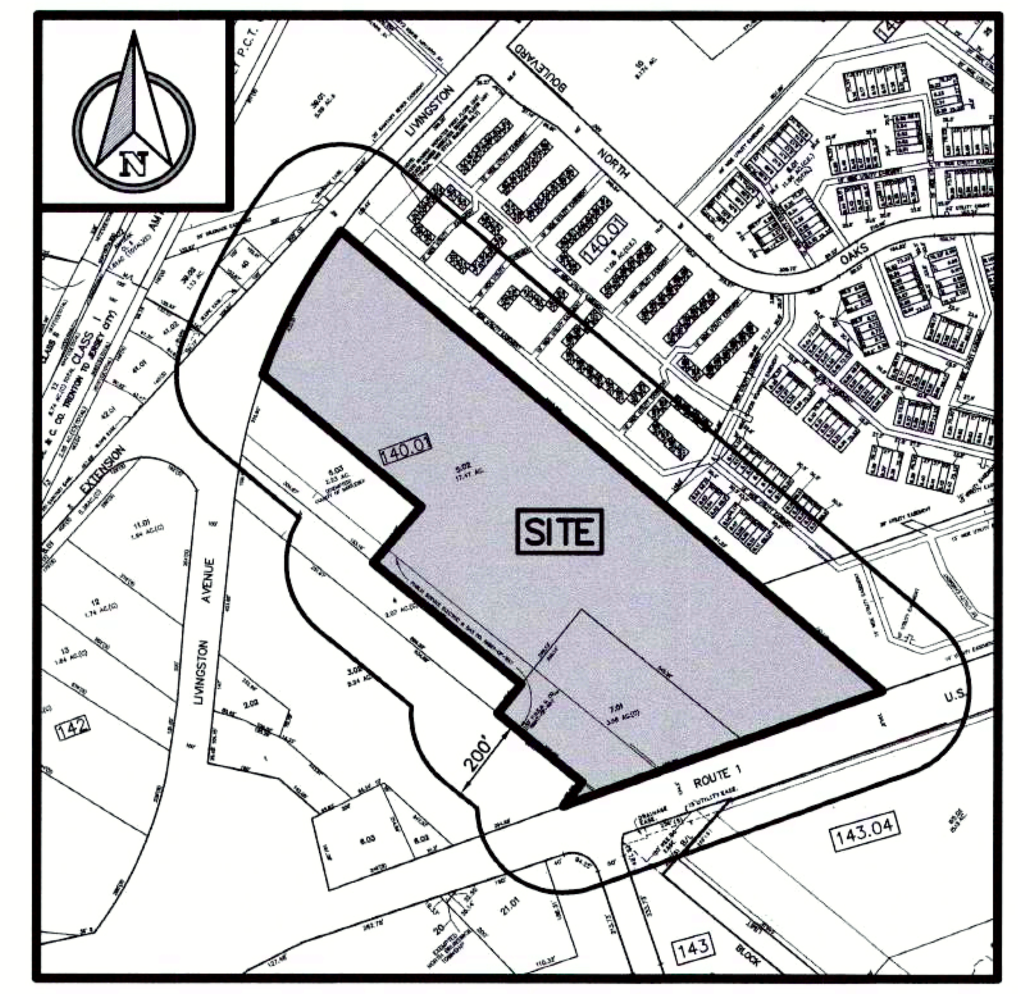
TOWNSHIP OF NORTH BRUNSWICK, MIDDLESEX COUNTY, NEW JERSEY
BLOCK 140.01, LOTS 5.02 & 7.01



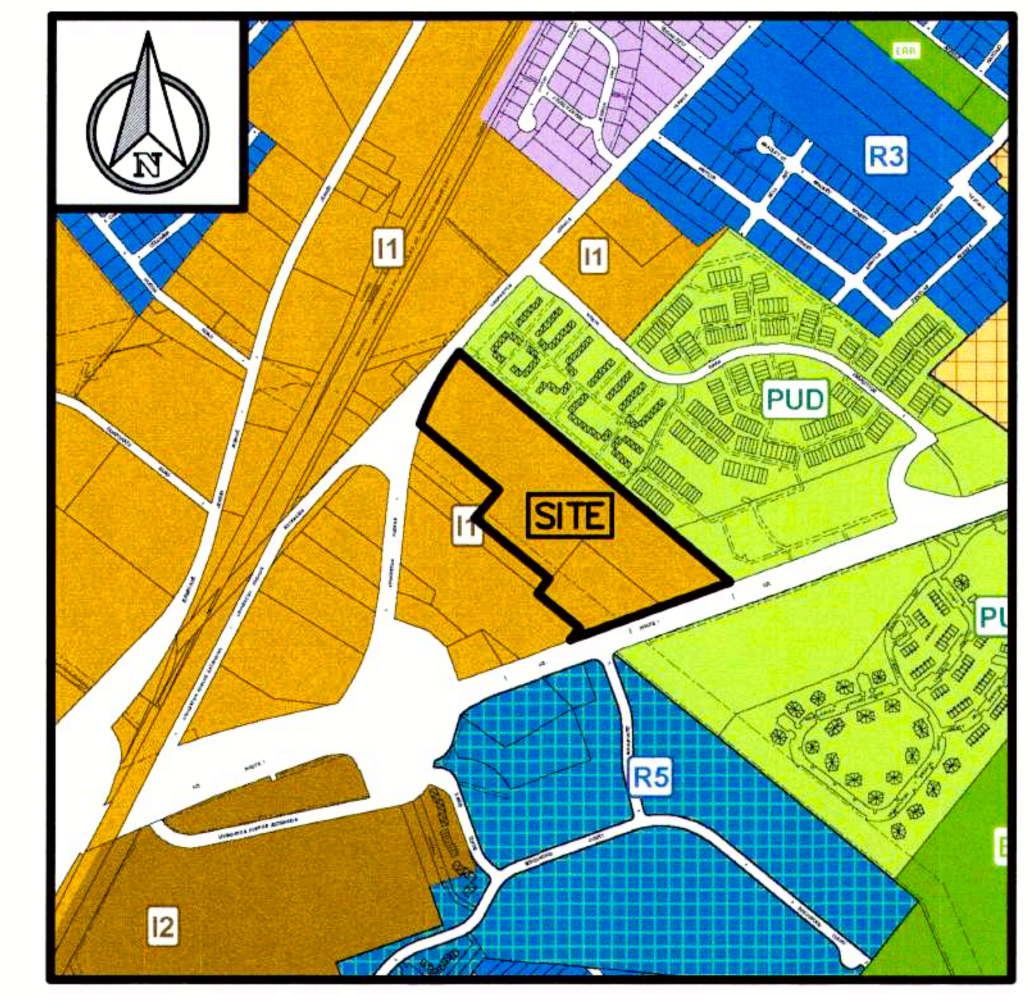
ROAD MAP
1"=1,000'



U.S.G.S. MAP
1"=2,000'



TAX MAP
1"=500'



ZONE MAP
1"=1,000'

200' OWNERS LIST

BLOCK	LOT	NAME & ADDRESS
140.01	3.03, 4	PSE&G Prop Taxes Dept. 6th Floor 80 Park Plaza Newark, NJ 07101
140.01	9.189	Gerorge Majofsky 1311 North Oaks Blvd. North Brunswick, NJ 08902
140.01	8.09	Sherry Benigno Living Trust - Trustee 2603 North Oaks Blvd. North Brunswick, NJ 08902
140.01	8.08	Katibu Martin 2604 North Oaks Blvd. North Brunswick, NJ 08902
140.01	8.07	Bhupendra Singh 49 Zeller Drive Somerset, NJ 08873
140.01	8.24	Karl Mount & Ruth Rosen 2805 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.04	Surinder Singh 600 Rosemont Ringoes Road Sergeantsville, NJ 08557
140.01	9.039	Montresia Wilson & Jeremy Franklin 1005 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.134	Gene Ng & Susan Lue-Ling 20 Burr Avenue Morganville, NJ 07721
140.01	9.133	Roderick & Patricia Walker 1211 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.194	Rajinder & Satinder Chawla 1545 Harbourton-Rocktown Lambertville, NJ 08530
140.01	9.193	Jennifer Pellegrino 74 Brainard Avenue Port Monmouth, NJ 07759
140.01	9.132	Jian Ai Chen & Huijia Zhang 1214 North Oaks Blvd. North Brunswick, NJ 08902
143.05 143	18.06 18.12	No. Bruns Manor LLC % Middlesex Manag 90 Woodbridge Ctr Dr., 600 Woodbridge, NJ 07095
140.01	9.144	Asima Gupta 6 Harvestview Drive Monroe, NJ 08831
140.01	5.02, 7.01	1460 Livingston Avenue Associates PO Box 636 Lakewood, NJ 08701
140.01	9.014	Lisette A. Reyes 914 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.013	Linda Traficante & Mariko Gonzales 913 North Oaks Blvd. North Brunswick, NJ 08902
143.05	21.01	BAP LLC 1490 US Route 1 North Brunswick, NJ 08902
140.01	9.127	Yuk Wing Chai & Pek ho Ng 1215 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.128	Nicholas Puleio 1475 Livingston Avenue North Brunswick, NJ 08902
140.01	8.1	Ronald Blumenthal & Jennifer Bruce 2602 North Oaks Blvd. North Brunswick, NJ 08902
140.01	8.16	Javid & Sana Iqbal 2705 North Oaks Blvd. North Brunswick, NJ 08902
140.01	8.15	Tracy V. Carvalho 2704 North Oaks Blvd. North Brunswick, NJ 08902
140.01	8.14	Margaret Underwood 2703 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.192	Madhavi Kapekar & C Rajaykumar 17 Silvers Lane Plainsboro, NJ 08536
140.01	9.082	Zaina & Zahara Faruqi 1104 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.081	Kinal & Rucchi Gupta 1103 North Oaks Blvd. North Brunswick, NJ 08902
90	39.02, 40	PLM LLC 1515 Livingston Avenue North Brunswick, NJ 08902
140.01	9.012	Kosmos Kasimatis 86 Viburnum Drive Skillman, NJ 08558
140.01	9.011	Judith E. Cabrejos 3700 Capital Circle SE Tallahasee, FL 32311
140.01	9.129	Nathalie Godet 1213 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.143	Godrim & Diedre S. Beckley 1203 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.136	Shirish & Devyani Shastri 1210 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.135	Wilmington FSB %Rushmore Loan Mana 15480 Laguna Canyon Rd 100 Irvine, CA 92618
140.01	9.036, 9.074	Dimitry Yeshin 627A Westwood Avenue Staten Island, NY 10314
140.01	9.035	Irene Kampars 1009 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.034	Oaks @ NB Condo Assoc % Glaimo & Assoc. 97 E River Road Rumson, NJ 07760
140.01	9.033	Alesha R. Bradshaw 1011 North Oaks Blvd. North Brunswick, NJ 08902
140.01	10.01	North Brunswick Route 1 LLC 8248 Morgan Road Liverpool, NY 13088
140.01	9.184	Donna M. Wasielewski 1306 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.183	Lula Middleton 1305 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.016	Maroun Maroun 58 Hill Street Milltown, NJ 08850
140.01	9.015	Eastern Real Corp. P.O.Box 242 Milltown, NJ 08850
140.01	8.01	Oak Hollow HOA - United Property Mgmt 73 Brunswick Woods Drive East Brunswick, NJ 08816
140.01	9.01	Sharon Hasek 910 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.009	Patrick Cain 909 North Oaks Blvd. North Brunswick, NJ 08902
90	39.01	OHM Laboratories Inc. PO Box 7857 Princeton, NJ 08543
140.01	9.08	Antoinette M. Marrero 1106 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.123	Pankaj & Dolly Dain 5 Golden Valley Drive North Brunswick, NJ 08902
140.01	9.178	Florence T. & Todd H. Raison 1352 Osprey Drive Punta Gorda, FL 33950
140.01	9.177	Mahesh Choudhary 1301 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.078	Vanessa McDale 1108 North Oaks Blvd. North Brunswick, NJ 08902
140.01	8.11	Pamela M. Lim 2601 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9	The Oaks & No. Brunswick Condo Assn. North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.202	Bhaskara Group LLC 4 winding Way Woodland Park, NJ 07424
140.01	9.199	Seema Jayaram 8 Murphy Drive Bridgewater, NJ 08807
140.01	9.079	Ana Maria DeLaRosa 1105 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.073	Matthew & Salina Yan 111 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.084	Thankgod Maduka L5 Quincy Circle Dayton, NJ 08810
140.01	9.083	Leonard Boiar 1101 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.077	Liyn Tang & Ziying Li 354 Sycamore Drive Union, NJ 07083
140.01	9.124	Liya Guo & Nian Kong 1220 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.006	Melissa Leto 906 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.005	Graciela Cavallaro 101 Haverford Street North Brunswick, NJ 08902
140.01	9.137	James W. Mallory, Jr. 1207 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.138	Sunil Hira 10 Chase Drive Morganville, NJ 07751
140.01	8.06	Eyal Nahoumovich 2606 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.198	Mark R. & Paul J. Kulbida 213 Gertrude Terrace Dunellen, NJ 08812
140.01	9.197	Kenneth G. & Stephen & Anne Karaisz 7 Stone Meadow Court Plainsboro, NJ 08536
140.01	9.188	SBC Bank % PHH Mortgage Corporation One Mortgate Way Mt. Laurel, NJ 08054
140.01	8.23	Kristopher Kelle Cherry 2804 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.142	Israel & Elizaveta 1206 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.139	Jaiveer & Hina Narwal 1205 North Oaks Blvd. North Brunswick, NJ 08902
140.01	8.03	Pei-Fon Lin & Pei Lin Song 26-35 213th Street Bayside, NY 11360
140.01	9.182	Joan Fu 23 Perrine Path West Windsor, NJ 08550
140.01	9.179	Zu-Shuch & Rosemary Fu 23 Perrine Path West Windsor, NJ 08550
140.01	8.12	Joseph Sestito 2701 North Oaks Blvd. North Brunswick, NJ 08902
140.01	8.02	Demon C. & Alida I Blue 2504 North Oaks Blvd. North Brunswick, NJ 08902
140.01	8.19	Tod A. & Lori Abate 2708 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.044	Louise Graziosi 1002 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.043	Dorothy M. Lewis 1001 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.038	Ahmed Uddin 4210 Birchwood Court North Brunswick, NJ 08902
140.01	9.037	Gianni Spradley 1007 North Oaks Blvd. North Brunswick, NJ 08902
140.01	8.13	Krishna Modem Y& Pratima Kasetty 2702 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.126	SM Real Property LLC 1308 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.125	M. Vora & C. Trivedi & K. Bhimani 4 Eagle Court Monmouth Junction, NJ 08852
140.01	9.146	Sashi Bahl 27 Lyle Place Edison, NJ 08817
140.01	9.145	Valerie Epstein & P. Verderame 1201 North Oaks Blvd. North Brunswick, NJ 08902
143.04	65.01	R & M Shein and M & S Senoff 14 Wide Horizons Drive Colts Neck, NJ 07722
140.01	9.187	Ramachandra & Rupa Swamy 1309 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.196	Sarah & Joel Elmer 1 Sylvan Blvd. Howell, NJ 07731
140.01	9.195	Vijay N. & Nithya V. Nichani 1315 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.185	Raghunadan Naik & Diane Coddington 5 Concord Drive East Brunswick, NJ 08902
140.01	9.186	Stefan Bittner 1308 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.042	Tong Yi 1004 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.041	Beatrice Sutton 1003 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.008	John T. & Gail E. Scanlon III 908 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.007	Maria Jimenez 722 S. Middlesex Avenue Colonia, NJ 07067
140.01	9.122	Monnaa Updendra Prajapati 1222 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.119	Gene Ng & Susan Lue-Ling 20 Burr Avenue Morganville, NJ 07551
140.01	9.076	Joseph Orosz 110 North Oaks Blvd. North Brunswick, NJ 08902
140.01	9.075	Philip B. Bakelaar & Sarah W. Kelly 305 Magnolia Street, Apt. 2 Highland Park, NJ 08904
140.01	8.22	Ying Mi Wu - Chung-Chih c/o C. Sisti 80 Christina Court Morrisville, PA 19067
140.01	6.04	M&M at North Burnswick, LLC 1260 Stelton Road Piscataway, NJ 08854
140.01	8.05	Tony S. & Stacey L. Dong 17 Sumter Avenue East Williston, NY 11596
140.01	8.21	Kuljeet S. Sawhney & K. Harvinder 2802 North Oaks Blvd. North Brunswick, NJ 08902
140.01	8.04	Ahmen Elgammal 11 Compton Drive East Windsor, NJ 08520
140.01	8.2	NKAMP Properties LLC 4 Eagle Court Monmouth Jct, NJ 08852
140.01	8.18	Raghubri Motiram / Bharti Valiramani 2707 North Oaks Blvd. North Brunswick, NJ 08902
140.01	8.17	Seung Yeun Ha & Sun Myung 2706 North Oaks Blvd. North Brunswick, NJ 08902
140.01	5.03	County of Middlesex 1 JFK Square - PO Box 871 New Brunswick, NJ 08903
		Middlesex County Planning Board County Administration Bldg., 5th Floor 75 Bayard Street New Brunswick, NJ 08901
		North Brunswick Township 710 Hermann Road North Brunswick, NJ 08902 Attn: Township Clerk
		Public Service Electric & Gas Co. Manager - Corporate Properties 80 Park Place, T6B Newark, NJ 07102
		Verizon NJ Gen. Tax Administration Broad Street - Room 305 Newark, NJ 07101
		Cablevision of Raritan Valley 275 Centennial Avenue - CN 6805 Piscataway, NJ 08855-6802 Attn: Margurite Prenderville
		Department of Transportation State of New Jersey 1035 Parkway Trenton, NJ 08625
		Construct Department Mr. Tim Allen Texas Easter Transmission Corp. 501 Coolidge Street South Plainfield, NJ 07080
		Sunoco Pipeline, LP Right of Way - Montello Complex 525 Fritztown Road Sinking Spring, PA 19068

SHEET INDEX

OWNER
1460 LIVINGSTON AVE INVESTORS LP
920 E COUNTY LINE, SUITE 103
LAKEWOOD, NJ 08701

APPLICANT
1460 LIVINGSTON AVE INVESTORS LP
920 E COUNTY LINE, SUITE 103
LAKEWOOD, NJ 08701

I HEREBY CERTIFY THAT THE SITE DESIGN MEETS THE REQUIREMENTS SET FORTH IN THE US ACCESS BOARD'S "PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES" (PROWAG) AND "ADA ACCESSIBILITY GUIDELINES" (ADAAG).

ENGINEER ______

APPROVED BY

CHAIRMAN ______ DATE ______

SECRETARY ______ DATE ______

ENGINEER ______ DATE ______

PROJECT NUMBER 2018.047.01

LIVINGSTON WAREHOUSE

CALL BEFORE YOU DIG 1-800-272-1000

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

menlo engineering associates
Civil Engineering Consultants
Landscape Architects
Professional Planners
261 Cleveland Avenue
Highland Park, NJ 08904
menloeng.com
732-846-8585 732-846-9439
Certificate of Authorization : 24GA27951900

LIVINGSTON WAREHOUSE

TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY
NEW JERSEY

BLOCK 140.01
LOTS 5.02 & 7.01
TAX MAP SHEET 30
21.03 ACRES

COVER SHEET

DRAWN BY PJ
DESIGNED BY PJ
APPROVED BY GSO

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION.

GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.01	CV-1
DATE OF ISSUE	FEBRUARY 12, 2021	1
REVISION THROUGH	OCTOBER 4, 2021	

DEMOLITION NOTES

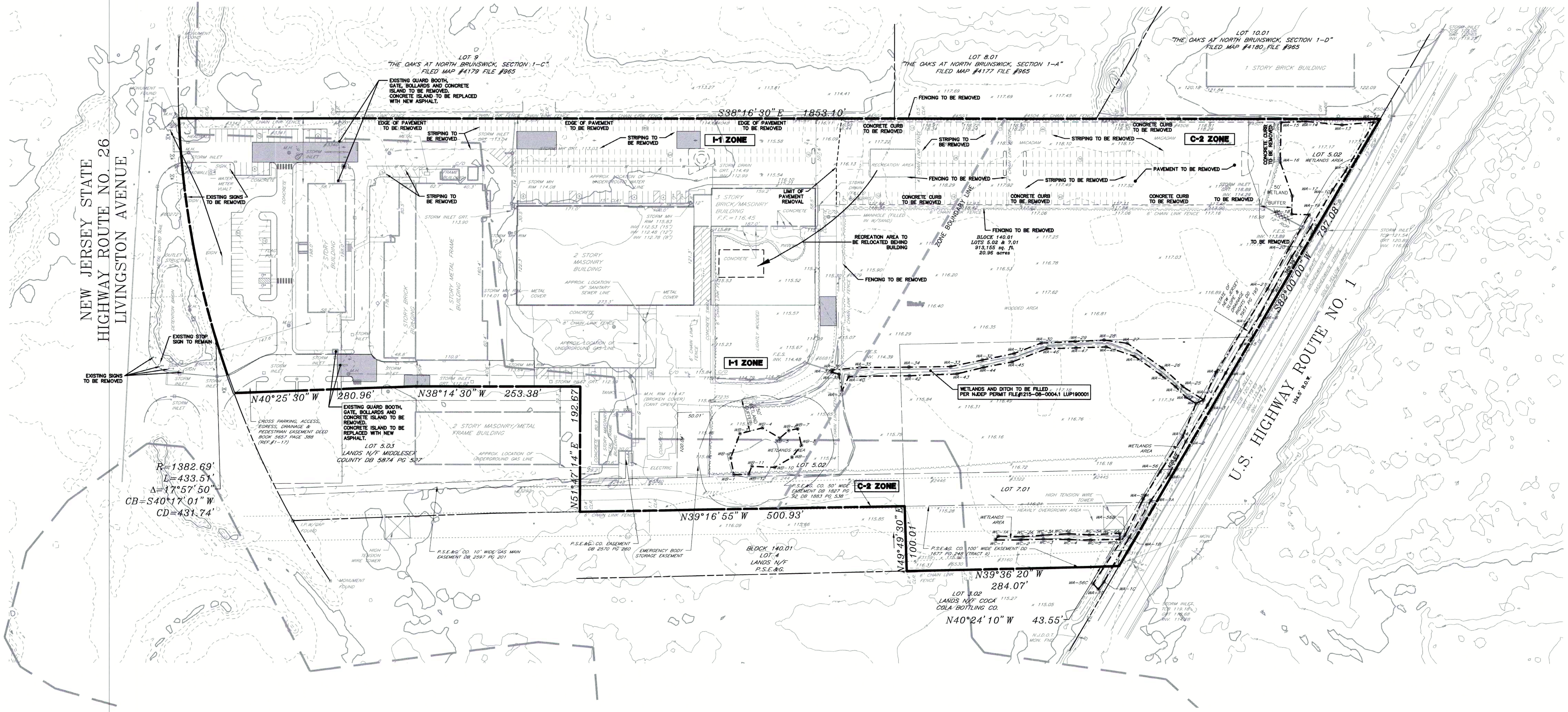
1. THE CONTRACTOR IS TO COORDINATE THE REMOVAL / ABANDONMENT OF ALL UTILITIES WITH THE RESPECTIVE UTILITY COMPANIES.
2. ALL DEBRIS FROM THE DEMOLISHED STRUCTURES THAT IS NOT REUSED AS FILL IS TO BE DISPOSED OF ACCORDING TO ALL APPLICABLE STANDARDS. DEMOLISHED MATERIALS REUSED AS FILL MATERIAL SHALL BE IN PER THE DIRECTION OF THE SOILS ENGINEER.
3. CONTRACTOR TO HIRE CONSULTANT TO INSPECT ALL EXISTING UTILITIES THAT ARE TO REMAIN. FINDINGS ARE TO BE SUBMITTED TO THE DESIGN ENGINEER PRIOR TO CONSTRUCTION OR ORDERING SO THAT A DETERMINATION CAN BE MADE AS TO THE CONDITION OF THE EXISTING LINES. ANY UTILITIES THAT ARE IN MARGINAL CONDITION WILL NEED TO BE REPLACED.
4. ALL EXISTING RETAINING WALLS THAT ARE TO REMAIN ARE TO BE INSPECTED BY THE SOILS ENGINEER AND STRUCTURAL ENGINEER. FINDINGS ARE TO BE SUBMITTED TO THE DESIGN ENGINEER PRIOR TO CONSTRUCTION OR ORDERING SO THAT A DETERMINATION CAN BE MADE AS TO WHETHER THE WALLS SHOULD BE REPLACED.
5. ALL TEST PITS LOCATING THE EXISTING UTILITIES ARE TO BE COMPLETED PRIOR TO CONSTRUCTION OR ORDERING.
6. CONTRACTOR TO HAVE ALL UTILITIES FIELD MARKED AND THEN LOCATED BY THE SURVEYOR. ALL LOCATIONS ARE TO BE REPORTED TO THE DESIGN ENGINEER PRIOR TO CONSTRUCTION OR ORDERING. FOR ADDITIONAL INFORMATION REFER TO GENERAL NOTE #3.
7. ALL DEMOLITION IS TO BE PERFORMED IN STRICT CONFORMANCE WITH ALL APPLICABLE TOWNSHIP, COUNTY & STATE AND/OR OTHER GOVERNING BODIES STANDARDS.
8. DURING DEMOLITION, ANY HAZARDOUS MATERIAL, SUCH AS ASBESTOS, SHALL BE REMOVED AND REMEDIATED IN ACCORDANCE WITH THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION (NJDEP) STANDARDS AND ALL OTHER APPLICABLE STANDARDS.
9. THE REMOVAL AND/OR ABANDONMENT OF ANY SUBSURFACE STRUCTURES, INCLUDING STORAGE TANKS, MANHOLES AND PIPES, SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE STANDARDS.
10. THE CONTRACTOR SHALL PROVIDE THE TOWN WITH WEIGHT RECEIPTS FOR ALL RECYCLED DEMOLITION MATERIALS FOR THE TOWNSHIP'S TONNAGE GRANT APPLICATION TO THE NJDEP.
11. HAULING ROUTES AND DISPOSAL SITES FOR THE DISPOSAL OF THE DEMOLISHED MATERIAL SHALL BE PROVIDED TO THE TOWNSHIP PRIOR TO DEMOLITION.
12. ALL CONCRETE TO BE REMOVED SHALL BE INVESTIGATED TO DETERMINE IF THERE ARE ANY HAZARDOUS MATERIALS.
13. AN ADEQUATE NUMBER OF DUMPSTERS FOR CONSTRUCTION DEBRIS ON SITE SHALL BE PROVIDED PRIOR TO THE ISSUANCE OF BUILDING PERMITS.
14. THE LIMIT OF CLEARING SHALL BE STAKED IN THE FIELD PRIOR TO ANY DISTURBANCE.

DENOTES AREAS OF EXISTING PAVEMENT TO RECEIVE MILL/OVERLAY

UTILITY DEMOLITION KEY:

DENOTES UTILITIES TO BE REMOVED

DENOTES UTILITIES TO BE ABANDONED



HORIZONTAL DATUM : NAD 1983

GRAPHIC SCALE

0 40 80 120 160

SCALE: 1"=80'

REVISIONS	
1) TWP REVS	03/02/21
2) TWP REVS	06/30/21
3) SITE PLAN REVS.	10/04/21

THIS DRAWING IS FOR PERMIT PURPOSES ONLY

NOT FOR CONSTRUCTION UNTIL THIS BOX HAS BEEN CHECKED AND DATED

☐ CHKD BY:_____ DATE:_________

1-800-272-1000 STOP CALL BEFORE YOU DIG!

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

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Certificate of Authorization : 24GA27951900

LIVINGSTON WAREHOUSE

TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY
NEW JERSEY

BLOCK 140.01,
LOT 5.02 & 7.01
TAX MAP SHEET 30
21.03 ACRES

EXISTING CONDITIONS & DEMOLITION PLAN

DRAWN BY	RM
DESIGNED BY	RJG
APPROVED BY	GSO

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.02	EC-1
DATE OF ISSUE	FEBRUARY 12, 2021	2
REVISION 3	OCTOBER 4, 2021	

Livingston Warehouse\2018.047-Base.dwg PLOTTED: 10/1/2021 12:10 PM; BY: SERGI KOVTUN

I-1 INDUSTRIAL DISTRICT ZONE DATA

SECTION	ITEM	REQUIRED	PROPOSED	CONDITION
SCHEDULE 'A'	MINIMUM LOT AREA	2 ACRES	533,561 SF(12.25 AC)	COMPLIES
	MINIMUM LOT WIDTH	250 FT	> 250 LF	COMPLIES
	MINIMUM LOT DEPTH	300 FT	> 300 LF	COMPLIES
	FRONT YARD (FROM ROUTE ONE)	100 FT	N/A	
	FRONT YARD (OTHER THAN ROUTE ONE)	60 FT	147.6 LF	COMPLIES
	SIDE YARD (ONE SIDE/BOTH SIDES)	30 FT/60 FT	29.2 FT/129.8 FT	**EXISTING NON-CONFORMANCE**
	REAR YARD	60 FT	N/A	COMPLIES
	MAXIMUM LOT COVERAGE (BUILDING)	40%	25.1%	COMPLIES
	MAXIMUM BUILDING HEIGHT	40 FT	40 FT	COMPLIES
	MAXIMUM IMPERVIOUS COVERAGE	80%	70.2% ***	COMPLIES
	BUFFER TO RESIDENTIAL	30 FT PLUS 30 FT (ADJACENT TO RESID.)	8 FT	**EXISTING NON-CONFORMANCE**
SIGNS				
FREESTANDING	MAXIMUM AREA	100 SF	99.5 SF	COMPLIES
	MAXIMUM HEIGHT	20 FT	11.5 FT	COMPLIES
	MINIMUM SETBACK TO PROPERTY LINE	20 FT	20 FT	COMPLIES

*** INCLUDES ADDITIONAL 26 CAR PARKING STALLS PREVIOUSLY APPROVED

C-2 COMMERCIAL ZONE DATA

WAREHOUSES NOT PERMITTED IN THE C-2 ZONE- USE VARIANCE REQUIRED

SECTION	ITEM	REQUIRED	PROPOSED	CONDITION
SCHEDULE 'A'	MINIMUM LOT AREA	20,000 SF	379,593 SF	COMPLIES
	MINIMUM LOT WIDTH	150 LF	> 150 LF	COMPLIES
	MINIMUM LOT DEPTH	100 LF	> 100 LF	COMPLIES
	FRONT YARD (FROM ROUTE ONE)	75 FT	101.2 FT	
	FRONT YARD (OTHER THAN ROUTE ONE)	60 FT	N/A	COMPLIES
	SIDE YARD (ONE SIDE/BOTH SIDES)SIDE YARD	10 FT/20 FT	81.3 FT/236.5 FT	COMPLIES
	REAR YARD	35 FT	N/A	COMPLIES
	MAXIMUM LOT COVERAGE (BUILDING)	40%	15.8%	COMPLIES
	MAXIMUM BUILDING HEIGHT	40 FT	40 FT	COMPLIES
	MAXIMUM IMPERVIOUS COVERAGE	80%	53.9%	COMPLIES
	BUFFER TO RESIDENTIAL	10 FT PLUS 30 FT (ADJACENT TO RESID.)	26 FT	**VARIANCE**

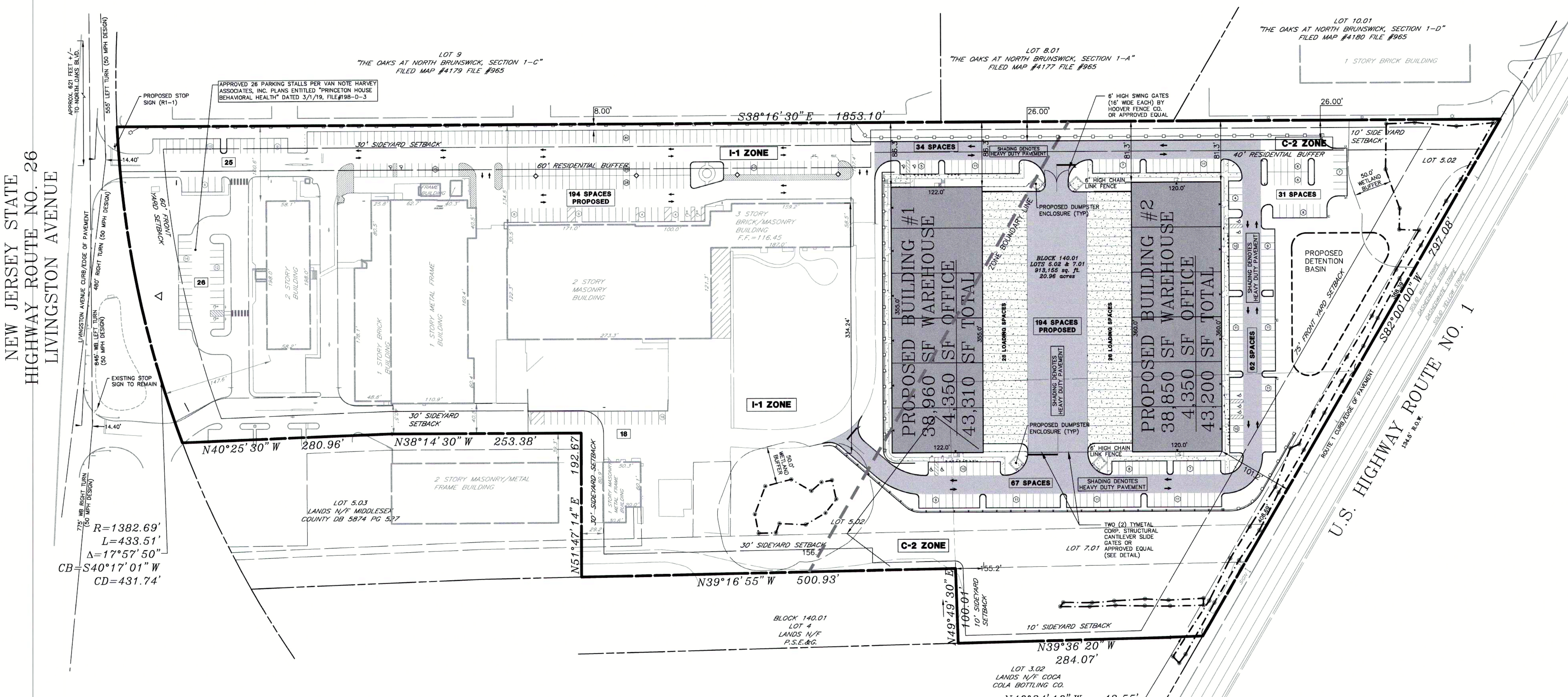
PARKING TABLE FOR ENTIRE SITE

USE	AREA (SF)	PARKING REQUIRENT	REQUIRED
OFFICE	40,611	1 SPACE/250 SF	163 SPACES
INDUSTRIAL	68,864	1 SPACE/2,500 SF PLUS 1 SPACE PER 5 EXECUTIVE OFFICE WORKERS	28 PLUS 4 EXEC= 32 SPACES
CHILD CARE	9,583	N/A	0 SPACES
SPORTS	10,756	1 SPACE/200 SF	54 SPACES
MEDICAL OFFICE	34,784	1 SPACE/200 SF	174 SPACES
AUTO SERVICE	795	1 SPACE/BAY PLUS 1 SPACE/EMPLOYEE	1 BAY & 3 EMPLOYEES=4 SPACES
PROPOSED WAREHOUSE	77,810 SF WAREHOUSE	1 SPACE/2,500 SF PLUS 1 SPACE PER 5 EXECUTIVE OFFICE WORKERS	32 PLUS 15 EXEC= 35 SPACES
	8,700 SF OFFICE	1 SPACE/250 SF	35
	86,510 SF TOTAL		
TOTAL REQUIRED:			497 SPACES
TOTAL PROVIDED:			457 SPACES (V)
ELECTRIC CHARGING STATIONS:			
PROPOSED:		3% OF PROPOSED PARKING (194 STALLS) = 6 SPACES	6 SPACES
FUTURE:		7% OF PROPOSED PARKING (194 STALLS) = 14 STALLS	14 SPACES

(V) – VARIANCE. EXISTING SITE CONTAINS 492 SPACES (INCLUDES 26 ADDITIONAL SPACES PREVIOUSLY APPROVED)

NOTES:

1. LOADING/UNLOADING AND THE OPERATION OF FORKLIFTS OUTSIDE OF THE BUILDING ARE PROHIBITED DURING THE HOURS OF 8:00 P.M. TO 7:00 A.M. MONDAY TO FRIDAY AND 8:00TO 9:00 A.M. SATURDAY AND SUNDAY.
2. NO IDLING SIGNS ARE PROVIDED ON THE GATES ON EITHER SIDE OF THE TRUCK COURT STATING: "THE IDLING OF ENGINES FOR MORE THAN THREE MINUTES IN A REAR OR SIDE YARD IS PROHIBITED AND SUBJECT TO A FINE NOT TO EXCEED $1,000."
3. THE INSIDE OPERATION OF FORKLIFTS AND INSIDE LOUDSPEAKER SYSTEM BETWEEN THE HOURS OF 8:00 P.M. TO 7:00 A.M. MONDAY TO FRIDAY AND 8:00 TO 9:00 A.M. SATURDAY AND SUNDAY SHALL BE PROHIBITED AND ALL OVERHEAD DOORS WITHIN 300 FEET OF THE ADJACENT RESIDENTIAL USE REMAIN CLOSED.
4. OUTSIDE LOUDSPEAKERS PROHIBITED. THE INSTALLATION OF OUTSIDE LOUDSPEAKERS SHALL BE PROHIBITED.



REFERENCES

1. PLAN ENTITLED "LEGAL & PARTIAL TOPO SURVEY FOR BLOCK 140.01 LOTS 5.02 & 7.01; TOWNSJIP OF NORTH BRUNSWICK, MIDDLESEX COUNTY NEW JERSEY" PROVIDED BY CONTROL LAYOUTS, INC.; DATED 8/20/08; JOB # 1090-08
2. WEBSITE DOWNLOADED MAP ENTITLED "THE NATIONAL MAP" PROVIDED BY USGS
3. THERE ARE NO SCHOOL BOUNDARIES WITHIN 200 FEET OF THE PROPERTY.

HORIZONTAL DATUM : NAD 1983

GRAPHIC SCALE

SCALE: 1"=80'

REVISIONS

1) DRAINAGE REVS	02/22/21
2) TWP REVS	03/02/21
3) TWP REVS	03/16/21
4) TWP REVS	06/30/21
5) SITE PLAN REVS.	10/04/21

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LIVINGSTON WAREHOUSE

TOWNSHIP OF NORTH BRUNSWICK MIDDLESEX COUNTY NEW JERSEY

BLOCK 140.01, LOT 5.02 & 7.01 TAX MAP SHEET 30 21.03 ACRES

OVERALL PLAN

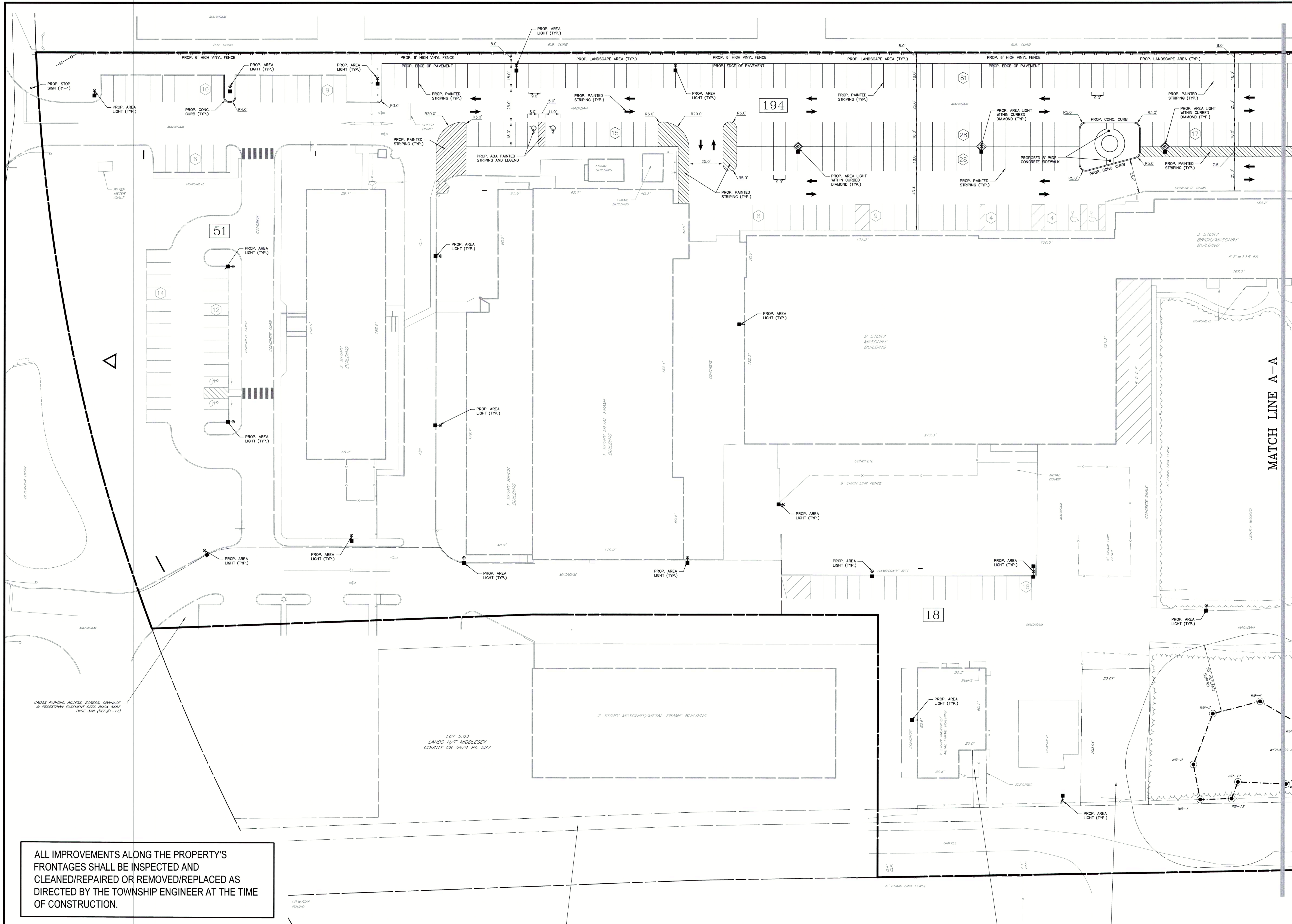
DRAWN BY . . RM
DESIGNED BY . . RJG
APPROVED BY . . GSO

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.02	OP-1
DATE OF ISSUE	FEBRUARY 12, 2021	3
REVISION 5	OCTOBER 4, 2021	

C:\...\Livingston Warehouse\2018.047-Base.dwg PLOTTED: 10/5/2021 9:40 AM BY: SERGI KOVTUN



ALL IMPROVEMENTS ALONG THE PROPERTY'S FRONTAGES SHALL BE INSPECTED AND CLEANED/REPAIRED OR REMOVED/REPLACED AS DIRECTED BY THE TOWNSHIP ENGINEER AT THE TIME OF CONSTRUCTION.

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HORIZONTAL DATUM : NAD 1983

GRAPHIC SCALE

0 15 30 45 60

SCALE: 1"=30'

REVISIONS

1) DRAINAGE REVS	02/22/21
2) TWP REVS	03/02/21
3) TWP REVS	03/16/21
4) TWP REVS	06/30/21
5) SITE PLAN REVS.	10/04/21

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MIDDLESEX COUNTY
NEW JERSEY

BLOCK 140.01,
LOT 5.02 & 7.01
TAX MAP SHEET 30
21.03 ACRES

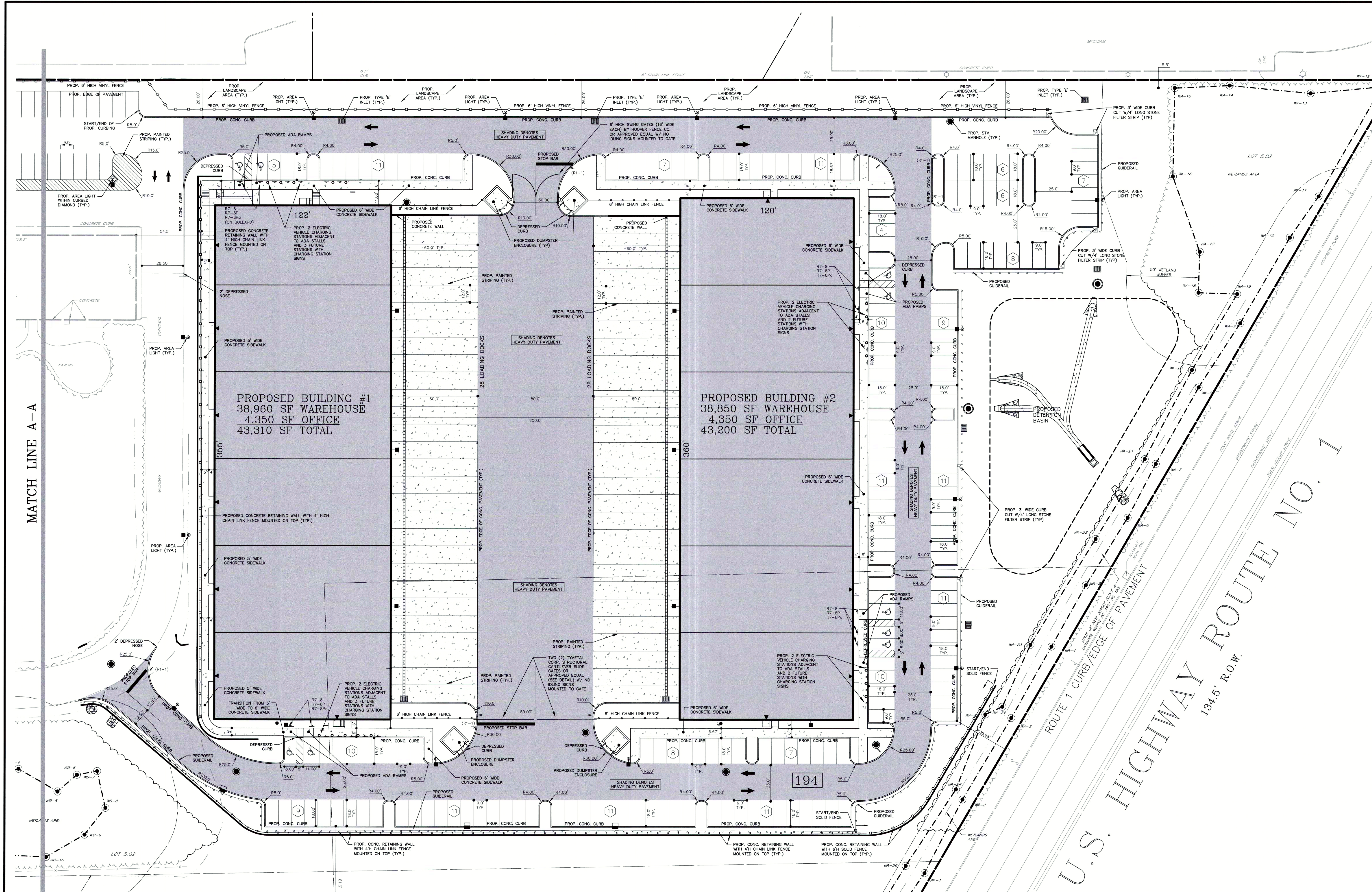
GEOMETRY PLAN (1)

DRAWN BY	RM
DESIGNED BY	RJG
APPROVED BY	GSO

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.02	GE-1
DATE OF ISSUE	FEBRUARY 12, 2021	4
REVISION 5	OCTOBER 4, 2021	



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NEW JERSEY

BLOCK 140.01,
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21.03 ACRES

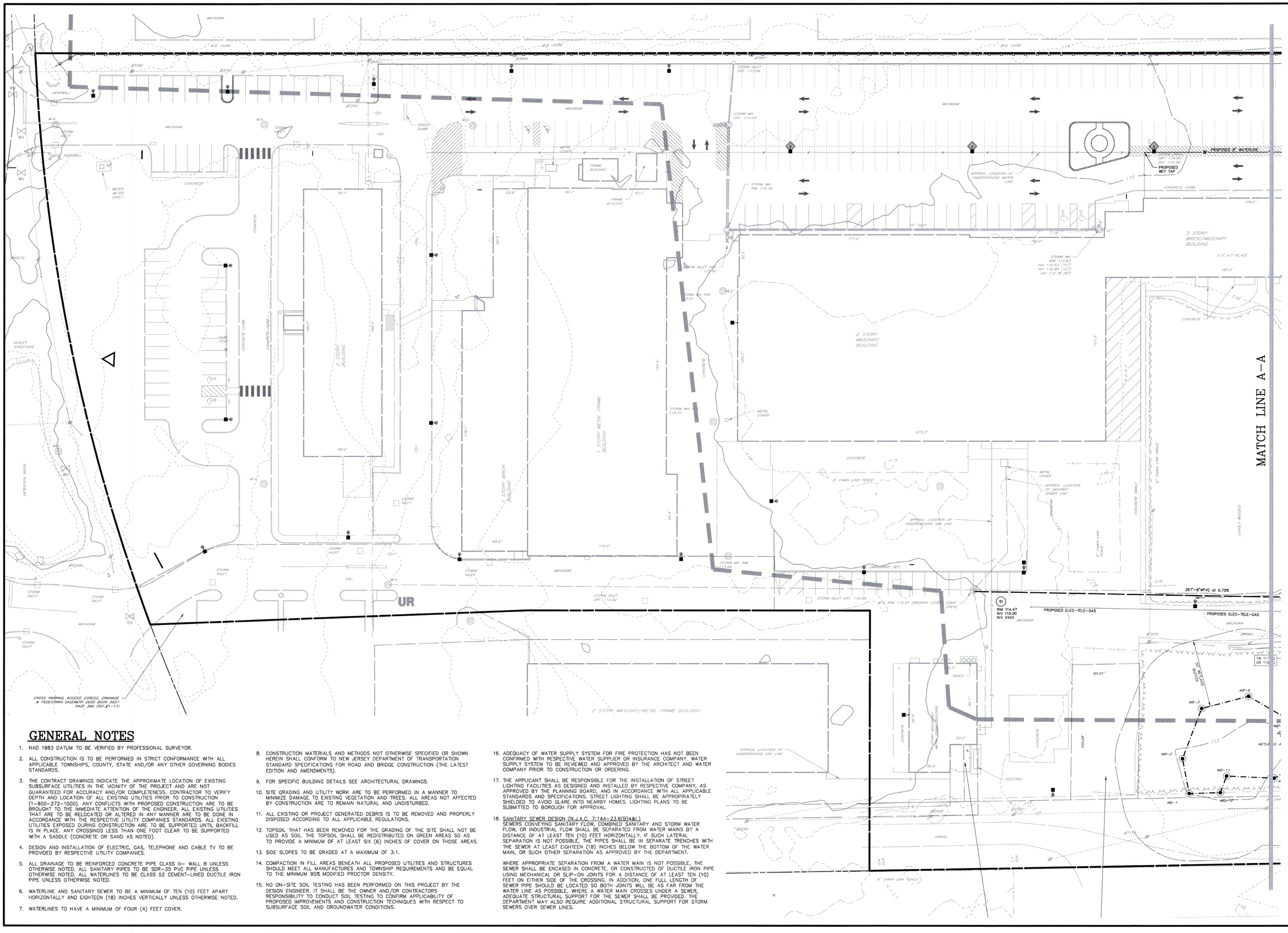
GEOMETRY PLAN (2)

DRAWN BY RM
DESIGNED BY RJG
APPROVED BY GSO

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION.

GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.02	GE-2
DATE OF ISSUE	FEBRUARY 12, 2021	
REVISION 5	OCTOBER 4, 2021	5



GENERAL NOTES

1. NAD 1983 DATUM TO BE VERIFIED BY PROFESSIONAL SURVEYOR.
2. ALL CONSTRUCTION IS TO BE PERFORMED IN STRICT CONFORMANCE WITH ALL APPLICABLE TOWNSHIPS, COUNTY, STATE AND/OR ANY OTHER GOVERNING BODIES STANDARDS.
3. THE CONTRACT DRAWINGS INDICATE THE APPROXIMATE LOCATION OF EXISTING SUBSURFACE UTILITIES IN THE VICINITY OF THE PROJECT AND ARE NOT GUARANTEED FOR ACCURACY AND/OR COMPLETENESS. CONTRACTOR TO VERIFY DEPTH AND LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION (1-800-272-1000). ANY CONFLICTS WITH PROPOSED CONSTRUCTION ARE TO BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. ALL EXISTING UTILITIES THAT ARE TO BE RELOCATED OR ALTERED IN ANY MANNER ARE TO BE DONE IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANIES STANDARDS. ALL EXISTING UTILITIES EXPOSED DURING CONSTRUCTION ARE TO BE SUPPORTED UNTIL BACKFILL IS IN PLACE. ANY CROSSINGS LESS THAN ONE FOOT CLEAR TO BE SUPPORTED WITH A SADDLE (CONCRETE OR SAND AS NOTED).
4. DESIGN AND INSTALLATION OF ELECTRIC, GAS, TELEPHONE AND CABLE TV TO BE PROVIDED BY RESPECTIVE UTILITY COMPANIES.
5. ALL DRAINAGE TO BE REINFORCED CONCRETE PIPE CLASS III- WALL B UNLESS OTHERWISE NOTED. ALL SANITARY PIPES TO BE SDR-35 PVC PIPE UNLESS OTHERWISE NOTED. ALL WATERLINES TO BE CLASS 52 CEMENT-LINED DUCTILE IRON PIPE UNLESS OTHERWISE NOTED.
6. WATERLINE AND SANITARY SEWER TO BE A MINIMUM OF TEN (10) FEET APART HORIZONTALLY AND EIGHTEEN (18) INCHES VERTICALLY UNLESS OTHERWISE NOTED.
7. WATERLINES TO HAVE A MINIMUM OF FOUR (4) FEET COVER.
8. CONSTRUCTION MATERIALS AND METHODS NOT OTHERWISE SPECIFIED OR SHOWN HEREIN SHALL CONFORM TO NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (THE LATEST EDITION AND AMENDMENTS).
9. FOR SPECIFIC BUILDING DETAILS SEE ARCHITECTURAL DRAWINGS.
10. SITE GRADING AND UTILITY WORK ARE TO BE PERFORMED IN A MANNER TO MINIMIZE DAMAGE TO EXISTING VEGETATION AND TREES. ALL AREAS NOT AFFECTED BY CONSTRUCTION ARE TO REMAIN NATURAL AND UNDISTURBED.
11. ALL EXISTING OR PROJECT GENERATED DEBRIS IS TO BE REMOVED AND PROPERLY DISPOSED ACCORDING TO ALL APPLICABLE REGULATIONS.
12. TOPSOIL THAT HAS BEEN REMOVED FOR THE GRADING OF THE SITE SHALL NOT BE USED AS SOIL. THE TOPSOIL SHALL BE REDISTRIBUTED ON GREEN AREAS SO AS TO PROVIDE A MINIMUM OF AT LEAST SIX (6) INCHES OF COVER ON THOSE AREAS.
13. SIDE SLOPES TO BE GRADED AT A MAXIMUM OF 3:1.
14. COMPACTION IN FILL AREAS BENEATH ALL PROPOSED UTILITIES AND STRUCTURES SHOULD MEET ALL MANUFACTURES AND TOWNSHIP REQUIREMENTS AND BE EQUAL TO THE MINIMUM 95% MODIFIED PROCTOR DENSITY.
15. NO ON-SITE SOIL TESTING HAS BEEN PERFORMED ON THIS PROJECT BY THE DESIGN ENGINEER. IT SHALL BE THE OWNER AND/OR CONTRACTORS RESPONSIBILITY TO CONDUCT SOIL TESTING TO CONFIRM APPLICABILITY OF PROPOSED IMPROVEMENTS AND CONSTRUCTION TECHNIQUES WITH RESPECT TO SUBSURFACE SOIL AND GROUNDWATER CONDITIONS.
16. ADEQUACY OF WATER SUPPLY SYSTEM FOR FIRE PROTECTION HAS NOT BEEN CONFIRMED WITH RESPECTIVE WATER SUPPLIER OR INSURANCE COMPANY. WATER SUPPLY SYSTEM TO BE REVIEWED AND APPROVED BY THE ARCHITECT AND WATER COMPANY PRIOR TO CONSTRUCTION OR ORDERING.
17. THE APPLICANT SHALL BE RESPONSIBLE FOR THE INSTALLATION OF STREET LIGHTING FACILITIES AS DESIGNED AND INSTALLED BY RESPECTIVE COMPANY, AS APPROVED BY THE PLANNING BOARD, AND IN ACCORDANCE WITH ALL APPLICABLE STANDARDS AND SPECIFICATIONS. STREET LIGHTING SHALL BE APPROPRIATELY SHIELDED TO AVOID GLARE INTO NEARBY HOMES. LIGHTING PLANS TO BE SUBMITTED TO BOROUGH FOR APPROVAL.
18. SANITARY SEWER DESIGN (N.J.A.C. 7:14A-23.6(B)4ki.)
SEWERS CONVEYING SANITARY FLOW, COMBINED SANITARY AND STORM WATER FLOW, OR INDUSTRIAL FLOW SHALL BE SEPARATED FROM WATER MAINS BY A DISTANCE OF AT LEAST TEN (10) FEET HORIZONTALLY. IF SUCH LATERAL SEPARATION IS NOT POSSIBLE, THE PIPES SHALL BE IN SEPARATE TRENCHES WITH THE SEWER AT LEAST EIGHTEEN (18) INCHES BELOW THE BOTTOM OF THE WATER MAIN, OR SUCH OTHER SEPARATION AS APPROVED BY THE DEPARTMENT.

WHERE APPROPRIATE SEPARATION FROM A WATER MAIN IS NOT POSSIBLE, THE SEWER SHALL BE ENCASED IN CONCRETE, OR CONSTRUCTED OF DUCTILE IRON PIPE USING MECHANICAL OR SLIP-ON JOINTS FOR A DISTANCE OF AT LEAST TEN (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 SHALL BE PROVIDED. THE DEPARTMENT MAY ALSO REQUIRE ADDITIONAL STRUCTURAL SUPPORT FOR STORM SEWERS OVER SEWER LINES.

HORIZONTAL DATUM : NAD 1983

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15 45

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GRADING & UTILITY PLAN (1)

DRAWN BY	RM
DESIGNED BY	RJG
APPROVED BY	GSO

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.02	GU-1
DATE OF ISSUE	FEBRUARY 12, 2021	6
REVISION 3	OCTOBER 4, 2021	

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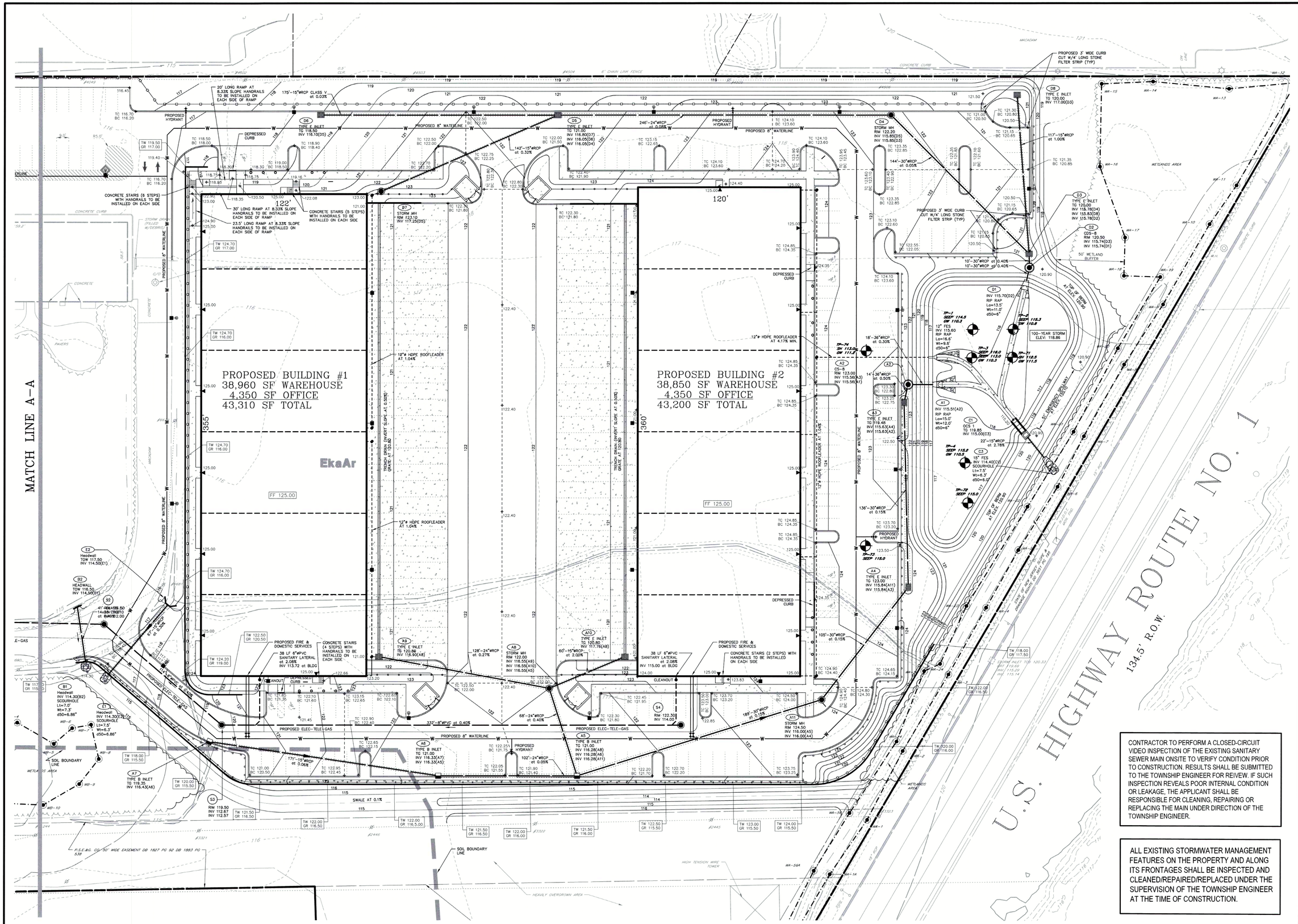

CONTRACTOR TO PERFORM A CLOSED-CIRCUIT VIDEO INSPECTION OF THE EXISTING SANITARY SEWER MAIN ONSITE TO VERIFY CONDITION PRIOR TO CONSTRUCTION. RESULTS SHALL BE SUBMITTED TO THE TOWNSHIP ENGINEER FOR REIVEW. IF SUCH INSPECTION REVEALS POOR INTERNAL CONDITION OR LEAKAGE, THE APPLICANT SHALL BE RESPONSIBLE FOR CLEANING, REPAIRING OR REPLACING THE MAIN UNDER DIRECTION OF THE TOWNSHIP ENGINEER.

ALL EXISTING STORMWATER MANAGEMENT FEATURES ON THE PROPERTY AND ALONG ITS FRONTAGES SHALL BE INSPECTED AND CLEANED/REPAIRED/REPLACED UNDER THE SUPERVISION OF THE TOWNSHIP ENGINEER AT THE TIME OF CONSTRUCTION.

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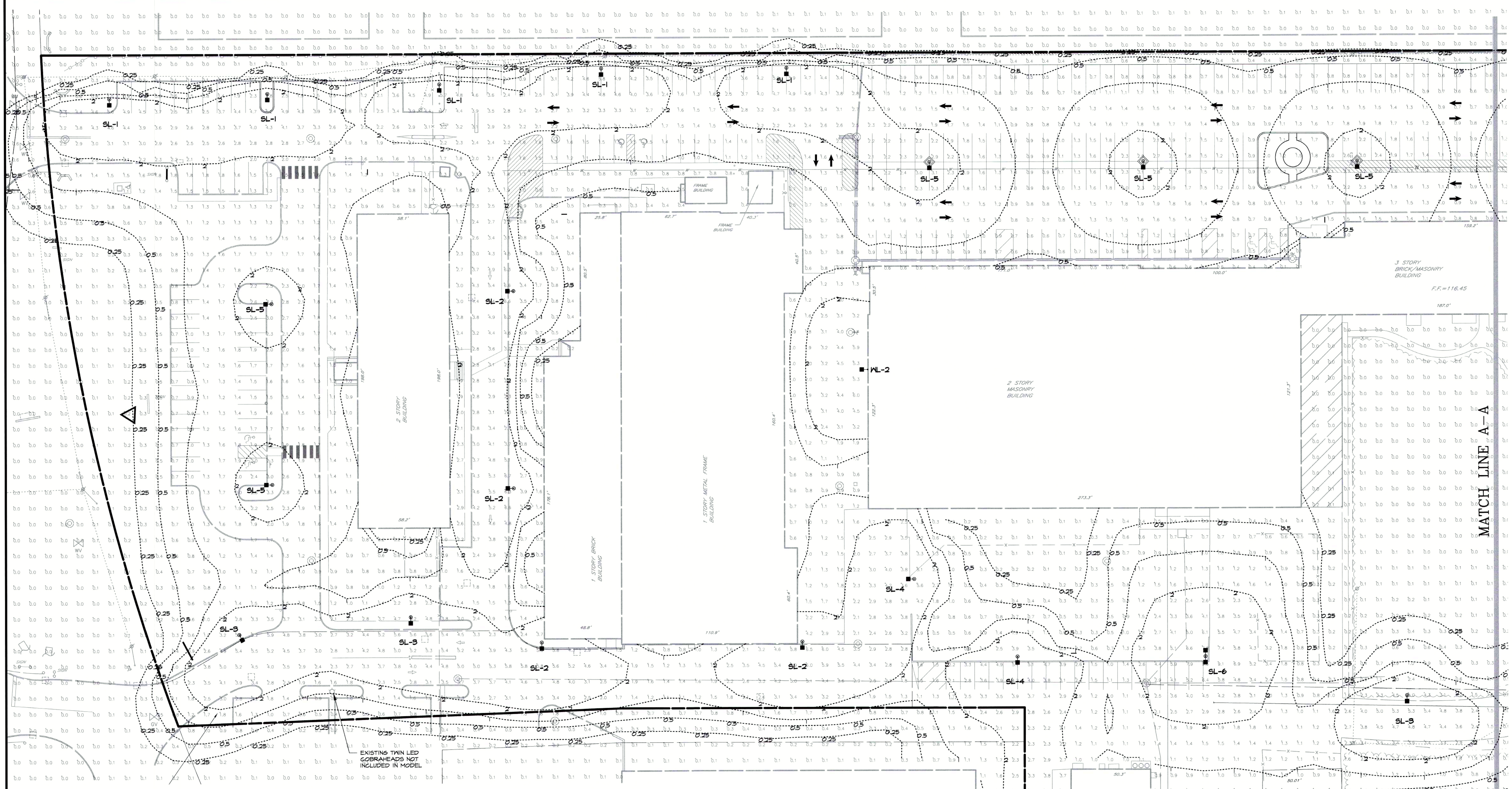
GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.02	GU-2
DATE OF ISSUE	FEBRUARY 12, 2021	7
REVISION 5	OCTOBER 4, 2021	



LIGHTING SCHEDULE

LABEL	QUANTITY	TYPE OF MOUNT	WATTAGE / COLOR / DRIVER	MOUNTING HEIGHT	POLE HEIGHT	DISTRIBUTION	CATALOG NUMBER	POLE CATALOG NUMBER
WL-1	8	WALL MOUNT	182 WATTS LED / 3,000 K / 600mA	24.5' AFF	N/A	TYPE T4FT	COOPER LIGHTING SOLUTIONS MCGRAW EDISON-GALN GALLEON II GALN-SA6-A-730-U-T4FT-WM-BK (OR APPROVED EQUAL)	N/A
WL-2	2	WALL MOUNT	182 WATTS LED / 3,000 K / 600mA	24.5' *	N/A	TYPE T3	COOPER LIGHTING SOLUTIONS MCGRAW EDISON-GALN GALLEON II GALN-SA6-A-730-U-T3-WM-BK (OR APPROVED EQUAL)	N/A
SL-1	13	SINGLE SQUARE POLE	182 WATTS LED / 3,000 K / 600mA	24.5' *	22.0'	TYPE SL4 W/ HSS	COOPER LIGHTING SOLUTIONS MCGRAW EDISON-GALN GALLEON II GALN-SA6-A-730-U-SL4-_-BK-HSS (OR APPROVED EQUAL)	COOPER LIGHTING SOLUTIONS SSS-5-A-22-S-Y-_-1 (OR APPROVED EQUAL)
SL-2	7	SINGLE SQUARE POLE	182 WATTS LED / 3,000 K / 600mA	24.5' *	22.0'	TYPE T2	COOPER LIGHTING SOLUTIONS MCGRAW EDISON-GALN GALLEON II GALN-SA6-A-730-U-T2-_-BK (OR APPROVED EQUAL)	COOPER LIGHTING SOLUTIONS SSS-5-A-22-S-Y-_-1 (OR APPROVED EQUAL)
SL-3	3	SINGLE SQUARE POLE	182 WATTS LED / 3,000 K / 600mA	24.5' *	22.0'	TYPE T3	COOPER LIGHTING SOLUTIONS MCGRAW EDISON-GALN GALLEON II GALN-SA6-A-730-U-T3-_-BK (OR APPROVED EQUAL)	COOPER LIGHTING SOLUTIONS SSS-5-A-22-S-Y-_-1 (OR APPROVED EQUAL)
SL-4	2	SINGLE SQUARE POLE	182 WATTS LED / 3,000 K / 600mA	24.5' *	22.0'	TYPE T4FT	COOPER LIGHTING SOLUTIONS MCGRAW EDISON-GALN GALLEON II GALN-SA6-A-730-U-T4FT-_-BK (OR APPROVED EQUAL)	COOPER LIGHTING SOLUTIONS SSS-5-A-22-S-Y-_-1 (OR APPROVED EQUAL)
SL-5	8	SINGLE SQUARE POLE	182 WATTS LED / 3,000 K / 600mA	24.5' *	22.0'	TYPE 5WQ	COOPER LIGHTING SOLUTIONS MCGRAW EDISON-GALN GALLEON II GALN-SA6-A-730-U-5WQ-_-BK (OR APPROVED EQUAL)	COOPER LIGHTING SOLUTIONS SSS-5-A-22-S-Y-_-1 (OR APPROVED EQUAL)
SL-6	1	TWIN SQUARE POLE	182 WATTS LED / 3,000 K / 600mA	24.5' *	22.0'	TYPE T4FT	COOPER LIGHTING SOLUTIONS MCGRAW EDISON-GALN GALLEON II GALN-SA6-A-730-U-T4FT-_-BK (OR APPROVED EQUAL)	COOPER LIGHTING SOLUTIONS SSS-5-A-22-S-Y-_-1 (OR APPROVED EQUAL)
SL-7	1	SINGLE SQUARE POLE	182 WATTS LED / 3,000 K / 600mA	24.5' *	20.5'	TYPE SL4 W/ HSS	COOPER LIGHTING SOLUTIONS MCGRAW EDISON-GALN GALLEON II GALN-SA6-A-730-U-SL4-_-BK-HSS (OR APPROVED EQUAL)	COOPER LIGHTING SOLUTIONS SSS-5-A-20.5-S-Y-_-1 (OR APPROVED EQUAL)

* ABOVE PAVEMENT
AFF = ABOVE FINISHED FLOOR
(CONTACT MANUFACTURER FOR EXACT LIGHT FIXTURE AND LIGHT POLE SPECIFICATIONS.)

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LIGHTING PLAN (1)

DRAWN BY . . LKH
DESIGNED BY . . LKH
APPROVED BY . . KRG

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...
KENNETH R. GRISEWOOD
LANDSCAPE ARCHITECT NJ
LICENSE #AS000071

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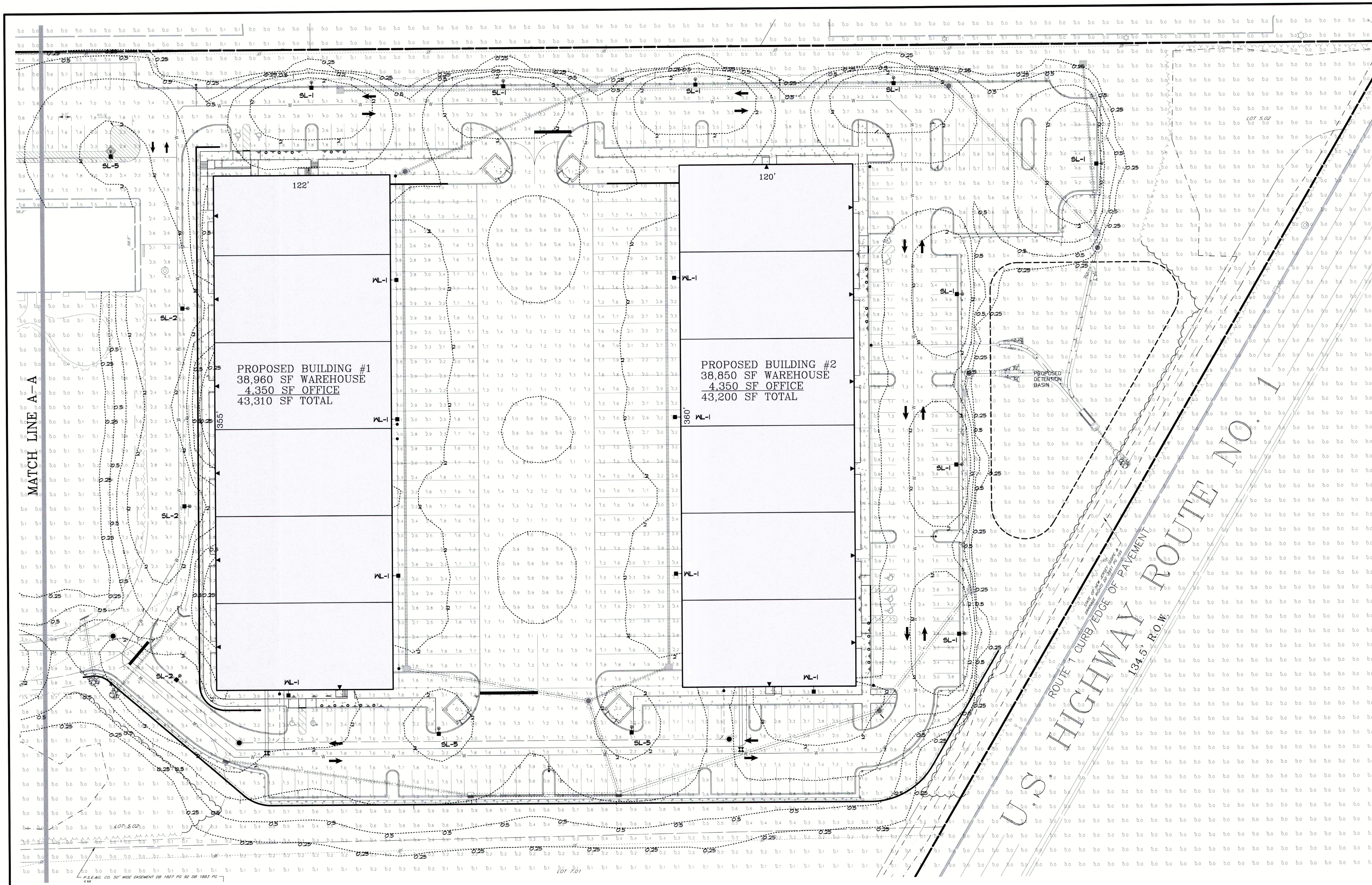

LIGHTING NOTES:

1. A CONCRETE FOOTING BELOW FINISHED GRADE, SHALL BE INSTALLED FOR EACH FIXTURE. SIZE AND DEPTH TO BE DESIGNED BY STRUCTURAL ENGINEER.

2. A MINIMUM OF (0.5) FOOTCANDLES, WITH AN AVERAGE OF (1.99) FOOTCANDLES AND AN AVERAGE TO MINIMUM UNIFORMITY RATIO OF (3.98:1) ARE PROVIDED WITHIN PARKING AREAS AND ACCESS AISLES.

3. PARKING AREA POLES TO BE STEEL, STRAIGHT, SQUARE TO MATCH FIXTURE.

4. LIGHT FIXTURES AND POLES TO BE INSTALLED AS PER MANUFACTURERS' SPECIFICATIONS.

5. PARKING AREA LIGHTING CONTROLS SHALL BE PHOTOCELL OPERATED AND TIMER DEACTIVATED DURING HOURS OF OPERATION.

6. LIGHT STANDARDS LOCATED IN PLANTING AREAS AND TURF AREAS SHALL BE A MINIMUM OF 30" OFF PAVEMENT CURB FACE. FOOTINGS WITHIN PARKING AREAS SHALL BE 30" ABOVE ADJACENT PAVEMENT GRADE. ALL FOUNDATIONS SHALL BE CYLINDRICAL. POLE HEIGHTS SHALL BE ADJUSTED FOR APPROPRIATE FOUNDATIONS USED WHILE MAINTAINING LUMINAIRE MOUNTING HEIGHT.

7. ALL CIRCUIT DIAGRAMS AND ELECTRICAL PLANS FOR EXTERIOR LIGHTING TO SERVICE PANEL SHALL BE DESIGNED BY INTERIOR LIGHTING CONTRACTOR/ENGINEER.

8. INSTALLATION OF ALL SITE LIGHTING ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH ALL APPLICABLE STANDARDS, CODES, AND LAWS.

9. THIS PLAN WAS PRODUCED USING LIGHTING ANALYSIS AGI PROGRAM WITH THE APPROPRIATE PHOTOMETRIC FILES SUPPLIED BY EATON LIGHTING, PEACHTREE CITY, GA.

10. THE CONTRACTOR SHALL FIELD VERIFY EXISTING OVERHEAD WIRES FOR CLEARANCE REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT/ENGINEER FOR ANY CONFLICTS PRIOR TO ORDERING LIGHTING EQUIPMENT.

11. THE CONTRACT DRAWINGS INDICATE THE APPROXIMATE LOCATION OF EXISTING SUBSURFACE UTILITIES IN THE VICINITY OF THE PROJECT AND ARE NOT GUARANTEED FOR ACCURACY AND/OR COMPLETENESS. CONTRACTOR TO VERIFY THE DEPTH AND LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. (1-800-272-1000). ANY CONFLICTS WITH PROPOSED CONSTRUCTION ARE TO BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER, AND LANDSCAPE ARCHITECT. ALL EXISTING UTILITIES THAT ARE TO BE RELOCATED OR ALTERED IN ANY MANNER SHALL BE DONE IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANIES STANDARDS. ALL EXISTING UTILITIES EXPOSED DURING CONSTRUCTION ARE TO BE SUPPORTED UNTIL BACKFILL IS IN PLACE.

12. ANY LIGHT FIXTURE SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE ACCOMPANIED BY A POINT BY POINT CALCULATION VERIFYING THE SUBSTITUTED FIXTURES PERFORMANCE AND DEMONSTRATING THAT THE REVISED LIGHT LEVELS MATCH THE APPROVED PLANS. MENLO ENGINEERING WILL NOT PERFORM REVISED LIGHTING CALCULATIONS UNLESS AUTHORIZED BY THE OWNER. THE REVISED LIGHT LEVELS MUST BE RESUBMITTED TO THE MUNICIPAL REVIEWING ENGINEER FOR APPROVAL.

13. BUILDING MEP OR ELECTRICAL CONTRACTOR TO DETERMINE REQUIRED VOLTAGES FOR ALL SITE LIGHTING.

14. THIS PLAN REQUIRES-WAS GRANTED A VARIANCE/WAIVER FROM SECTION 205-108(K)1 RESTRICTING THE LIGHT INTENSITY AT THE PROPERTY LINE TO NOT EXCEED A MAXIMUM OF 0.5 FOOTCANDLES. THE PLAN PROVIDES A MAXIMUM LIGHT LEVEL OF 3.7 FOOTCANDLES AT THE PROPERTY LINE BORDERING LOT 5.03.

...ngston Warehouse\2018.047-Base.dwg PLOTTED: 10/5/2021 11:23 AM; BY: SERGI KOVTUN

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261 Cleveland Avenue
Highland Park, NJ 08904
menloeng.com
732-846-8585 732-846-9439
Certificate of Authorization : 24GA27951900

LIVINGSTON WAREHOUSE

TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY
NEW JERSEY

BLOCK 140.01,
LOT 5.02 & 7.01
TAX MAP SHEET 30
21.03 ACRES

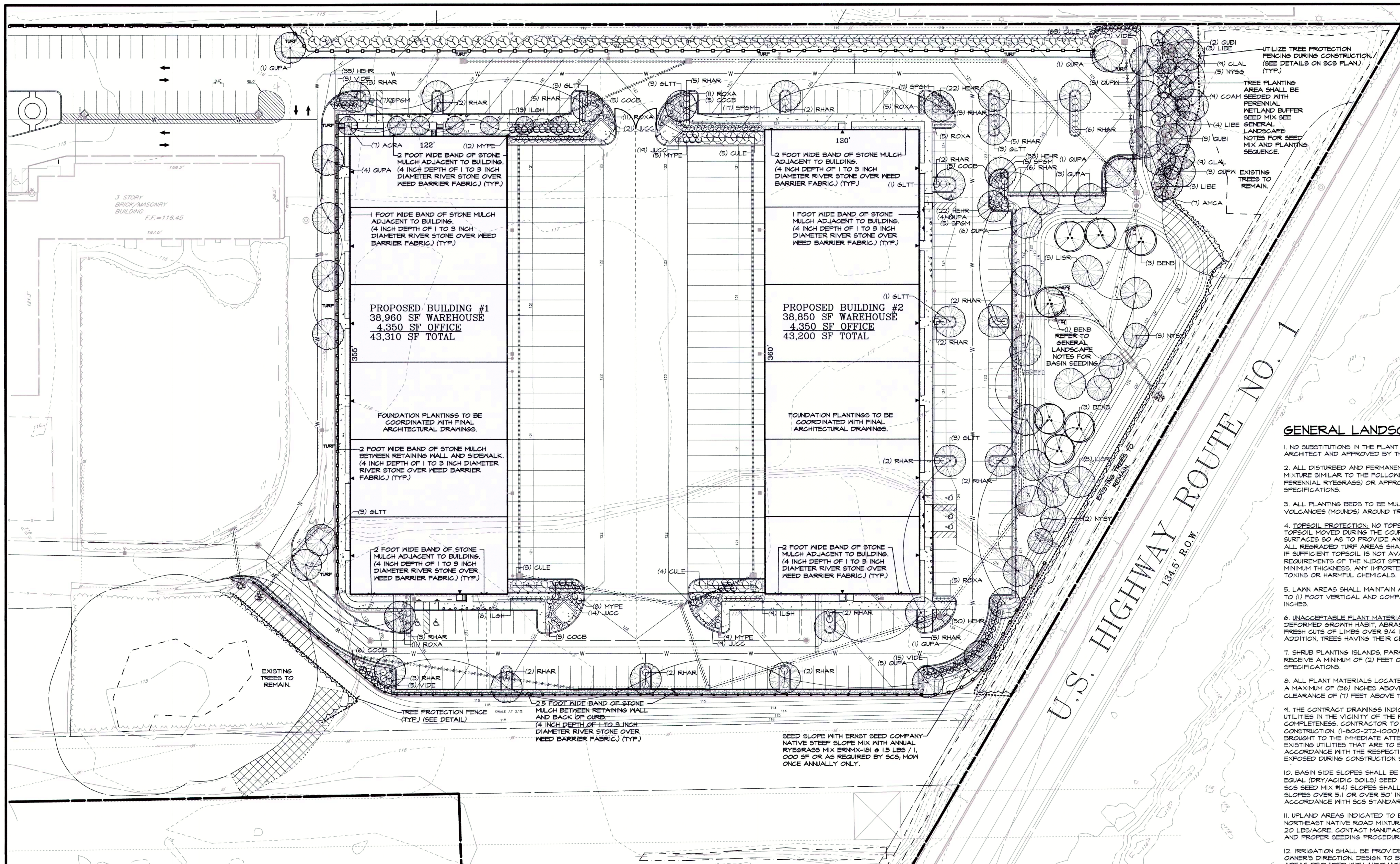
LIGHTING PLAN (2)

DRAWN BY	LKH
DESIGNED BY	LKH
APPROVED BY	KRG

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

KENNETH R. GRISEWOOD
LANDSCAPE ARCHITECT NJ
LICENSE #AS000071

PROJECT NUMBER	2018.047.02	LI-2
DATE OF ISSUE	FEBRUARY 12, 2021	9
REVISION 3	OCTOBER 4, 2021	



GENERAL LANDSCAPE NOTES:

1. NO SUBSTITUTIONS IN THE PLANT LIST IS TO BE MADE UNLESS AUTHORIZED BY THE LANDSCAPE ARCHITECT AND APPROVED BY THE OWNER AND THE TOWNSHIP.

2. ALL DISTURBED AND PERMANENT TURF AREAS SHALL BE SEEDED WITH A GENERAL PURPOSE MIXTURE SIMILAR TO THE FOLLOWING; SCS SEED MIX #14 (TALL TURF FESCUE, KENTUCKY BLUEGRASS, PERENNIAL RYEGRASS) OR APPROVED EQUAL. SEE SCS DETAIL SHEETS FOR SEEDING SPECIFICATIONS.

3. ALL PLANTING BEDS TO BE MULCHED WITH (3) INCH MINIMUM MULCH (SEE PLANTING NOTE #20). MULCH VOLCANOES (MOUNDS) AROUND TREES ARE PROHIBITED.

4. TOPSOIL PROTECTION: NO TOPSOIL SHALL BE REMOVED FROM THE SITE OR USED AS SPOIL. ALL TOPSOIL MOVED DURING THE COURSE OF CONSTRUCTION SHALL BE REDISTRIBUTED ON ALL REGRADED SURFACES SO AS TO PROVIDE AN EVEN COVER AND SHALL BE STABILIZED BY SEEDING OR PLANTING. ALL REGRADED TURF AREAS SHALL BE COVERED BY A SIX (6) INCH MINIMUM THICKNESS OF TOPSOIL. IF SUFFICIENT TOPSOIL IS NOT AVAILABLE ON THE SITE, TOPSOIL, MEETING OR EXCEEDING THE MINIMUM REQUIREMENTS OF THE NJDOT SPECIFICATIONS, SHALL BE PROVIDED TO RESULT IN A SIX (6) INCH MINIMUM THICKNESS. ANY IMPORTED TOPSOIL OR SUBSOIL SHALL BE NJDEP CERTIFIED FREE OF ANY TOXINS OR HARMFUL CHEMICALS.

5. LAWN AREAS SHALL MAINTAIN A MINIMUM SLOPE OF 2% AND A MAXIMUM OF (3) FEET HORIZONTAL TO (1) FOOT VERTICAL AND COMPACTED AREAS SHALL BE TILLED TO A DEPTH OF EIGHTEEN (18) INCHES.

6. UNACCEPTABLE PLANT MATERIALS: MATERIALS WHICH HAVE DAMAGED OR CROOKED LEADERS, DEFORMED GROWTH HABIT, ABRASIONS OF THE BARK, SUNSCALDS, WINDBURN, DISFIGURING KNOTS, OR FRESH CUTS OF LIMBS OVER 3/4 IN. WHICH HAVE NOT COMPLETELY CALLUSED WILL BE REJECTED. IN ADDITION, TREES HAVING THEIR CENTRAL LEADERS HEADED BACK WILL ALSO BE REJECTED.

7. SHRUB PLANTING ISLANDS, PARKING AREA ISLANDS AND FOUNDATION PLANTING BEDS SHALL RECEIVE A MINIMUM OF (2) FEET OF TOPSOIL MIXTURE MEETING OR EXCEEDING THE MINIMUM NJDOT SPECIFICATIONS.

8. ALL PLANT MATERIALS LOCATED WITHIN SIGHT TRIANGLES SHALL BE MAINTAINED NOT TO EXCEED A MAXIMUM OF (36) INCHES ABOVE PAVEMENT AND TREES SHALL BE LIMBED TO MAINTAIN A MINIMUM CLEARANCE OF (7) FEET ABOVE THE TOP OF CURB OR SIDEWALK FOR SIGHT VISIBILITY.

9. THE CONTRACT DRAWINGS INDICATE THE APPROXIMATE LOCATION OF EXISTING SUBSURFACE UTILITIES IN THE VICINITY OF THE PROJECT AND ARE NOT GUARANTEED FOR ACCURACY AND/OR COMPLETENESS. CONTRACTOR TO VERIFY DEPTH AND LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. (1-800-272-1000). ANY CONFLICTS WITH PROPOSED CONSTRUCTION ARE TO BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER AND THE LANDSCAPE ARCHITECT. ALL EXISTING UTILITIES THAT ARE TO BE RELOCATED OR ALTERED IN ANY MANNER SHALL BE DONE IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANIES STANDARDS. ALL EXISTING UTILITIES EXPOSED DURING CONSTRUCTION SHALL BE SUPPORTED UNTIL BACKFILL IS IN PLACE.

10. BASIN SIDE SLOPES SHALL BE SEEDED WITH A "TRI-PLEX TALL FESCUE BLEND" OR AN APPROVED EQUAL (DRY/ACIDIC SOILS) SEED AT A RATE OF 400 LBS/ACRE OR 9 LBS/1000 SF (CONFORMS TO SCS SEED MIX #14) SLOPES SHALL BE MOWED A MINIMUM TWICE ANNUALLY FOR APPEARANCE. ALL SLOPES OVER 5:1 OR OVER 50' IN LENGTH SHALL HAVE A SLOPE STABILIZATION FABRIC IN ACCORDANCE WITH SCS STANDARDS.

11. UPLAND AREAS INDICATED TO BE SEEDED WITH NATIVE GRASSES SHALL BE SEEDED WITH ERNST NORTHEAST NATIVE ROAD MIXTURE (ERNMX-105 OR APPROVED EQUAL SEEDED @ A MINIMUM RATE OF 20 LBS/ACRE. CONTACT MANUFACTURER FOR RECOMMENDED RATE FOR SPECIFIC SITE CONDITIONS AND PROPER SEEDING PROCEDURES.

12. IRRIGATION SHALL BE PROVIDED FOR PLANT MATERIAL IF INDICATED ON THE PLAN OR AT THE OWNER'S DIRECTION. DESIGN TO BE PROVIDED BY IRRIGATION PROFESSIONAL. ALL LANDSCAPE AREAS PROVIDED WITH AUTOMATIC IRRIGATION SYSTEMS SHALL BE TIMER CONTROLLED AND PROVIDED WITH AN AUTOMATIC RAINFALL SHUTOFF DETECTION DEVICE.

13. FINAL LOCATIONS OF BUFFER PLANTINGS (IF REQUIRED) LOCATED WITHIN EXISTING TREE CANOPY AREAS SHALL BE PLACED BASED ON EXISTING TREE LOCATIONS IDENTIFIED IN THE FIELD. EVERGREENS SHALL BE PLACED WHERE GAPS APPEAR IN THE TREE CANOPY. FINAL LOCATIONS TO BE APPROVED BY TOWNSHIP ENGINEER OR TOWNSHIP LANDSCAPE ARCHITECT.

14. SEE DETAIL SHEETS FOR ADDITIONAL PLANTING NOTES AND DETAILS.

15. ALL SHADE TREES, EVERGREENS, AND FLOWERING TREES SHALL BE PROVIDED WITH "TREEGATOR ORIGINAL OR JR. PRO" TM WATERING BAGS, RINGS OR APPROVED EQUAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING WATER TO ALL PLANTINGS AND LAWN AREAS UNTIL FINAL ACCEPTANCE.

16. PRIOR TO THE INSTALLATION OF ANY PLANT MATERIAL, SEEDING OR SODDING OF LAWN AREAS, THE CONTRACTOR SHALL OBTAIN PHYSICAL, CHEMICAL AND SOIL FERTILITY TESTING AT AN APPROVED LAB TO DETERMINE SOIL COMPOSITION AND SUITABILITY. THE TESTING SHALL BE A RATE OF EITHER ONE TEST PER 500 CUBIC YARDS OF PLANTING MIX OR ONE TEST PER 15,000 SF OF LANDSCAPE SURFACE AREA THE SOILS SHALL BE AMENDED IN ACCORDANCE WITH THE TEST RESULTS FOR OPTIMAL PLANT AND LAWN GROWTH. THE RESULTS OF ALL TESTING SHALL BE SUBMITTED TO THE LANDSCAPE ARCHITECT FOR REVIEW.

17. DETENTION BASIN BOTTOMS SHALL BE SEEDED WITH ERNST NATIVE DETENTION AREA MIXTURE (ERNMX-183 OR APPROVED EQUAL SEEDED @ A MINIMUM RATE OF 20 LBS/ACRE OR 0.5 LBS/1,000 SF.

- SEE MORE AT: HTTP://WWW.ERNSTSEED.COM

CONTACT MANUFACTURER FOR RECOMMENDED RATE FOR SPECIFIC SITE CONDITIONS AND PROPER SEEDING PROCEDURES.

18. THE TOWNSHIP OF NORTH BRUNSWICK LAND USE ORDINANCE REQUIRES THE FOLLOWING TREE REPLACEMENT:

SECTION 205-40.6.C.

-TOTAL REPLACEMENT TREES REQUIRED = (611) TREES.

(REFER TO TREE REPLACEMENT PLAN (TR-1) FOR TREE REPLACEMENT CALCULATIONS.)

- THE LANDSCAPE PLAN PROVIDES (124) REPLACEMENT TREES.
  - (68) SHADE TREES @ 2.5-3" CALIPER.
  - (63) EVERGREEN TREES @ 8-10' PLANTING HEIGHT.
- TOTAL REPLACEMENT TREE DEFICIT = (480) TREES.

* MONETARY CONTRIBUTION TO THE TOWNSHIP TREE FUND IS REQUIRED.

LIVINGSTON AVENUE PLANT SCHEDULE

DECIDUOUS TREES	QTY	BOTANICAL NAME	COMMON NAME	MATURE SPREAD	MATURE HT.	CALIPER	PLANTING HT.	TYPE	REMARKS
ACRA	7	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG RED MAPLE	15'	60'	2.5"-3" CAL.	12-14'	B&B	STRAIGHT, SYMMETRICAL, FULL CROWN, HEAD TO 7'
BENB	7	BETULA NIGRA	RIVER BIRCH	40'	60'	MULTISTEM	11-12'	B&B	(3) STEMS, SYMMETRICAL, LOW BRANCHED, HEAVY
GLTT	17	GLEDITSIA TRIACANTHOS VAR. INERMIS 'TRUE SHADE'	TRUE SHADE THORNLESS HONEY LOCUST	35'	40'	2.5"-3" CAL.	12-14'	B&B	STRAIGHT, SYMMETRICAL, FULL CROWN, HEAD TO 7'
LISR	6	LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA'	SEEDLESS AMERICAN SWEETGUM	40'	70'	2.5"-3" CAL.	12-14'	B&B	STRAIGHT, SYMMETRICAL, FULL CROWN, HEAD TO 7'
NYSY	5	NYSSA SYLVATICA	SOUR GUM	30'	50'	2.5"-3" CAL.	12-14'	B&B	STRAIGHT, SYMMETRICAL, FULL CROWN, HEAD TO 7'
QUPA	26	QUERCUS PALUSTRIS	PIN OAK	40'	75'	2.5"-3" CAL.	12-14'	B&B	STRAIGHT, SYMMETRICAL, FULL CROWN, HEAD TO 7'
EVERGREEN TREES	QTY	BOTANICAL NAME	COMMON NAME	MATURE SPREAD	MATURE HT.	CALIPER	PLANTING HT.	TYPE	REMARKS
CULE	75	CUPRESSOCYPARIS LEYLANDII	LEYLANDI CYPRESS	10'	60'		7-8'	B&B	STRAIGHT, SYMMETRICAL, DENSE, LOW BRANCHED
JUCC	63	JUNIPERUS CHINENSIS 'HETZII COLUMNARIS'	HETZI COLUMN JUNIPER	6'	15'		8-10'	B&B	STRAIGHT, SYMMETRICAL, DENSE, LOW BRANCHED
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	WIDTH	HEIGHT	PLANTING WIDTH	PLANTING HT.	TYPE	REMARKS
COCB	24	CORNUS SERICEA 'BAILEY'S REDTWIG'	BAILEY'S REDTWIG DOGWOOD	8'	8'		3-3.5'	B&B	WELL FURNISHED, DENSE, SPACE EVENLY
ILGH	30	ILEX GLABRA 'CHAMZIN' TM	NORDIC HOLLY	4'	4'		3-3.5'	#5 CAN	WELL FURNISHED, DENSE, LOW BRANCHED, SPACE EVENLY
MYPE	34	MYRICA PENSYLVANICA	NORTHERN BAYBERRY	9'	9'		3.5-4'	B&B	DENSE, WELL FURNISHED, SYMMETRICAL
RHAR	66	RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	8'	3'	18-24"		#5 CAN	DENSE, WELL FURNISHED, SYMMETRICAL, LOW BRANCHED
ROXA	48	ROSA X 'NOARE'	RED FLOWER CARPET ROSE	4'	3'	15-18"		#3 CAN	DENSE, WELL FURNISHED, LOW BRANCED
SPGM	41	SPIRAEA JAPONICA 'GOLD MOUND'	GOLD MOUND SPIREA	4'	4'	15-18"		#5 CAN	DENSE, WELL FURNISHED, SYMMETRICAL, LOW BRANCHED
VIDE	30	VIBURNUM DENTATUM 'AUTUMN JAZZ'	ARROWWOOD VIBURNUM	10'	12'		5-6'	B&B	DENSE, WELL FURNISHED, SYMMETRICAL, LOW BRANCHED
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	CONTAINER	MATURE WIDTH	MATURE HT.			
HEHR	162	HEMEROCALLIS HYBRID 'HAPPY RETURNS'	HAPPY RETURNS DAYLILY	#2 CAN	1.5'	1.5'			(3) FAN CLUMP, WELL ROOTED

WETLAND TRANSITION ZONE PLANT SCHEDULE (QUANTITIES ARE NOT INCLUDED IN ABOVE TABLE)

DECIDUOUS TREES	QTY	BOTANICAL NAME	COMMON NAME	MATURE SPREAD	MATURE HT.	CALIPER	PLANTING HT.	TYPE	REMARKS
NYSG	5	NYSSA SYLVATICA	SOUR GUM	30'	50'	1"	6'-7'	BARE ROOT	STRAIGHT, SYMMETRICAL, PLANT AT APPROXIMATE 10 FOOT CENTERS
QUBI	5	QUERCUS BICOLOR	SWAMP WHITE OAK	50'	60'	1"	6-8'	BARE ROOT	STRAIGHT, SYMMETRICAL, PLANT @ APPROXIMATE 10 FOOT CENTERS
QUPW	6	QUERCUS PHELLOS	WILLOW OAK	40'	60'	1"	6-8'	BARE ROOT	STRAIGHT, SYMMETRICAL, PLANT AT APPROXIMATE 10 FOOT CENTERS
FLOWERING TREES	QTY	BOTANICAL NAME	COMMON NAME	MATURE SPREAD	MATURE HT.	CALIPER	PLANTING HT.	TYPE	REMARKS
AMCA	7	AMELANCHIER CANADENSIS	SHADBLOW SERVICEBERRY	15'	20'	(3) STEM CLUMP	3.5-4'	BARE ROOT	(3) STEM CLUMP, SYMMETRICAL
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	WIDTH	HEIGHT	PLANTING WIDTH	PLANTING HT.	TYPE	REMARKS
CLAL	18	CLETHRA ALNIFOLIA	SUMMERSWEET	5'	3'		24-30"	#5 CAN	(5) CANES MIN., SYMMETRICAL, DENSE
COAM	9	CORNUS AMOMUM	SILKY DOGWOOD	10'	10'		3-3.5'	#5 CAN	WELL FURNISHED, DENSE, SPACE EVENLY
LIBE	10	LINDERA BENZOIN	SPICEBUSH	10'	10'		24-30"	B&B	DENSE, WELL FURNISHED, LOW BRANCHED

HORIZONTAL DATUM : SURVEY

GRAPHIC SCALE

0 20 40 60 80

SCALE: 1"=40'

REVISIONS	
1) TWP REVS	03/02/21
1) TWP REVS	06/30/21
3) SITE PLAN REVS.	10/04/21

THIS DRAWING IS FOR PERMIT PURPOSES ONLY

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☐ CHKD BY: _____ DATE: _______

STOP CALL BEFORE YOU DIG! 1-800-272-1000 or 811

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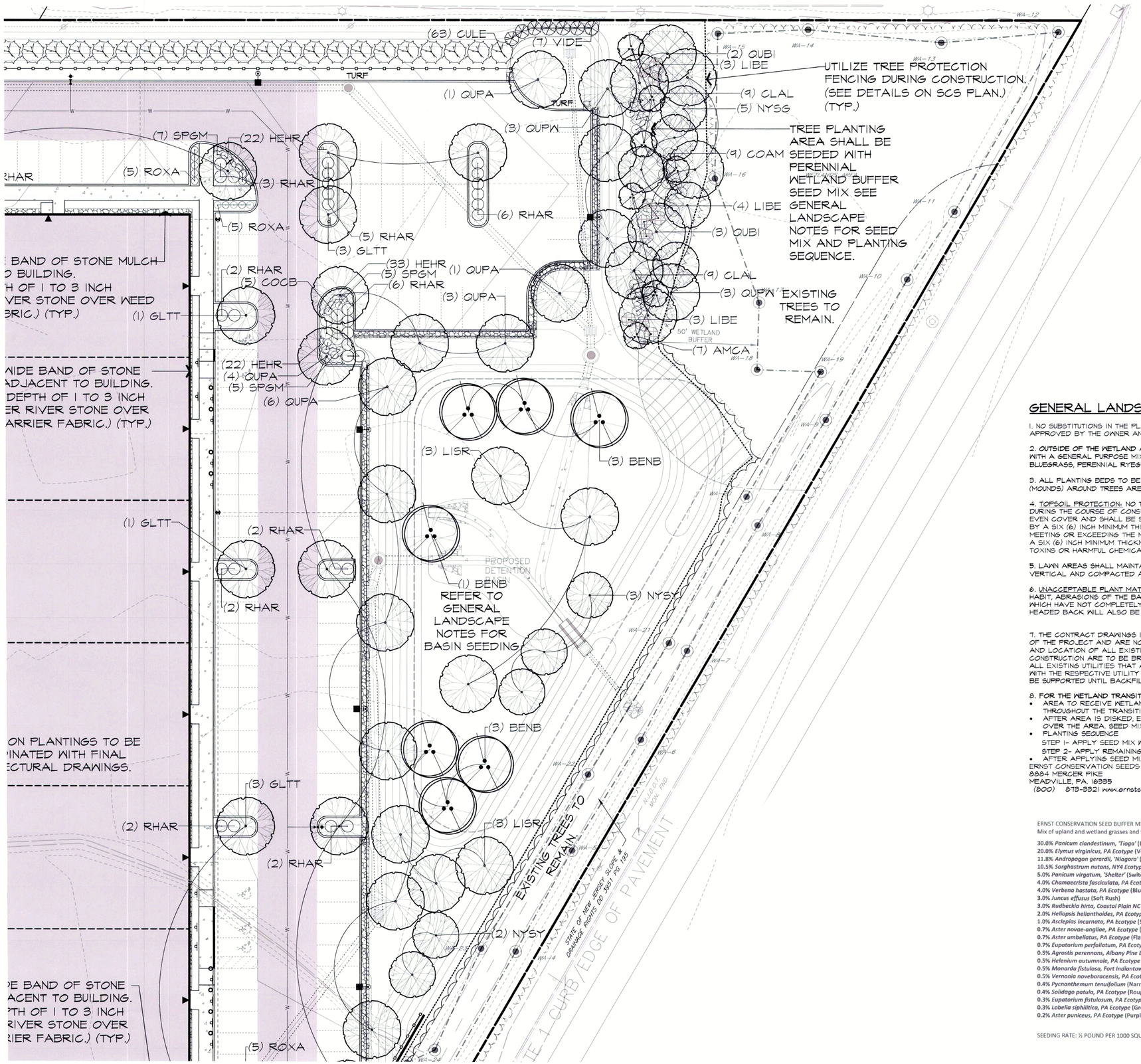
REVISION 3	OCTOBER 4, 2021	



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2. **OUTSIDE OF THE WETLAND AND TRANSITION AREAS** ALL DISTURBED AND PERMANENT TURF AREAS SHALL BE SEEDED WITH A GENERAL PURPOSE MIXTURE SIMILAR TO THE FOLLOWING; SCS SEED MIX #14 (TALL TURF FESCUE, KENTUCKY BLUEGRASS, PERENNIAL RYEGRASS) OR APPROVED EQUAL. SEE SCS DETAIL SHEETS FOR SEEDING SPECIFICATIONS.

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8. **FOR THE WETLAND TRANSITION AREA PLANTING:**
- AREA TO RECEIVE WETLAND TRANSITION PLANTING TO BE DISKED IN ORDER TO CREATE MICROTOPOGRAPHY THROUGHOUT THE TRANSITION AREA.
- AFTER AREA IS DISKED, ERNMX-178 SEED MIX SHOULD BE APPLIED OVER THE AREA. SEED MIX SHOULD BE APPLIED OVER THE AREA. SEED MIX SHOULD BE APPLIES PER MANUFACTURERS INSTRUCTIONS USING A HYDROSEEDER.
- PLANTING SEQUENCE
  STEP 1- APPLY SEED MIX WITH ½ OF HYDROMULCH EVENLY OVER ENTIRE AREA
  STEP 2- APPLY REMAINING ½ OF HYDROMULCH EVENLY OVER ENTIRE AREA
- AFTER APPLYING SEED MIX AND HYDRO MULCH, ALL PLUGS AND WHIPS MAY BE INSTALLED ACCORDING TO SCHEDULE

ERNST CONSERVATION SEEDS
8884 MERCER PIKE
MEADVILLE, PA. 16335
(800) 873-3321 www.ernstseed.com

ERNST CONSERVATION SEED BUFFER MIX # 178
Mix of upland and wetland grasses and forbs

30.0% *Panicum clandestinum*, 'Tioga' (Deertongue, 'Tioga')
20.0% *Elymus virginicus*, PA Ecotype (Virginia Wildrye, PA Ecotype)
11.8% *Andropogon gerardii*, 'Niagara' (Big Bluestem, 'Niagara')
10.5% *Sorghastrum nutans*, NY4 Ecotype (Indiangrass, NY4 Ecotype)
5.0% *Panicum virgatum*, 'Shelter' (Switchgrass, 'Shelter')
4.0% *Chamaecrista fasciculata*, PA Ecotype (Partridge Pea, PA Ecotype)
4.0% *Verbena hastata*, PA Ecotype (Blue Vervain, PA Ecotype)
3.0% *Juncus effusus* (Soft Rush)
3.0% *Rudbeckia hirta*, Coastal Plain NC Ecotype (Blackeyed Susan, Coastal Plain NC Ecotype)
2.0% *Heliopsis helianthoides*, PA Ecotype (Oxeye Sunflower, PA Ecotype)
1.0% *Asclepias incarnata*, PA Ecotype (Swamp Milkweed, PA Ecotype)
0.7% *Aster novae-angliae*, PA Ecotype (New England Aster, PA Ecotype)
0.7% *Aster umbellatus*, PA Ecotype (Flat Topped White Aster, PA Ecotype)
0.7% *Eupatorium perfoliatum*, PA Ecotype (Boneset, PA Ecotype)
0.5% *Agrostis perennans*, Albany Pine Bush-NY Ecotype (Autumn Bentgrass, Albany Pine Bush-NY Ecotype)
0.5% *Helenium autumnale*, PA Ecotype (Common Sneezeweed, PA Ecotype)
0.5% *Monarda fistulosa*, Fort Indiantown Gap-PA Ecotype (Wild Bergamot, Fort Indiantown Gap-PA Ecotype)
0.5% *Vernonia noveboracensis*, PA Ecotype (New York Ironweed, PA Ecotype)
0.4% *Pycnanthemum tenuifolium* (Narrowleaf Mountainmint)
0.4% *Solidago patula*, PA Ecotype (Roughleaf Goldenrod, PA Ecotype)
0.3% *Eupatorium fistulosum*, PA Ecotype (Joe Pye Weed, PA Ecotype)
0.3% *Lobelia siphilitica*, PA Ecotype (Great Blue Lobelia, PA Ecotype)
0.2% *Aster puniceus*, PA Ecotype (Purplestem Aster, PA Ecotype)

SEEDING RATE: ½ POUND PER 1000 SQUARE FEET

HORIZONTAL DATUM : SURVEY

GRAPHIC SCALE

0 20 40
10 30
SCALE: 1"=20'

REVISIONS

1) SITE PLAN REVS.	10/04/21

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WETLAND TRANSITION PLANTING PLAN

DRAWN BY	BGS
DESIGNED BY	BGS
APPROVED BY	KRG

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION

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DATE OF ISSUE	OCTOBER 18, 2019	11
REVISION 1	OCTOBER 4, 2021	

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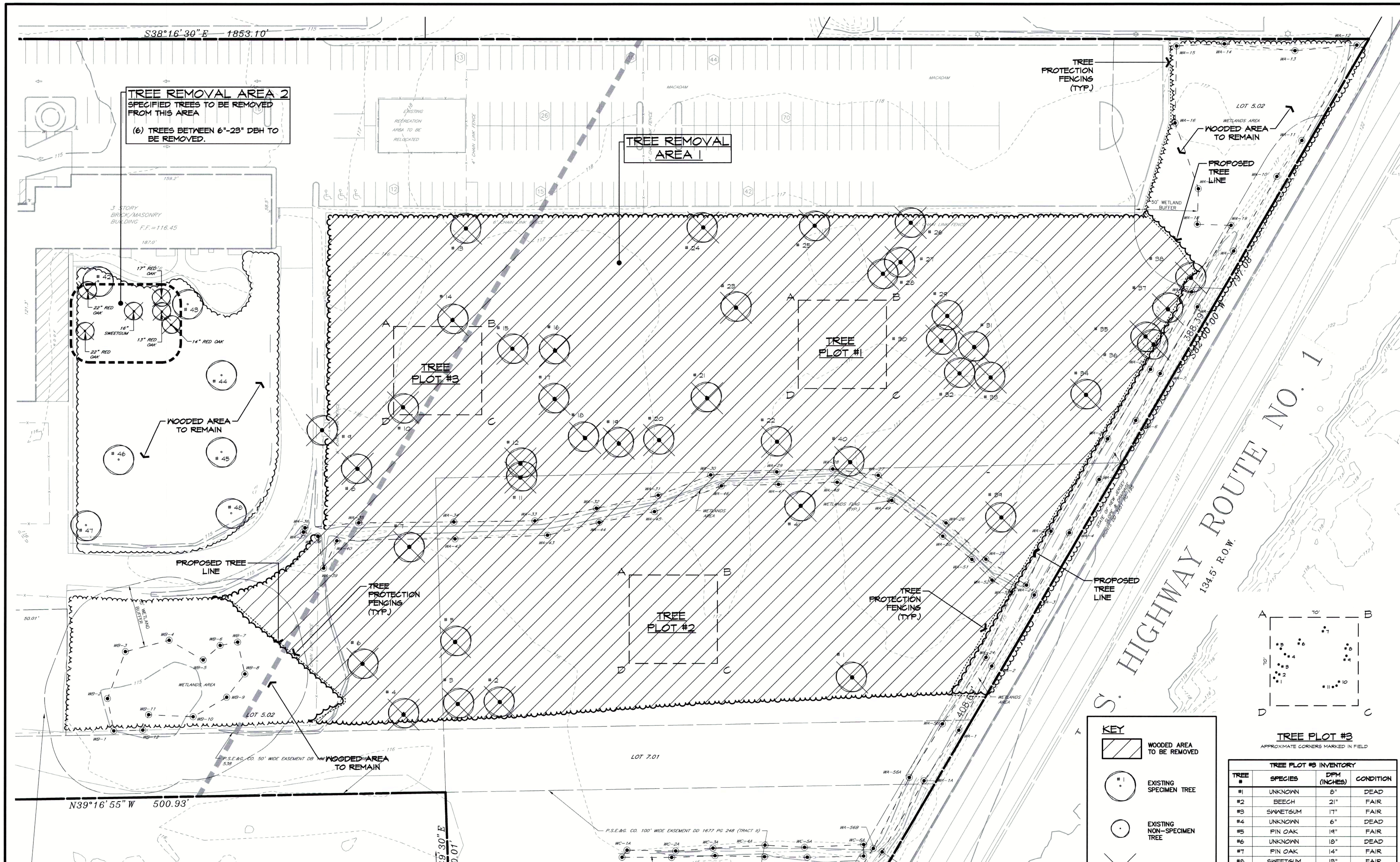
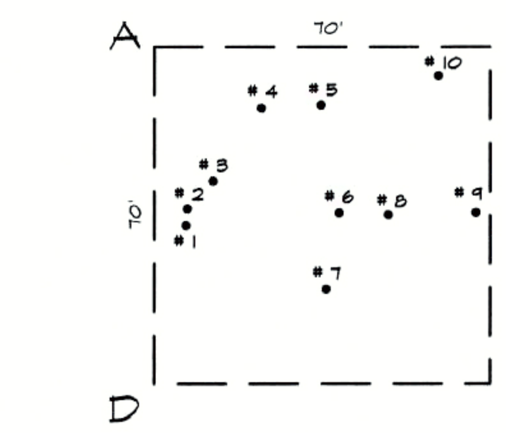
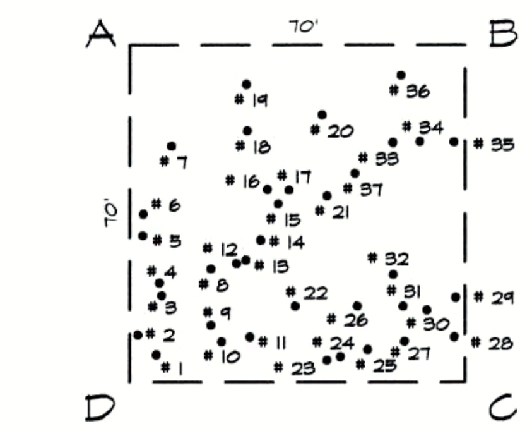




TREE PLOT #1

APPROXIMATE CORNERS MARKED IN FIELD

TREE PLOT #1 INVENTORY			
TREE #	SPECIES	DPM (INCHES)	CONDITION
#1	SWEETGUM	21"	FAIR
#2	SWEETGUM	16"	FAIR
#3	RED MAPLE	17"	FAIR
#4	RED MAPLE	6"	FAIR
#5	SWEETGUM	18"	FAIR
#6	RED MAPLE	6"	FAIR
#7	SWEETGUM	20"	FAIR
#8	RED MAPLE	6"	FAIR
#9	RED MAPLE	13"	FAIR
#10	ELM	8"	FAIR



TREE PLOT #2

APPROXIMATE CORNERS MARKED IN FIELD

TREE PLOT #2 INVENTORY			
TREE #	SPECIES	DPM (INCHES)	CONDITION
#1	RED MAPLE	8"	FAIR
#2	RED MAPLE	7"	FAIR
#3	SWEETGUM	8"	FAIR
#4	SWEETGUM	9"	FAIR
#5	SWEETGUM	12"	FAIR
#6	RED MAPLE	14"	FAIR
#7	RED MAPLE	14"	FAIR
#8	RED MAPLE	7"	FAIR
#9	SWEETGUM	11"	FAIR
#10	RED MAPLE	7"	FAIR
#11	SWEETGUM	14"	FAIR
#12	RED MAPLE	16"	FAIR
#13	RED MAPLE	12"	FAIR
#14	RED MAPLE	8"	FAIR
#15	SWEETGUM	9"	FAIR
#16	RED MAPLE	6"	FAIR
#17	RED MAPLE	6"	FAIR
#18	RED MAPLE	7"	FAIR
#19	UNKNOWN	17"	DEAD
#20	SWEETGUM	13"	FAIR
#21	RED MAPLE	7"	FAIR
#22	RED MAPLE	7"	FAIR
#23	RED MAPLE	6"	FAIR
#24	SWEETGUM	16"	FAIR
#25	SWEETGUM	17"	FAIR
#26	SWEETGUM	13"	FAIR
#27	ELM	6"	FAIR
#28	RED MAPLE	10"	FAIR
#29	SWEETGUM	12"	FAIR
#30	RED MAPLE	6"	FAIR
#31	SWEETGUM	12"	FAIR
#32	SWEETGUM	12"	FAIR
#33	RED MAPLE	10"	FAIR
#34	SWEETGUM	18"	FAIR
#35	RED MAPLE	7"	FAIR
#36	SWEETGUM	6"	FAIR
#37	SWEETGUM	16"	FAIR

TREE PLOT #3

APPROXIMATE CORNERS MARKED IN FIELD

TREE PLOT #3 INVENTORY			
TREE #	SPECIES	DPM (INCHES)	CONDITION
#1	UNKNOWN	8"	DEAD
#2	BEECH	21"	FAIR
#3	SWWETGUM	17"	FAIR
#4	UNKNOWN	6"	DEAD
#5	PIN OAK	19"	FAIR
#6	UNKNOWN	18"	DEAD
#7	PIN OAK	14"	FAIR
#8	SWEETGUM	13"	FAIR
#9	PIN OAK	15"	FAIR
#10	SWEETGUM	22"	FAIR
#11	PIN OAK	20"	FAIR

SPECIMEN TREE INVENTORY			
TREE #	SPECIES	DPM (INCHES)	CONDITION
#1	PIN OAK	29"	FAIR
#2	PIN OAK	28"	FAIR
#3	SHAGBARK HICKORY	25"	FAIR
#4	PIN OAK	34"	FAIR
#5	PIN OAK	32"	FAIR
#6	RED MAPLE	38"	FAIR
#7	PIN OAK	24"	FAIR
#8	PIN OAK	38"	FAIR
#9	PIN OAK	41"	FAIR
#10	PIN OAK	24"	FAIR
#11	SWEETGUM	24"	FAIR
#12	SWEETGUM	26"	FAIR
#13	PIN OAK	33"	FAIR
#14	PIN OAK	25"	FAIR
#15	SWEETGUM	28"	FAIR
#16	SWEETGUM	24"	FAIR
#17	SWEETGUM	26"	FAIR
#18	PIN OAK	27"	FAIR
#19	RED MAPLE	27"	FAIR
#20	SWEETGUM	42"	FAIR
#21	RED MAPLE	29"	FAIR
#22	SWEETGUM	29"	FAIR
#23	SWEETGUM	35"	FAIR
#24	PIN OAK	32"	FAIR

SPECIMEN TREE INVENTORY			
TREE #	SPECIES	DPM (INCHES)	CONDITION
#25	PIN OAK	27"	FAIR
#26	PIN OAK	40"	FAIR
#27	UNKNOWN	31"	DEAD
#28	UNKNOWN	31"	DEAD
#29	SWEETGUM	38"	FAIR
#30	PIN OAK	29"	FAIR
#31	UNKNOWN	31"	DEAD
#32	SWEETGUM	32"	FAIR
#33	SWEETGUM	35"	FAIR
#34	PIN OAK	30"	FAIR
#35	SWEETGUM	25"	FAIR
#36	SWEETGUM	26"	FAIR
#37	SWEETGUM	24"	FAIR
#38	SWEETGUM	24"	FAIR
#39	PIN OAK	26"	FAIR
#40	SWEETGUM	26"	FAIR
#41	PIN OAK	25"	FAIR
#42	RED OAK	24"	FAIR
#43	RED OAK	26"	FAIR
#44	RED OAK	24"	FAIR
#45	RED OAK	24"	FAIR
#46	WHITE OAK	26"	FAIR
#47	PIN OAK	26"	FAIR
#48	SHAGBARK HICKORY	30"	DAMAGED

LOT 3.02

TREE REMOVAL AND REPLACEMENT CALCULATIONS (SPECIMEN)

TOWNSHIP ORDINANCE SECTION 205-40.6(C)2 TABLE B(2) REQUIRES THE FOLLOWING REPLACEMENT FOR SPECIMEN TREES REMOVED:

SIZE OF EXISTING SPECIMEN TREES TO BE REMOVED (DPM)	NUMBER OF EXISTING SPECIMEN TREES TO BE REMOVED	REQUIRED REPLACEMENT TREES PER SPECIMEN TREE REMOVED
24" TO 30"	25 TREES	5 X 25 TREES = 125
31" TO 36"	10 TREES (3 DEAD)*	7 X 7 TREES = 49
37" TO 40"	4 TREES	9 X 4 TREES = 36
40" OR GREATER	2 TREES	10 X 2 TREES = 20

*TREES NOT INCLUDED FOR TOWARD REPLACEMENT (DEAD, DYING, DISEASED)

TOTAL REQUIRED TREE REPLACEMENT FOR SPECIMEN TREES = **230 REPLACEMENT TREES**

TREE REMOVAL AND REPLACEMENT CALCULATIONS (6" TO 23" DPM)

TOWNSHIP ORDINANCE SECTION 205-40.6(C)2 TABLE B(1) REQUIRES THE FOLLOWING REPLACEMENT FOR TREES 6" TO 23" TO BE REMOVED:

TOTAL WOODED AREA ON SITE = 322,825 SF (7.4 ACRES)
WOODED AREA TO BE REMOVED = 240,303 SF (5.5 ACRES) OR 74.4% OF TOTAL WOODED AREA

60% TO 79% OF TREES REMOVED REQUIRES 50% TREE REPLACEMENT

INVENTORIED AREA = (3) TREE PLOTS (70' X 70') = 14,700 SF (0.33 ACRES) OR 6.11% OF TOTAL WOODED AREA TO BE REMOVED

AVERAGE WOODED ACRE = 43,560 SF/14,700 SF = 2.96 FACTOR

NUMBER OF TREES 6" TO 23" (DPM) TO BE REMOVED WITHIN INVENTORIED AREA	NUMBER OF TREES TO BE REMOVED PER ACRE	NUMBER OF TREES TO BE REMOVED ON SITE (TREE REMOVAL AREA 1)
58 TREES	58 X (2.96 FACTOR) = 171.68 TREES/ACRES	171.68 TREES/ACRES X 5.5 ACRES = 945

*20% OF REMOVED TREES NOT INCLUDED FOR TOWARD REPLACEMENT (DEAD, DYING, DISEASED)
20% OF 945 = 189 TREES 6" TO 23" NOT COUNTED TOWARD REPLACEMENT

TREE REMOVAL AREA 1 = 756* TREES REMOVED + **TREE REMOVAL AREA 2** = 6 TREES REMOVED = 762 TREES REMOVED

TOTAL REQUIRED TREE REPLACEMENT FOR 6" TO 23" TREES = 762 X 50% = **381 REPLACEMENT TREES**

SUMMARY

1) TOTAL REQUIRED TREE REPLACEMENT:
- -381 REPLACEMENT TREES FOR 6" TO 23" TREES
- -230 REPLACEMENT TREES FOR SPECIMEN TREES

REPLACEMENT TREE SIZE REQUIRED TO BE 2-1/2" DPM*

*DIAMETER AT POINT OF MEASURE (DPM) OF REPLACEMENT TREES 4" CALIPER OR LESS TO BE MEASURED 6" ABOVE THE GROUND

2) TOTAL PROVIDED TREE REPLACEMENT:
- -66 SHADE TREES (2.5"-3" CALIPER)
- -58 EVERGREEN TREES (8'-10' PLANTING HEIGHT)

DEFICIT OF 487 REQUIRED TREES

TOWNSHIP ORDINANCE SECTION 205-40.6(G) ALLOWS FOR CONTRIBUTION FOR REQUIRED REPLACEMENT TREES NOT PROVIDED.

3) SEE LANDSCAPE PLAN (LA-1) FOR LANDSCAPE PLANTINGS.

4) TOWNSHIP ORDINANCE SECTION 205-40.5(A) REQUIRES A TREE REMOVAL PERMIT SHALL BE OBTAINED PRIOR TO ANY SITE DISTURBANCE.

5) TREES SHOWN TO BE REMOVED, ANY TOPPINGS AND OR SLASH, SHALL BE DISPOSED OF IN ACCORDANCE WITH THE LAW.

6) TREE PROTECTION FENCING SHALL BE CONSTRUCTED AROUND THE LIMIT OF DISTURBANCE AS SHOWN ON PLANS AND/OR AS FIELD CONDITIONS WARRANT. TREES TO BE PRESERVED ARE TO FLAGGED PRIOR TO CLEARING AND PROTECTED WITH TREE PROTECTION FENCING DURING CONSTRUCTION (SEE DETAIL).

7) TREES (SPECIMEN AND NON-SPECIMEN) HAVE NOT BEEN SURVEYED, LOCATIONS BASED ON VISUAL INSPECTION.

HORIZONTAL DATUM : NAD 1983

GRAPHIC SCALE

0 20 40 60 80

SCALE: 1"=40'

REVISIONS	
1) TWP REVS	06/30/21
2) SITE PLAN REVS.	10/04/21

THIS DRAWING IS FOR PERMIT PURPOSES ONLY

NOT FOR CONSTRUCTION UNTIL THIS BOX HAS BEEN CHECKED AND DATED

☐ CHKD BY:____ DATE:__________

1-800-272-1000 or 811 STOP CALL BEFORE YOU DIG!

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

menlo engineering associates
Civil Engineering Consultants
Landscape Architects
Professional Planners
261 Cleveland Avenue
Highland Park, NJ 08904
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Certificate of Authorization : 24GA27951900

LIVINGSTON WAREHOUSE

TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY
NEW JERSEY

BLOCK 140.01,
LOT 5.02 & 7.01
TAX MAP SHEET 30
21.03 ACRES

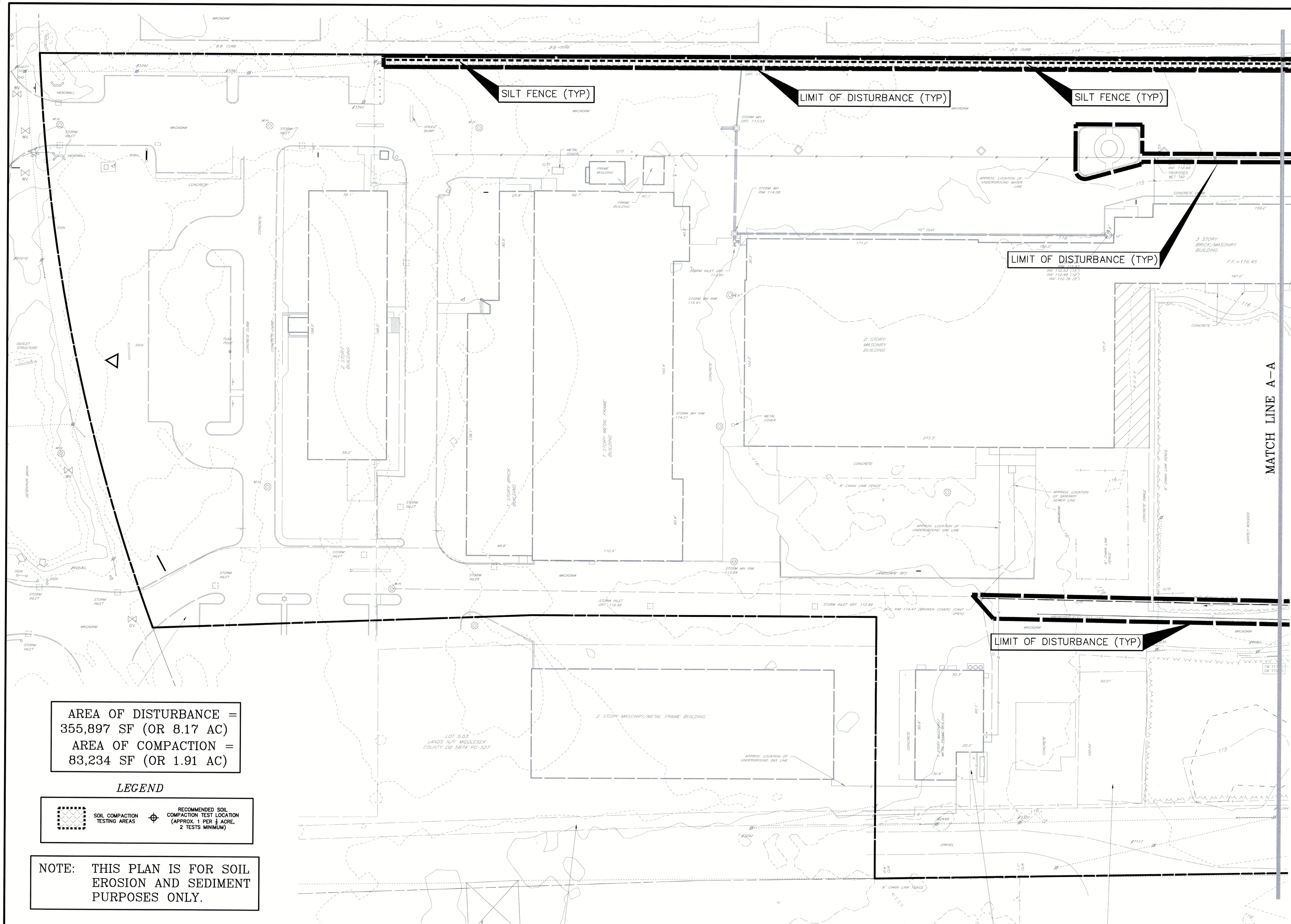
TREE REPLACEMENT PLAN

DRAWN BY	JT
DESIGNED BY	JT
APPROVED BY	KRG

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

KENNETH R. GRISEWOOD
LANDSCAPE ARCHITECT NJ
LICENSE #AS000071

PROJECT NUMBER	2018.047.02	TR-1
DATE OF ISSUE	FEBRUARY 12, 2021	
REVISION 2	OCTOBER 4, 2021	



AREA OF DISTURBANCE = 355,897 SF (OR 8.17 AC)
AREA OF COMPACTION = 83,234 SF (OR 1.91 AC)

LEGEND

SOIL COMPACTION TESTING AREAS	RECOMMENDED SOIL COMPACTION TEST LOCATION (APPROX. 1 PER ½ ACRE, 2 TESTS MINIMUM)

NOTE: THIS PLAN IS FOR SOIL EROSION AND SEDIMENT PURPOSES ONLY.

HORIZONTAL DATUM : NAD 1983

GRAPHIC SCALE

0 15 30 45 60

SCALE: 1"=30'

REVISIONS

1) DRAINAGE REVS	02/22/21
2) TWP REVS	03/02/21
3) SITE PLAN REVS.	10/04/21

THIS DRAWING IS FOR PERMIT PURPOSES ONLY

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LIVINGSTON WAREHOUSE

TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY
NEW JERSEY

BLOCK 140.01,
LOT 5.02 & 7.01
TAX MAP SHEET 30
21.03 ACRES

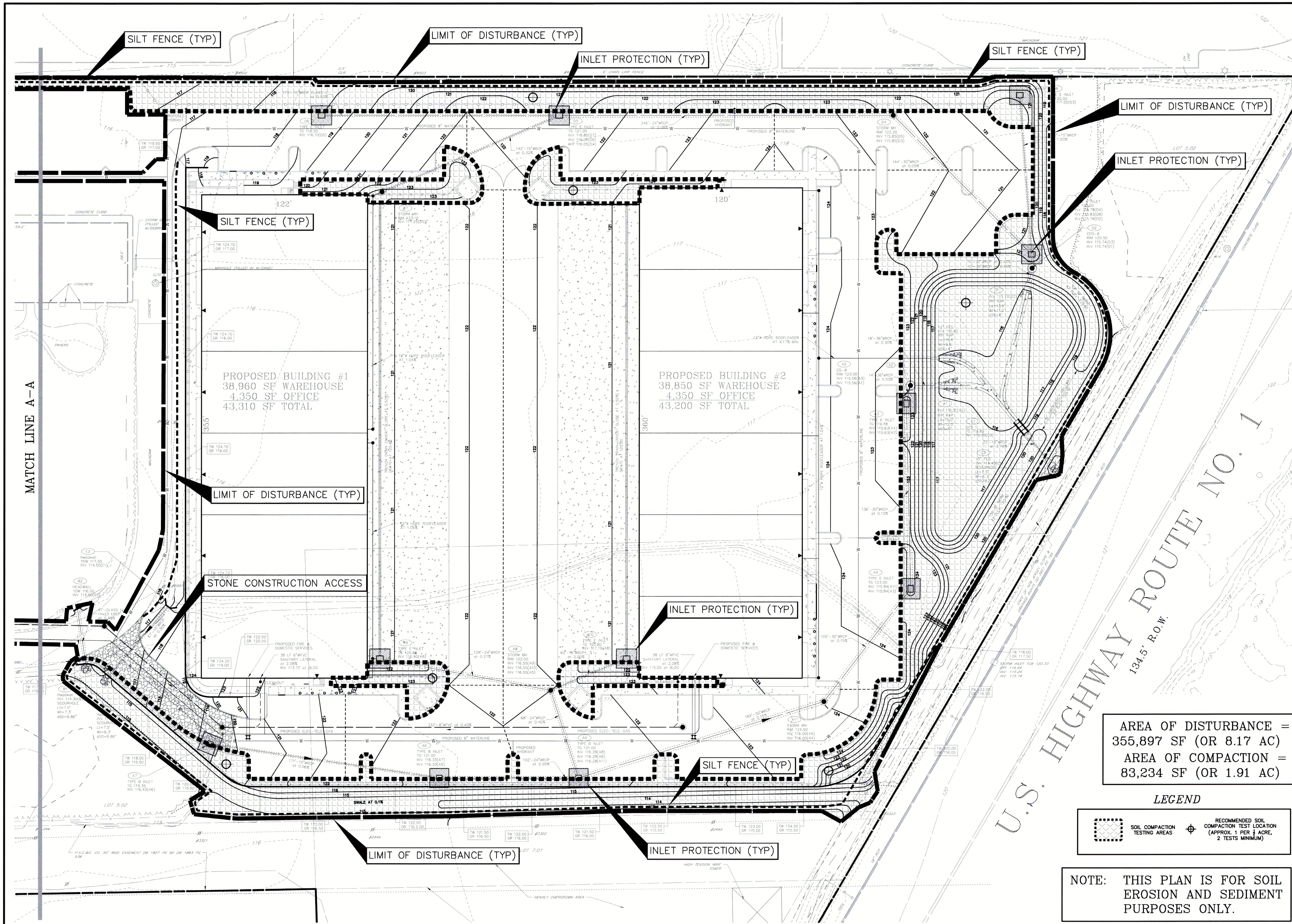
SOIL EROSION & SEDIMENT CONTROL PLAN (1)

DRAWN BY . RM
DESIGNED BY . RJG
APPROVED BY . GSO

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.02	SE-1
DATE OF ISSUE	FEBRUARY 12, 2021	13
REVISION 3	OCTOBER 4, 2021	



AREA OF DISTURBANCE = 355,897 SF (OR 8.17 AC)

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LEGEND

SOIL COMPACTION TESTING AREAS

RECOMMENDED SOIL COMPACTION TEST LOCATION (APPROX. 1 PER ½ ACRE, 2 TESTS MINIMUM)

NOTE: THIS PLAN IS FOR SOIL EROSION AND SEDIMENT PURPOSES ONLY.

HORIZONTAL DATUM : NAD 1983

GRAPHIC SCALE

0 15 30 45 60

SCALE: 1"=30'

REVISIONS

1) DRAINAGE REVS	02/22/21
2) TWP REVS	03/02/21
3) SITE PLAN REVS.	10/04/21

THIS DRAWING IS FOR PERMIT PURPOSES ONLY

NOT FOR CONSTRUCTION UNTIL THIS BOX HAS BEEN CHECKED AND DATED

☐ CHKD BY:_____ DATE:__________

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LIVINGSTON WAREHOUSE

TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY
NEW JERSEY

BLOCK 140.01,
LOT 5.02 & 7.01
TAX MAP SHEET 30
21.03 ACRES

SOIL EROSION & SEDIMENT CONTROL PLAN (2)

DRAWN BY	RM
DESIGNED BY	RJG
APPROVED BY	GSO

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.02	SE-2
DATE OF ISSUE	FEBRUARY 12, 2021	14
REVISION 3	OCTOBER 4, 2021	

STANDARD FOR PERMANENT VEGETATIVE COVER

1. SITE PREPARATION

A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARD FOR LAND GRADING.

B. IMMEDIATELY PRIOR TO SEEDING AND TOPSOIL APPLICATION, THE SUBSOIL SHALL BE EVALUATED FOR COMPACTION IN ACCORDANCE WITH THE STANDARD FOR LAND GRADING.

C. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE. A UNIFORM APPLICATION TO A DEPTH OF 5 INCHES (UNSETTLED) IS REQUIRED ON ALL SITES. TOPSOIL SHALL BE AMENDED WITH ORGANIC MATTER, AS NEEDED, IN ACCORDANCE WITH THE STANDARD FOR TOPSOILING.

D. INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE-STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS.

2. SEEDBED PREPARATION

A. UNIFORMLY APPLY GROUND LIMESTONE AND FERTILIZER TO TOPSOIL WHICH HAS BEEN SPREAD AND FIRMED, ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS OFFERED BY RUTGERS CO-OPERATIVE EXTENSION SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL RUTGERS COOPERATIVE EXTENSION OFFICES (HTTP://NJAES.RUTGERS.EDU/COUNTY/). FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET OF 10-10-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE AND INCORPORATED INTO THE SURFACE 4 INCHES. IF FERTILIZER IS NOT INCORPORATED, APPLY ONE-HALF THE RATE DESCRIBED ABOVE DURING SEEDBED PREPARATION AND REPEAT ANOTHER ONE-HALF RATE APPLICATION OF THE SAME FERTILIZER WITHIN 3 TO 5 WEEKS AFTER SEEDING.

B. WORK LIME AND FERTILIZER INTO THE TOPSOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING-TOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL ARROWING OR DISKING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLE UNIFORM SEEDBED IS PREPARED.

C. HIGH ACID PRODUCING SOIL. SOILS HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDE SHALL BE COVERED WITH A MINIMUM OF 12 INCHES OF SOIL HAVING A PH OF 5 OR MORE BEFORE INITIATING SEEDBED REPARATION. SEE STANDARD FOR MANAGEMENT OF HIGH ACID-PRODUCING SOILS FOR SPECIFIC REQUIREMENTS.

3. SEEDING

A. SELECT A MIXTURE FROM TABLE 4-2 OR USE A MIXTURE RECOMMENDED BY RUTGERS COOPERATIVE EXTENSION OR NATURAL RESOURCES CONSERVATION SERVICE WHICH IS APPROVED BY THE SOIL CONSERVATION DISTRICT. SEED GERMINATION SHALL HAVE BEEN TESTED WITHIN 12 MONTHS OF THE PLANTING DATE. NO SEED SHALL BE ACCEPTED WITH A GERMINATION TEST DATE MORE THAN 12 MONTHS OLD UNLESS RETESTED.

1. SEEDING RATES SPECIFIED ARE REQUIRED WHEN A REPORT OF COMPLIANCE IS REQUESTED PRIOR TO ACTUAL ESTABLISHMENT OF PERMANENT VEGETATION. UP TO 50% REDUCTION IN RATES MAY BE USED WHEN PERMANENT VEGETATION IS ESTABLISHED PRIOR TO A REPORT OF COMPLIANCE INSPECTION. THESE RATES APPLY TO ALL METHODS OF SEEDING. ESTABLISHING PERMANENT VEGETATION MEANS 80% VEGETATIVE COVERAGE WITH THE SPECIFIED SEED MIXTURE FOR THE SEEDED AREA AND MOWED ONCE.

2. WARM-SEASON MIXTURES ARE GRASSES AND LEGUMES WHICH MAXIMIZE GROWTH AT HIGH TEMPERATURES, GENERALLY 85°F AND ABOVE. SEE TABLE 4-2 MIXTURES 1 TO 7. PLANTING RATES FOR WARM-SEASON GRASSES SHALL BE THE AMOUNT OF PURE LIVE SEED (PLS) AS DETERMINED BY GERMINATION TESTING RESULTS.

3. COOL-SEASON MIXTURES ARE GRASSES AND LEGUMES WHICH MAXIMIZE GROWTH AT TEMPERATURES BELOW 85°F. MANY GRASSES BECOME ACTIVE AT 650F. SEE TABLE 4-2, MIXTURES 8-20. ADJUSTMENT OF PLANTING RATES TO COMPENSATE FOR THE AMOUNT OF PLS IS NOT REQUIRED FOR COOL SEASON GRASSES.

B. CONVENTIONAL SEEDING IS PERFORMED BY APPLYING SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL OR CULTIPACKER SEEDER. EXCEPT FOR DRILLED, HYDROSEEDED OR CULTIPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL WITHIN 24 HOURS OF SEEDBED PREPARATION TO A DEPTH OF 1/4 TO 1/2 INCH, BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/4 INCH DEEPER ON COARSE-TEXTURED SOIL.

C. AFTER SEEDING, FIRMING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY, AND IMPROVE SEEDLING EMERGENCE. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.

D. HYDROSEEDING IS A BROADCAST SEEDING METHOD USUALLY INVOLVING A TRUCK, OR TRAILER-MOUNTED TANK, WITH AN AGITATION SYSTEM AND HYDRAULIC PUMP FOR MIXING SEED, WATER AND FERTILIZER AND SPRAYING THE MIX ONTO THE PREPARED SEEDBED. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH SEED. SHORT- FIBERED MULCH MAY BE APPLIED WITH A HYDROSEEDER FOLLOWING SEEDING. (ALSO SEE SECTION 4-MULCHING BELOW). HYDROSEEDING IS NOT A REFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL. WHEN POOR SEED TO SOIL CONTACT OCCURS, THERE IS A REDUCED SEED GERMINATION AND GROWTH.

4. MULCHING

MULCHING IS REQUIRED ON ALL SEEDING. MULCH WILL PROTECT AGAINST EROSION BEFORE GRASS IS ESTABLISHED AND WILL PROMOTE FASTER AND EARLIER ESTABLISHMENT. THE EXISTENCE OF VEGETATION SUFFICIENT TO CONTROL SOIL EROSION SHALL BE DEEMED COMPLIANCE WITH THIS MULCHING REQUIREMENT.

A. STRAW OR HAY. UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, TO BE APPLIED AT THE RATE OF 1-1/2 TO 2 TONS PER ACRE (70 TO 90 POUNDS PER 1,000 SQUARE FEET), EXCEPT THAT WHERE A CRIMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER (TACKIFYING OR ADHESIVE AGENT), THE RATE OF APPLICATION IS 3 TONS PER ACRE. MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MULCH. HAY MULCH IS NOT RECOMMENDED FOR ESTABLISHING FINE TURF OR LAWNS DUE TO THE PRESENCE OF WEED SEED.

APPLICATION - SPREAD MULCH UNIFORMLY BY HAND OR MECHANICALLY SO THAT AT LEAST 85% OF THE SOIL SURFACE IS COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQUARE FEET SECTIONS AND DISTRIBUTE 70 TO 90 POUNDS WITHIN EACH SECTION.

ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS, DEPENDING UPON THE SIZE OF THE AREA, STEEPNESS OF SLOPES, AND COSTS.

1. PEG AND TWINE. DRIVE 8 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRISS-CROSS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.

2. MULCH NETTINGS - STAPLE PAPER, JUTE, COTTON, OR PLASTIC NETTINGS TO THE SOIL SURFACE. USE A DEGRADABLE NETTING IN AREAS TO BE MOWED.

3. CRIMPER (MULCH ANCHORING COULTER TOOL) - A TRACTOR-DRAWN IMPLEMENT, SOMEWHAT LIKE A DISC HARROW, ESPECIALLY DESIGNED TO PUSH OR CUT SOME OF THE BROADCAST LONG FIBER MULCH 3 TO 4 INCHES INTO THE SOIL SO AS TO ANCHOR IT AND LEAVE PART STANDING UPRIGHT. THIS TECHNIQUE IS LIMITED TO AREAS TRAVERSABLE BY A TRACTOR, WHICH MUST OPERATE ON THE CONTOUR OF SLOPES. STRAW MULCH RATE MUST BE 3 TONS PER ACRE. NO TACKIFYING OR ADHESIVE AGENT IS REQUIRED.

4. LIQUID MULCH-BINDERS - MAY BE USED TO ANCHOR SALT HAY, HAY OR STRAW MULCH.

(a) APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND MAY CATCH THE MULCH, IN VALLEYS, AND AT CRESTS OF BANKS. THE REMAINDER OF THE AREA SHOULD BE UNIFORM IN APPEARANCE.

(b) USE ONE OF THE FOLLOWING:

(1) ORGANIC AND VEGETABLE BASED BINDERS - NATURALLY OCCURRING, POWDER-BASED, HYDROPHILIC MATERIALS WHEN MIXED WITH WATER FORMULATES A GEL AND WHEN APPLIED TO MULCH UNDER SATISFACTORY CURING CONDITIONS WILL FORM MEMBRANED NETWORKS OF INSOLUBLE POLYMERS. THE VEGETABLE GEL SHALL BE PHYSIOLOGICALLY HARMLESS AND NOT RESULT IN A PHYTOTOXIC EFFECT OR IMPEDE GROWTH OF TURF GRASS. USE AT RATES AND WEATHER CONDITIONS AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH MATERIALS. MANY NEW PRODUCTS ARE AVAILABLE, SOME OF WHICH MAY NEED FURTHER EVALUATION FOR USE IN THIS STATE.

(2) SYNTHETIC BINDERS - HIGH POLYMER SYNTHETIC EMULSION, MISCIBLE WITH WATER WHEN DILUTED AND, FOLLOWING APPLICATION OF MULCH, DRYING AND CURING, SHALL NO LONGER BE SOLUBLE OR DISPERSIBLE IN WATER. BINDER SHALL BE APPLIED AT RATES RECOMMENDED BY THE MANUFACTURER AND REMAIN TACKY UNTIL GERMINATION OF GRASS.

NOTE: ALL NAMES GIVEN ABOVE ARE REGISTERED TRADE NAMES. THIS DOES NOT CONSTITUTE A RECOMMENDATION OF THESE PRODUCTS TO THE EXCLUSION OF OTHER PRODUCTS.

B. WOOD-FIBER OR PAPER-FIBER MULCH - SHALL BE MADE FROM WOOD, PLANT FIBERS OR PAPER CONTAINING NO GROWTH OR GERMINATION INHIBITING MATERIALS, USED AT THE RATE OF 1,500 POUNDS PER ACRE (OR AS RECOMMENDED BY THE PRODUCT MANUFACTURER) AND MAY BE APPLIED BY A HYDROSEEDER. MULCH SHALL NOT BE MIXED IN THE TANK WITH SEED. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING PERIODS IN SPRING AND FALL.

C. PELLETIZED MULCH - COMPRESSED AND EXTRUDED PAPER AND/OR WOOD FIBER PRODUCT, WHICH MAY CONTAIN CO-POLYMERS, TACKIFIERS, FERTILIZERS, AND COLORING AGENTS. THE DRY PELLETS, WHEN APPLIED TO A SEEDED AREA AND WATERED, FORM A MULCH MAT. PELLETIZED MULCH SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MULCH MAY BE APPLIED BY HAND OR MECHANICAL SPREADER AT THE RATE OF 60-75 LBS/1,000 SQUARE FEET AND ACTIVATED WITH 0.2 TO 0.4 INCHES OF WATER. THIS MATERIAL HAS BEEN FOUND TO BE BENEFICIAL FOR USE ON SMALL LAWN OR RENOVATION AREAS, SEEDED AREAS WHERE WEED-SEED FREE MULCH IS DESIRED, OR ON SITES WHERE STRAW MULCH AND TACKIFIER AGENT ARE NOT PRACTICAL OR DESIRABLE. APPLYING THE FULL 0.2 TO 0.4 INCHES OF WATER AFTER SPREADING PELLETIZED MULCH ON THE SEED BED IS EXTREMELY IMPORTANT FOR SUFFICIENT ACTIVATION AND EXPANSION OF THE MULCH TO PROVIDE SOIL COVERAGE.

5. IRRIGATION (WHERE FEASIBLE)

IF SOIL MOISTURE IS DEFICIENT SUPPLY NEW SEEDING WITH ADEQUATE WATER (A MINIMUM OF 1/4 INCH APPLIED UP TO TWICE A DAY UNTIL VEGETATION IS WELL ESTABLISHED). THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE IN ABNORMALLY DRY OR HOT WEATHER OR ON DROUGHTY SITES.

6. TOPDRESSING

SINCE SOIL ORGANIC MATTER CONTENT AND SLOW RELEASE NITROGEN FERTILIZER (WATER INSOLUBLE) ARE PRESCRIBED IN SECTION 2A - SEEDBED PREPARATION IN THIS STANDARD, NO FOLLOW-UP OF TOPDRESSING IS MANDATORY. AN EXCEPTION MAY BE MADE WHERE GROSS NITROGEN DEFICIENCY EXISTS IN THE SOIL TO THE EXTENT THAT TURF FAILURE MAY DEVELOP. IN THAT INSTANCE, TOPDRESS WITH 10-10-10 OR EQUIVALENT AT 300 POUNDS PER ACRE OR 7 POUNDS PER 1,000 SQUARE FEET EVERY 3 TO 5 WEEKS UNTIL THE GROSS NITROGEN DEFICIENCY IN THE TURF IS AMELIORATED.

7. ESTABLISHING PERMANENT VEGETATIVE STABILIZATION

THE QUALITY OF PERMANENT VEGETATION RESTS WITH THE CONTRACTOR. THE TIMING OF SEEDING, PREPARING THE SEEDBED, APPLYING NUTRIENTS, MULCH AND OTHER MANAGEMENT ARE ESSENTIAL. THE SEED APPLICATION RATES IN TABLE 4-2 ARE REQUIRED WHEN A REPORT OF COMPLIANCE IS REQUESTED PRIOR TO ACTUAL ESTABLISHMENT OF PERMANENT VEGETATION. UP TO 50% REDUCTION IN APPLICATION RATES MAY BE USED WHEN PERMANENT VEGETATION IS ESTABLISHED PRIOR TO REQUESTING A REPORT OF COMPLIANCE FROM THE DISTRICT. THESE RATES APPLY TO ALL METHODS OF SEEDING. ESTABLISHING PERMANENT VEGETATION MEANS 80% VEGETATIVE COVER (OF THE SEEDED SPECIES) AND MOWED ONCE. NOTE THIS DESIGNATION OF MOWED ONCE DOES NOT GUARANTEE THE PERMANENCY OF THE TURF SHOULD OTHER MAINTENANCE FACTORS BE NEGLECTED OR OTHERWISE MISMANAGED.

STANDARD FOR TEMPORARY VEGETATIVE COVER

1. SITE PREPARATION

A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING, PG. 19-1.

B. INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS. SEE STANDARDS 11 THROUGH 42.

C. IMMEDIATELY PRIOR TO SEEDING, THE SURFACE SHOULD BE SCARIFIED 6" TO 12" WHERE THERE HAS BEEN SOIL COMPACTION. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).

2. SEEDBED PREPARATION

A. APPLY GROUND LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS OFFERED BY RUTGERS CO-OPERATIVE EXTENSION. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL RUTGERS COOPERATIVE EXTENSION OFFICES. FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET OF 10-20-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE. CALCIUM CARBONATE IS THE EQUIVALENT AND STANDARD FOR MEASURING THE ABILITY OF LIMING MATERIALS TO NEUTRALIZE SOIL ACIDITY AND SUPPLY CALCIUM AND MAGNESIUM TO GRASSES AND LEGUMES.

B. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRINGTOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISKING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLE UNIFORM SEEDBED IS PREPARED.

C. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED IN ACCORDANCE WITH THE ABOVE.

D. SOILS HIGH IN SULFIDES OR HAVING A PH OF 4 OR LESS REFER TO STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, PG. 1-1.

3. SEEDING

A. SELECT SEED FROM RECOMMENDATIONS IN TABLE 7-2.

B. CONVENTIONAL SEEDING. APPLY SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL OR CULTIPACKER SEEDER. EXCEPT FOR DRILLED, HYDROSEEDED OR CULTIPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL, TO A DEPTH OF 1/4 TO 1/2 INCH, BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/4 INCH DEEPER ON COARSE TEXTURED SOIL.

C. HYDROSEEDING IS A BROADCAST SEEDING METHOD USUALLY INVOLVING A TRUCK OR TRAILER MOUNTED TANK, WITH AN AGITATION SYSTEM AND HYDRAULIC PUMP FOR MIXING SEED, WATER AND FERTILIZER AND SPRAYING THE MIX ONTO THE PREPARED SEEDBED. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH SEED. SHORT FIBERED MULCH MAY BE APPLIED WITH A HYDROSEEDER FOLLOWING SEEDING. (ALSO SEE SECTION IV MULCHING) HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL. POOR SEED TO SOIL CONTACT OCCURS REDUCING SEED GERMINATION AND GROWTH. HYDROSEEDING MAY BE USED FOR AREAS TOO STEEP FOR CONVENTIONAL EQUIPMENT TO TRAVERSE OR TOO OBSTRUCTED WITH ROCKS, STUMPS, ETC.

D. AFTER SEEDING, FIRMING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY, AND IMPROVE SEEDLING EMERGENCE. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.

4. MULCHING

MULCHING IS REQUIRED ON ALL SEEDING. MULCH WILL INSURE AGAINST EROSION BEFORE GRASS IS ESTABLISHED AND WILL PROMOTE FASTER AND EARLIER ESTABLISHMENT. THE EXISTENCE OF VEGETATION SUFFICIENT TO CONTROL SOIL EROSION SHALL BE DEEMED COMPLIANCE WITH THIS MULCHING REQUIREMENT.

A. STRAW OR HAY. UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, APPLIED AT THE RATE OF 1-1/2 TO 2 TONS PER ACRE (70 TO 90 POUNDS PER 1,000 SQUARE FEET), EXCEPT THAT WHERE A CRIMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER (TACKIFYING OR ADHESIVE AGENT), THE RATE OF APPLICATION IS 3 TONS PER ACRE. MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MULCH. HAY MULCH IS NOT RECOMMENDED FOR ESTABLISHING FINE TURF OR LAWNS DUE TO THE PRESENCE OF WEED SEED.

APPLICATION. SPREAD MULCH UNIFORMLY BY HAND OR MECHANICALLY SO THAT APPROXIMATELY 95% OF THE SOIL SURFACE WILL BE COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQUARE FEET SECTIONS AND DISTRIBUTE 70 TO 90 POUNDS WITHIN EACH SECTION.

ANCHORING SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS, DEPENDING UPON THE SIZE OF THE AREA, STEEPNESS OF SLOPES, AND COSTS.

1. PEG AND TWINE. DRIVE 8 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRISS-CROSS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.

2. MULCH NETTINGS - STAPLE PAPER, JUTE, COTTON, OR PLASTIC NETTINGS TO THE SOIL SURFACE. USE A DEGRADABLE NETTING IN AREAS TO BE MOWED.

3. CRIMPER (MULCH ANCHORING COULTER TOOL) - A TRACTOR-DRAWN IMPLEMENT, SOMEWHAT LIKE A DISC HARROW, ESPECIALLY DESIGNED TO PUSH OR CUT SOME OF THE BROADCAST LONG FIBER MULCH 3 TO 4 INCHES INTO THE SOIL SO AS TO ANCHOR IT AND LEAVE PART STANDING UPRIGHT. THIS TECHNIQUE IS LIMITED TO AREAS TRAVERSABLE BY A TRACTOR, WHICH MUST OPERATE ON THE CONTOUR OF SLOPES. STRAW MULCH RATE MUST BE 3 TONS PER ACRE. NO TACKIFYING OR ADHESIVE AGENT IS REQUIRED.

4. LIQUID MULCH-BINDERS - MAY BE USED TO ANCHOR SALT HAY, HAY OR STRAW MULCH.

(a) APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND MAY CATCH THE MULCH, IN VALLEYS, AND AT CRESTS OF BANKS. THE REMAINDER OF THE AREA SHOULD BE UNIFORM IN APPEARANCE.

(b) USE ONE OF THE FOLLOWING:

(1) ORGANIC AND VEGETABLE BASED BINDERS - NATURALLY OCCURRING, POWDER-BASED, HYDROPHILIC MATERIALS WHEN MIXED WITH WATER FORMULATES A GEL AND WHEN APPLIED TO MULCH UNDER SATISFACTORY CURING CONDITIONS WILL FORM MEMBRANED NETWORKS OF INSOLUBLE POLYMERS. THE VEGETABLE GEL SHALL BE PHYSIOLOGICALLY HARMLESS AND NOT RESULT IN A PHYTOTOXIC EFFECT OR IMPEDE GROWTH OF TURF GRASS. USE AT RATES AND WEATHER CONDITIONS AS RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH MATERIALS. MANY NEW PRODUCTS ARE AVAILABLE, SOME OF WHICH MAY NEED FURTHER EVALUATION FOR USE IN THIS STATE.

(2) SYNTHETIC BINDERS - HIGH POLYMER SYNTHETIC EMULSION, MISCIBLE WITH WATER WHEN DILUTED AND, FOLLOWING APPLICATION OF MULCH, DRYING AND CURING, SHALL NO LONGER BE SOLUBLE OR DISPERSIBLE IN WATER. BINDER SHALL BE APPLIED AT RATES RECOMMENDED BY THE MANUFACTURER AND REMAIN TACKY UNTIL GERMINATION OF GRASS.

NOTE: ALL NAMES GIVEN ABOVE ARE REGISTERED TRADE NAMES. THIS DOES NOT CONSTITUTE A RECOMMENDATION OF THESE PRODUCTS TO THE EXCLUSION OF OTHER PRODUCTS.

B. WOOD-FIBER OR PAPER-FIBER MULCH - SHALL BE MADE FROM WOOD, PLANT FIBERS OR PAPER CONTAINING NO GROWTH OR GERMINATION INHIBITING MATERIALS, USED AT THE RATE OF 1,500 POUNDS PER ACRE (OR AS RECOMMENDED BY THE PRODUCT MANUFACTURER) AND MAY BE APPLIED BY A HYDROSEEDER. MULCH SHALL NOT BE MIXED IN THE TANK WITH SEED. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING PERIODS IN SPRING AND FALL.

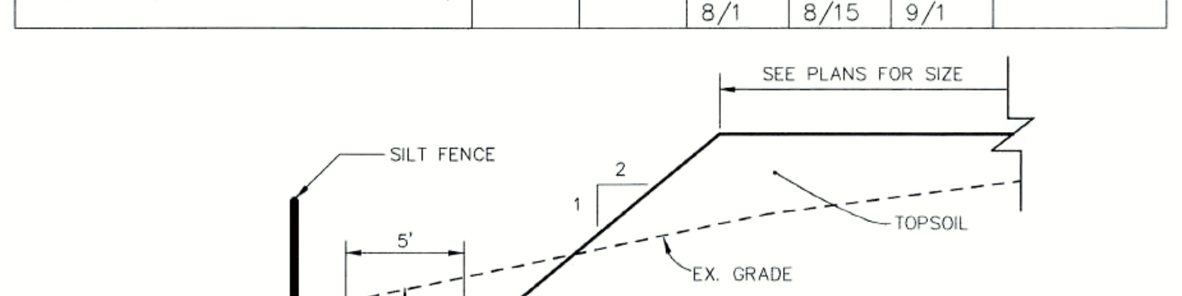
C. PELLETIZED MULCH - COMPRESSED AND EXTRUDED PAPER AND/OR WOOD FIBER PRODUCT, WHICH MAY CONTAIN CO-POLYMERS, TACKIFIERS, FERTILIZERS, AND COLORING AGENTS. THE DRY PELLETS, WHEN APPLIED TO A SEEDED AREA AND WATERED, FORM A MULCH MAT. PELLETIZED MULCH SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. MULCH MAY BE APPLIED BY HAND OR MECHANICAL SPREADER AT THE RATE OF 60-75 LBS/1,000 SQUARE FEET AND ACTIVATED WITH 0.2 TO 0.4 INCHES OF WATER. THIS MATERIAL HAS BEEN FOUND TO BE BENEFICIAL FOR USE ON SMALL LAWN OR RENOVATION AREAS, SEEDED AREAS WHERE WEED-SEED FREE MULCH IS DESIRED, OR ON SITES WHERE STRAW MULCH AND TACKIFIER AGENT ARE NOT PRACTICAL OR DESIRABLE. APPLYING THE FULL 0.2 TO 0.4 INCHES OF WATER AFTER SPREADING PELLETIZED MULCH ON THE SEED BED IS EXTREMELY IMPORTANT FOR SUFFICIENT ACTIVATION AND EXPANSION OF THE MULCH TO PROVIDE SOIL COVERAGE.

APPLYING THE FULL 0.2 TO 0.4 INCHES OF WATER AFTER SPREADING PELLETIZED MULCH ON THE SEED BED IS EXTREMELY IMPORTANT FOR SUFFICIENT ACTIVATION AND EXPANSION OF THE MULCH TO PROVIDE SOIL COVERAGE.

TABLE 7-2

TEMPORARY VEGETATIVE STABILIZATION GRASSES, SEEDING RATES, DATES AND DEPTH.

SEED SELECTIONS	SEEDING RATE [1] (pounds) Per Acre	SEEDING RATE Per 1000 Sq. Ft.	OPTIMUM SEEDING DATE [2] Based on Plant Hardiness Zone [3] ZONE 5b, 6s	ZONE 6b	ZONE 7a, b	OPTIMUM SEED DEPTH [4] (inches)
COOL SEASON GRASSES						
1. PERENNIAL RYEGRASS	100	1.0	3/15-6/1 8/1-9/15	3/1-5/15 8/15-10/1	2/15-5/1 8/15-10/15	0.5
2. SPRING OATS	86	2.0	3/15-6/1 8/1-9/15	3/1-5/15 8/15-10/1	2/15-5/1 8/15-10/15	1.0
3. WINTER BARLEY	96	2.2	8/1-9/15	8/15-10/1	8/15-10/15	1.0
4. ANNUAL RYEGRASS	100	1.0	3/15-6/1 8/1-9/15	3/15-6/1 8/1-9/15	2/15-5/1 8/15-10/15	0.5
5. WINTER CEREAL RYE	112	2.8	8/1-11/1	8/1-11/15	8/15-12/15	1.0
WARM SEASON GRASSES						
6. PEARL MILLET	20	0.5	6/1-8/1	5/15-8/15	5/1-9/1	1.0
7. MILLET (GERMAN OR HUNGARIAN)	30	0.7	6/1-8/1	5/15-8/15	5/1-9/1	1.0

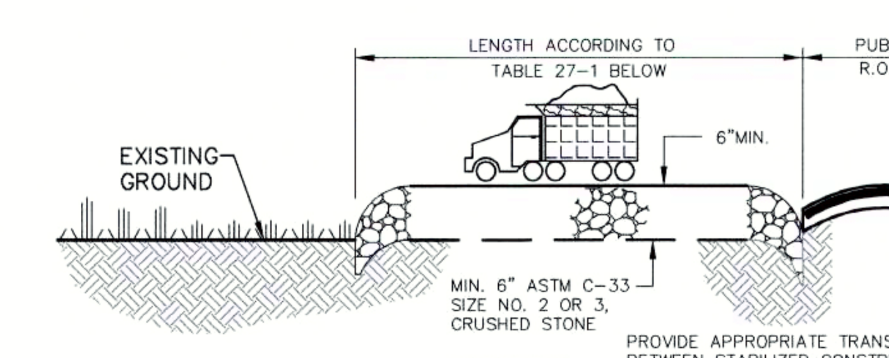


STOCKPILE DETAIL

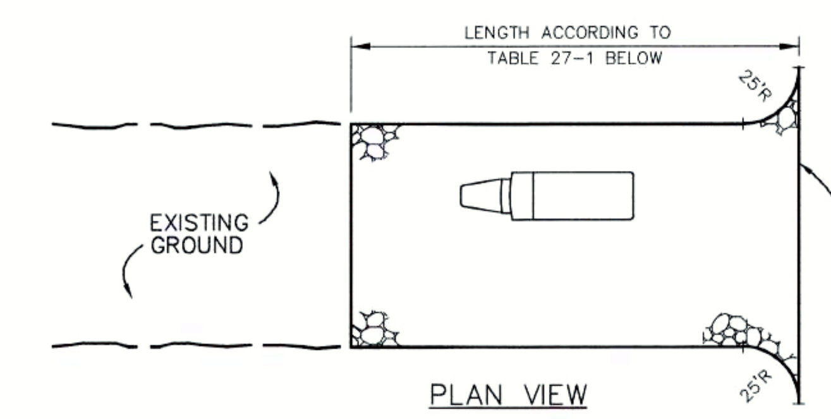
N.T.S.

SOIL EROSION AND SEDIMENT CONTROL NOTES

1. THE FREEHOLD SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY SOIL DISTURBING ACTIVITY.
2. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
3. ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLANS WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RE-CERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT STATE SOIL EROSION AND SEDIMENT CONTROL STANDARDS.
4. N.J.S.A 4:24-39 ET. SEQ. REQUIRES THAT NO CERTIFICATES OF OCCUPANCY BE ISSUED BEFORE THE DISTRICT DETERMINES THAT A PROJECT OR PORTION THEREOF IS IN FULL COMPLIANCE WITH THE CERTIFIED PLAN AND STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY AND A REPORT OF COMPLIANCE HAS BEEN ISSUED. UPON WRITTEN REQUEST FROM THE APPLICANT, THE DISTRICT MAY ISSUE A REPORT OF COMPLIANCE WITH CONDITIONS ON A LOT-BY-LOT OR SECTION-BY-SECTION BASIS, PROVIDED THAT THE PROJECT OR PORTION THEREOF IS IN SATISFACTORY COMPLIANCE WITH THE SEQUENCE OF DEVELOPMENT AND TEMPORARY MEASURES FOR SOIL EROSION AND SEDIMENT CONTROL HAVE BEEN IMPLEMENTED, INCLUDING PROVISIONS FOR STABILIZATION AND SITE WORK.
5. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN SIXTY (60) DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF 2 TO 2 ½ TONS PER ACRE, ACCORDING TO THE STANDARD FOR STABILIZATION WITH MULCH ONLY.
6. IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING, ALL CRITICAL AREAS SUBJECT TO EROSION (I.E. SOIL STOCKPILES, STEEP SLOPES AND ROADWAY EMBANKMENTS) WILL RECEIVE TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AND A MULCH ANCHOR, IN ACCORDANCE WITH STATE STANDARDS.
7. A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS TO STABILIZE STREETS, ROADS, DRIVEWAYS, AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN FIFTEEN (15) DAYS OF THE PRELIMINARY GRADING.
8. THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS REQUIRES THE INSTALLATION OF A PAD OF CLEAN CRUSHED STONE AT POINTS WHERE TRAFFIC WILL BE ACCESSING THE CONSTRUCTION SITE. AFTER INTERIOR ROADWAYS ARE PAVED, INDIVIDUAL LOTS REQUIRE A STABILIZED CONSTRUCTION ACCESS CONSISTING OF ONE INCH TO TWO INCH (1"-2") STONE FOR A MINIMUM LENGTH OF TEN FEET (10') EQUAL TO THE LOT ENTRANCE WIDTH. ALL OTHER ACCESS POINTS SHALL BE BLOCKED OFF.
9. ALL SOIL WASHED, DROPPED, SPILLED, OR TRACKED OUTSIDE THE LIMIT OF DISTURBANCE OR ONTO PUBLIC RIGHT-OF-WAYS WILL BE REMOVED IMMEDIATELY.
10. PERMANENT VEGETATION IS TO BE SEEDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING.
11. AT THE TIME 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.
12. IN ACCORDANCE WITH THE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, ANY SOIL HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDES SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT THE RATE OF 10 TONS/ACRE, (OR 450 LBS/1,000 SQ FT OF SURFACE AREA) AND COVERED WITH A MINIMUM OF 12"OF SETTLED SOIL WITH A PH OF 5 OR MORE, OR 24"WHERE TREES OR SHRUBS ARE TO BE PLANTED.
13. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
14. UNFILTERED DEWATERING IS NOT PERMITTED. NECESSARY PRECAUTIONS MUST BE TAKEN DURING ALL DEWATERING OPERATIONS TO MINIMIZE SEDIMENT TRANSFER. ANY DEWATERING METHODS USED MUST BE IN ACCORDANCE WITH THE STANDARD FOR DEWATERING.
15. SHOULD THE CONTROL OF DUST AT THE SITE BE NECESSARY, THE SITE WILL BE SPRINKLED UNTIL THE SURFACE IS WET, TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED OR MULCH SHALL BE APPLIED AS REQUIRED BY THE STANDARD FOR DUST CONTROL.
16. STOCKPILE AND STAGING LOCATIONS ESTABLISHED IN THE FIELD SHALL BE PLACED WITHIN THE LIMIT OF DISTURBANCE ACCORDING TO THE CERTIFIED PLAN. STAGING AND STOCKPILES NOT LOCATED WITHIN THE LIMIT OF DISTURBANCE WILL REQUIRE CERTIFICATION OF A REVISED SOIL EROSION AND SEDIMENT CONTROL PLAN. CERTIFICATION OF A NEW SOIL EROSION AND SEDIMENT CONTROL PLAN MAY BE REQUIRED FOR THESE ACTIVITIES IF AN AREA GREATER THAN 5,000 SQUARE FEET IS DISTURBED.
17. ALL SOIL STOCKPILES ARE TO BE TEMPORARILY STABILIZED IN ACCORDANCE WITH SOIL EROSION AND SEDIMENT CONTROL NOTE #6.
18. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ANY EROSION OR SEDIMENTATION THAT MAY OCCUR BELOW STORMWATER OUTFALLS OR OFFSITE AS A RESULT OF CONSTRUCTION OF THE PROJECT.



PROFILE



PLAN VIEW

NOTE: INDIVIDUAL LOT ACCESS POINTS MAY REQUIRE STABILIZATION. THICKNESS SHOWN IS FOR STONE CONSTRUCTION ENTRANCE ONLY (TYP.)

NOTES:
1. AT POORLY DRAINED LOCATIONS, SUBSURFACE DRAINAGE GRAVEL FILTER OR GEOTEXTILE SHALL BE INSTALLED BEFORE INSTALLING THE STABILIZED CONSTRUCTION ENTRANCE.
2. INDIVIDUAL LOT ENTRANCE AND EGRESS- AFTER INTERIOR ROADWAYS ARE PAVED, INDIVIDUAL LOT INGRESS/EGRESS POINTS MAY REQUIRE A STABILIZED CONSTRUCTION ENTRANCE CONSISTING OF No. 3 STONE (1" TO 2") TO PREVENT OR MINIMIZE TRACKING OF SEDIMENTS. WIDTH OF THE STONE INGRESS/EGRESS SHALL BE EQUAL TO LOT ENTRANCE WIDTH AND SHALL BE A MINIMUM OF TEN FEET IN LENGTH.
3. TIRE WASHING- IF SPACE IS LIMITED, VEHICLE TIRES MAY BE WASHED WITH CLEAN WATER BEFORE ENTERING A PAVED AREA. A WASH STATION MUST BE LOCATED SUCH THAT WASH WATER WILL NOT FLOW ONTO PAVED ROADWAYS OR INTO UNPROTECTED STORM DRAINAGE SYSTEMS.
4. WHEN THE CONSTRUCTION ACCESS EXISTS ONTO A MAJOR ROADWAY, A PAVED TRANSITION AREA MAY BE INSTALLED BETWEEN THE MAJOR ROADWAY AND THE STONED ENTRANCE TO PREVENT LOOSE STONES FROM BEING TRANSPORTED OUT ONTO THE ROADWAY BY HEAVY EQUIPMENT ENTERING OR LEAVING THE SITE.
5. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO ROADWAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

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

Percent Slope of Roadway	Length of Stone Required: Coarse Grained Soils	Length of Stone Required: Fine Grained Soils
0 to 2%	50 ft	100 ft
2 to 5%	100 ft	200 ft
>5%	Entire surface stabilized with FABC base course[1]	

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

STABILIZED CONSTRUCTION ACCESS

N.T.S.

DUST CONTROL

DEFINITION

THE CONTROL OF DUST ON CONSTRUCTION SITES AND ROADS.

PURPOSE

TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, REDUCED ON-SITE AND OFF-SITE DAMAGE AND HEALTH HAZARDS AND IMPROVE TRAFFIC SAFETY.

CONDITION WHERE PRACTICE APPLIES

THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO DUST BLOWING AND MOVEMENT WHERE ON-SITE AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT. CONSULT WITH LOCAL MUNICIPAL ORDINANCES ON ANY RESTRICTIONS.

WATER QUALITY ENHANCEMENT

SEDIMENTS DEPOSITED AS "DUST" ARE OFTEN FINE COLLOIDAL MATERIAL WHICH IS EXTREMELY DIFFICULT TO REMOVE FROM WATER ONCE IT BECOMES SUSPENDED USE OF THIS STANDARD WILL HELP TO CONTROL THE GENERATION OF DUST FROM CONSTRUCTION SITES AND SUBSEQUENT BLOWING AND DEPOSITION INTO LOCAL SURFACE WATER RESOURCES.

PLANNING CRITERIA

THE FOLLOWING METHODS SHOULD BE CONSIDERED FOR CONTROLLING DUST:

MULCHES - SEE STANDARD OF STABILIZATION WITH MULCHES ONLY, PG. 5-1

VEGETATIVE COVER - SEE STANDARD FOR: TEMPORARY VEGETATIVE COVER, PG. 7-1, PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION PG. 4-1 AND PERMANENT STABILIZATION WITH SOD, PG. 6-1

SPRAY-ON ADHESIVES - ON MINERAL SOILS (NOT EFFECTIVE ON MUCK SOILS). KEEP TRAFFIC OFF THESE AREAS.

TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS A TEMPORARY EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART AND SPRING-TOOTHED HARROWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.

SPRINKLING - SITE IS SPRINKLED UNTIL THE SURFACE IS WET.

BARRIERS - SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING.

CALCIUM CHLORIDE - SHALL BE IN THE FORM OF LOOSE, DRY GRANULES OR FLAKES FINE ENOUGH TO FEED THROUGH COMMONLY USED SPREADERS AT A RATE THAT WILL KEEP SURFACE MOIST BUT NOT CAUSE POLLUTION OR PLANT DAMAGE. IF USED ON STEEPER SLOPES, THEN USE OTHER PRACTICES TO PREVENT WASHING INTO STREAMS OR ACCUMULATION AROUND PLANTS.

STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

TABLE 16-1 DUST CONTROL MATERIALS

MATERIAL	WATER DILUTION	TYPE OF NOZZLE	APPLY GALLONS/ ACRE
AIONIC ASPHALT EMULSION	7:1	COARSE SPRAY	1200
LATEX EMULSION	12.5:1	FINE SPRAY	235
RESIN IN WATER	4:1	FINE SPRAY	300
POLYACRYLAMIDE (PAM)- SPRAY ON POLYACRYLAMIDE (PAM)- DRY SPREAD	APPLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS. MAY ALSO BE USED AS AN ADDITIVE TO SEDIMENT BASINS TO FLOCCULATE AND PRECIPITATE SUSPENDED COLLOIDS. SEE SEDIMENT BASIN STANDARD, P. 26-1.		
ACIDULATED SOY BEAN SOAP STICK	NONE	COARSE SPRAY	1200

'WET TOLERANT' SEEDING SPECIFICATION

SEEDBED PREPARATION: FERTILIZER (10-10-10) 500 LB/AC
LIMESTONE 6,000 LB/AC

FOR UNMAINTAINED AREAS

SEEDING DATES:
ZONE 5b,6a (3/15-5/31); ZONE 6b (3/1-4/30); ZONE 7a,7b (2/1-4/30)
(IF DISTURBANCE IS OUTSIDE OF PLANTING DATES THEN SEED AREA WITH TEMPORARY SEEDING MIX. THE TARGET AREA MUST THEN BE RESEED WITH REQUIRED MIX WITHIN THE REQUIRED PLANTING DATES.)

SCS SEED MIX #9		
	DEERTONGUE	20 LB/AC
	REDTOP	2 LB/AC
	WILD RYE (ELYMUS)	15 LB/AC
	SWITCHGRASS	30 LB/AC

FOR MAINTAINED AREAS
(POND AND CHANNEL BANKS, BERMS AND DAMS)

SEEDING DATES:
(OPTIMAL) ZONE 5b,6a (8/1-10/1); ZONE 6b (8/15-10/15); ZONE 7a,7b (8/15-10/30)
(SEE TABLE 4-2 OF THE SCS STANDARDS FOR ADDITIONAL PLANTING DATES)

SCS SEED MIX #7		
	STRONG CREEPING RED FESCUE	130 LB/AC
	KENTUCKY BLUEGRASS	50 LB/AC
	PERENNIAL RYEGRASS	20 LB/AC
	OR REDTOP	10 LB/AC
	W/ WHITE CLOVER	5 LB/AC

FOR MAINTAINED AREAS (DETENTION BASINS AND SWALES)

SEEDING DATES:
(OPTIMAL) ZONE 5b,6a (8/1-10/1); ZONE 6b (8/15-10/15); ZONE 7a,7b (8/15-10/30)
(SEE TABLE 4-2 OF THE SCS STANDARDS FOR ADDITIONAL PLANTING DATES)

SCS SEED MIX #14		
	TURF-TYPE TALL FESCUE (3 CULTIVAR BLEND)	350 LB/AC
	KENTUCKY BLUEGRASS (BLEND)	30 LB/AC
	PERENNIAL RYEGRASS (BLEND)	30 LB/AC

MULCHING:
UNROTTED SALT HAY OR APPROVED EQUAL 1 1/2 to 2 TONS/AC

MULCH ANCHORING:
HYDROMULCH OR APPROVED EQUAL (USE RATES AS RECOMMENDED BY MANUFACTURER)

NOTES:
1) FOR ADDITIONAL REQUIREMENTS REFER TO THE SCS STANDARD FOR PERMANENT VEGETATIVE COVER.
2) THE FERTILIZER AND LIMESTONE RATES REPRESENT THE UNTESTED SCS REQUIRED RATES. FINAL RATES SUBJECT TO SOIL FERTILITY, pH ANALYSIS AND LAB RECOMMENDATIONS.

CONDITION OF ACCEPTANCE
1) NO EROSION SHALL EXIST.
2) BARE OR THIN SPOTS IN EXCESS OF 5 PERCENT OF ANY AREA WILL NOT BE ACCEPTABLE.
3) ESTABLISHING PERMANENT VEGETATION MEANS 80% VEGETATED COVER (OF THE SEEDED SPECIES) AND MOWED ONCE.

STANDARD FOR STABILIZATION WITH MULCH ONLY

DEFINITION

STABILIZING EXPOSED SOILS WITH NON-VEGETATIVE MATERIALS EXPOSED FOR PERIODS LONGER THAN 14 DAYS

PURPOSE

TO PROTECT EXPOSED SOIL SURFACES FROM EROSION DAMAGE AND TO REDUCE OFFSITE ENVIRONMENTAL DAMAGE.

WATER QUALITY ENHANCEMENT

PROVIDES TEMPORARY MECHANICAL PROTECTION AGAINST WIND OR RAINFALL INDUCED SOIL EROSION UNTIL PERMANENT VEGETATIVE COVER MAY BE ESTABLISHED.

WHERE APPLICABLE

THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO EROSION, WHERE THE SEASON AND OTHER CONDITIONS MAY NOT BE SUITABLE FOR GROWING AN EROSION-RESISTANT COVER OR WHERE STABILIZATION IS NEEDED FOR A SHORT PERIOD UNTIL MORE SUITABLE PROTECTION CAN BE APPLIED.

METHODS AND MATERIALS

1. SITE PREPARATION
   A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING
   B. INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS. SEE STANDARDS 11 THROUGH 42.
2. PROTECTIVE MATERIALS
   A. UNROTTED SMALL-GRAIN STRAW, AT 2.0 TO 2.5 TONS PER ACRE, IS SPREAD UNIFORMLY AT 90 TO 115 POUNDS PER 1,000 SQUARE FEET AND ANCHORED WITH A MULCH ANCHORING TOOL, LIQUID MULCH BINDERS, OR NETTING TIE DOWN. OTHER SUITABLE MATERIALS MAY BE USED IF APPROVED BY THE SOIL CONSERVATION DISTRICT. THE APPROVED RATES ABOVE HAVE BEEN MET WHEN THE MULCH COVERS THE GROUND COMPLETELY UPON VISUAL INSPECTION, I.E. THE SOIL CANNOT BE SEEN BELOW THE MULCH.
   C. SYNTHETIC OR ORGANIC SOIL STABILIZERS MAY BE USED UNDER SUITABLE CONDITIONS AND IN QUANTITIES AS RECOMMENDED BY THE MANUFACTURER.
   D. WOOD-FIBER OR PAPER-FIBER MULCH AT THE RATE OF 1,500 POUNDS PER ACRE (OR ACCORDING TO THE MANUFACTURER'S REQUIREMENTS) MAY BE APPLIED BY A HYDROSEEDER.
   E. MULCH NETTING, SUCH AS PAPER JUTE, EXCELSIOR, COTTON, OR PLASTIC, MAY BE USED.
   F. WOODCHIPS APPLIED UNIFORMLY TO A MINIMUM DEPTH OF 2 INCHES MAY BE USED. WOODCHIPS WILL NOT BE USED ON AREAS WHERE FLOWING WATER COULD WASH THEM INTO AN INLET AND PLUG IT.
   G. GRAVEL, CRUSHED STONE, OR SLAG AT THE RATE OF 9 CUBIC YARDS PER 1,000 SQ. FT. APPLIED UNIFORMLY TO A MINIMUM DEPTH OF 3 INCHES MAY BE USED. SIZE 2 OR 3 (ASTM C-33) IS RECOMMENDED.
3. MULCH ANCHORING - SHOULD BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT OF HAY OR STRAW MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS, DEPENDING UPON THE SIZE OF THE AREA AND STEEPNESS OF SLOPES.
   A. PEG AND TWINE - DRIVE 8 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SOIL SURFACE BY STRETCHING TWINE BETWEEN PEGS IN A CRISS-CROSS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.
   B. MULCH NETTINGS - STAPLE PAPER, COTTON, OR PLASTIC NETTINGS OVER MULCH. USE DEGRADABLE NETTING IN AREAS TO BE MOWED. NETTING IS USUALLY AVAILABLE IN ROLLS 4 FEET WIDE AND UP TO 300 FEET LONG.
   C. CRIMPER MULCH ANCHORING COULTER TOOL - A TRACTOR-DRAWN IMPLEMENT ESPECIALLY DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE. THIS PRACTICE AFFORDS MAXIMUM EROSION CONTROL, BUT ITS USE IS LIMITED TO THOSE SLOPES UPON WHICH THE TRACTOR CAN OPERATE SAFELY. SOIL PENETRATION SHOULD BE ABOUT 3 TO 4 INCHES. ON SLOPING LAND, THE OPERATION SHOULD BE ON THE CONTOUR.
   D. LIQUID MULCH-BINDERS
      1. APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND CATCHES THE MULCH, IN VALLEYS, AND AT CRESTS OF BANKS. REMAINDER OF AREA SHOULD BE UNIFORM IN APPEARANCE.
      2. USE ONE OF THE FOLLOWING:
         a. ORGANIC AND VEGETABLE BASED BINDERS - NATURALLY OCCURRING, POWDER BASED, HYDROPHILIC MATERIALS THAT MIXED WITH WATER FORMULATES A GEL AND WHEN APPLIED TO MULCH UNDER SATISFACTORY CURING CONDITIONS WILL FORM MEMBRANED NETWORKS OF INSOLUBLE POLYMERS. THE VEGETABLE GEL SHALL BE PHYSIOLOGICALLY HARMLESS AND NOT RESULT IN A PHYTO-TOXIC EFFECT OR IMPEDE GROWTH OF TURFGRASS. VEGETABLE BASED GELS SHALL BE APPLIED AT RATES AND WEATHER CONDITIONS RECOMMENDED BY THE MANUFACTURER.
         b. SYNTHETIC BINDERS - HIGH POLYMER SYNTHETIC EMULSION, MISCIBLE WITH WATER WHEN DILUTED AND FOLLOWING APPLICATION TO MULCH, DRYING AND CURING SHALL NO LONGER BE SOLUBLE OR DISPERSIBLE IN WATER. IT SHALL BE APPLIED AT RATES AND WEATHER CONDITIONS RECOMMENDED BY THE MANUFACTURER AND REMAIN TACKY UNTIL GERMINATION OF GRASS.

FOR CLARIFICATIONS AND ADDITIONAL INFORMATION SEE THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY, 7TH EDITION, JANUARY 2014, REVISED JULY 2017

CONSTRUCTION DETAIL NOTES

1. ALL TRAFFIC SIGNS AND PAVEMENT MARKINGS SHALL CONFORM TO THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. ALL CONSTRUCTION DETAILS SHALL BE SUPERCEDED BY APPLICABLE MUNICIPAL, COUNTY OR STATE DETAILS UNLESS OTHERWISE NOTED.
3. STRUCTURAL DETAILS ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. SHOP DRAWINGS SHALL BE PROVIDED TO THE TOWNSHIP ENGINEER FOR ALL WALLS AND STRUCTURAL ELEMENTS PRIOR TO CONSTRUCTION.
4. SHOP DRAWINGS SHALL BE PROVIDED FOR ALL PRECAST STRUCTURES PRIOR TO THE ORDERING OF MATERIALS.
5. DETAILS ASSUME APPROPRIATE LOAD BEARING CAPACITY AND COMPACTION OF SOILS. ACTUAL FIELD CONDITIONS SHALL BE CONFIRMED BY ON-SITE GEOTECHNICAL ENGINEER.
6. RESIDENTIAL DEVELOPMENTS SHALL CONFORM TO DETAILS WITHIN THE CURRENT EDITION OF THE RESIDENTIAL SITE IMPROVEMENT STANDARDS (R.S.I.S.).
7. ALL CONSTRUCTION DETAILS ARE NOT TO SCALE (N.T.S.) UNLESS OTHERWISE NOTED.

REVISIONS	
1) SITE PLAN REVS.	10/04/21

THIS DRAWING IS FOR PERMIT PURPOSES ONLY

NOT FOR CONSTRUCTION UNTIL THIS BOX HAS BEEN CHECKED AND DATED

☐ CHKD BY:____ DATE:____

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LIVINGSTON WAREHOUSE

TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY
NEW JERSEY

BLOCK 140.01
LOTS 5.02 & 7.01
TAX MAP SHEET 30
21.03 ACRES

SOIL EROSION & SEDIMENT CONTROL DETAILS (1)

DRAWN BY	RM
DESIGNED BY	RJG
APPROVED BY	GSO

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.02	SED-1
DATE OF ISSUE	FEBRUARY 12, 2021	15
REVISION 1	OCTOBER 4, 2021	

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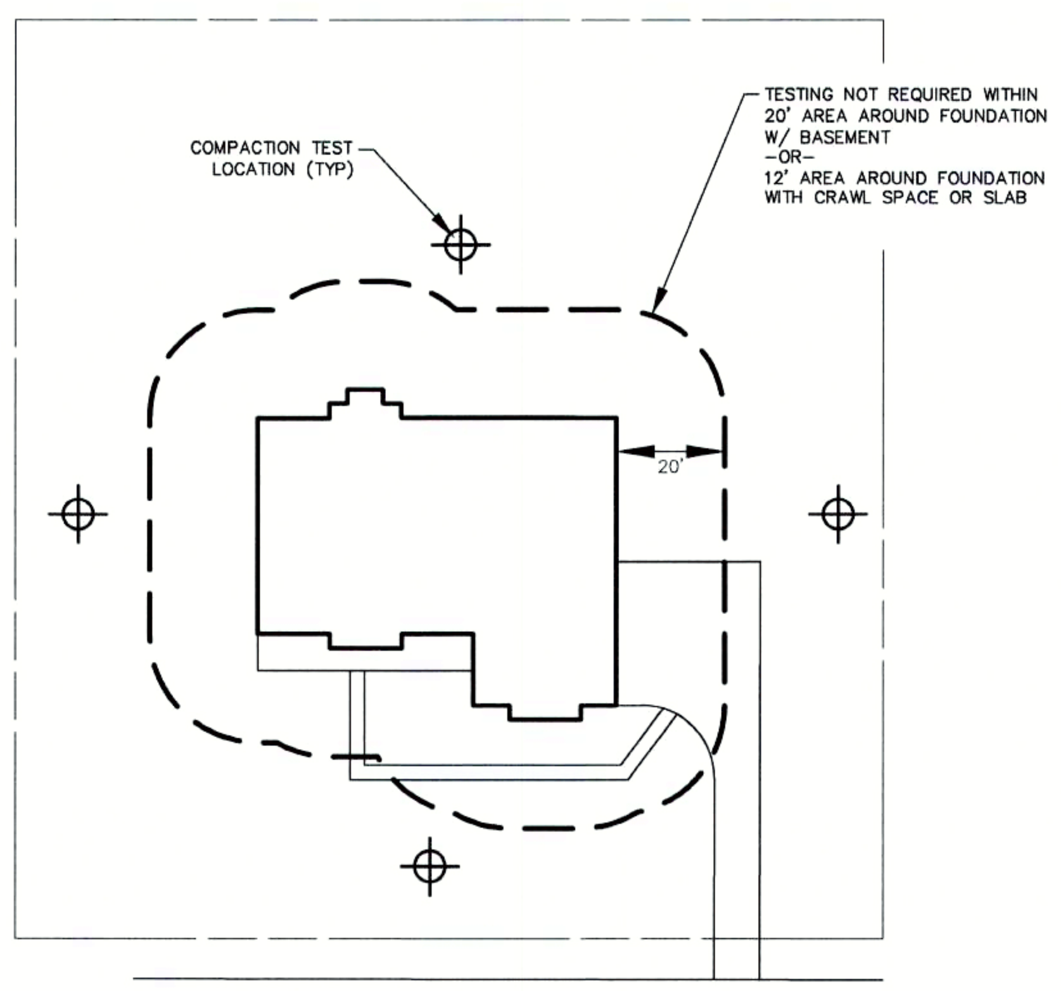
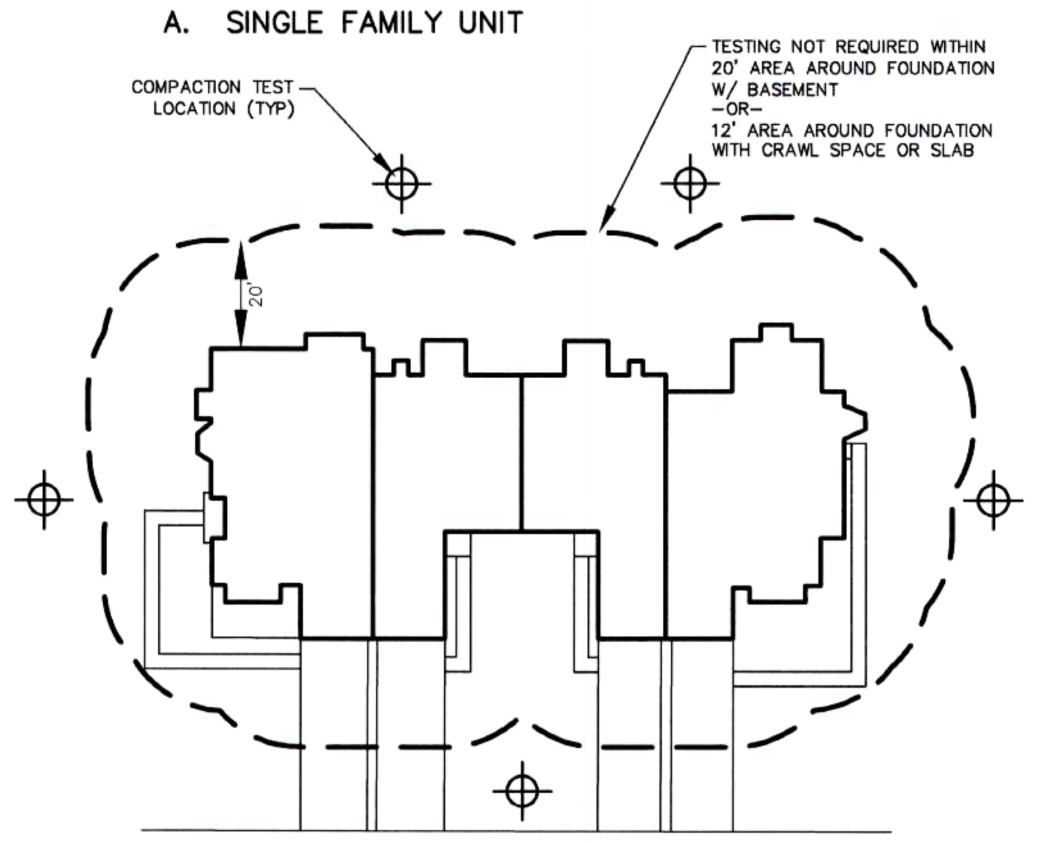
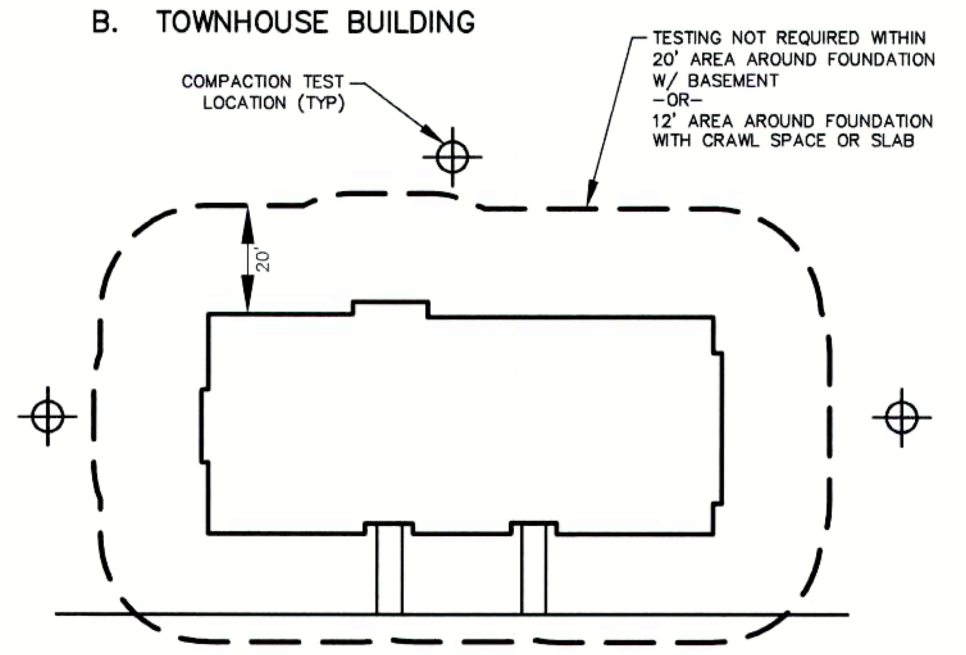


A. SINGLE FAMILY UNIT



B. TOWNHOUSE BUILDING



C. MULTIFAMILY HOUSING OR OTHER NON-RESIDENTIAL BUILDING/STRUCTURE

NOTE: SOIL COMPACTION TESTING LOCATIONS IDENTIFIED ARE RECOMMENDED LOCATIONS FOR GRADED/DISTURBED AREAS WITHIN THE VICINITY OF BUILDINGS AND STRUCTURES OR ON INDIVIDUAL LOTS. FOR GRADED/DISTURBED AREAS WITHIN OPEN OR COMMON SPACES, SOIL COMPACTION TESTING SHALL BE PERFORMED IN ACCORDANCE WITH THE FREQUENCY LISTED IN THE LEGEND (SEE PLAN SHEETS).

TYPICAL SOIL COMPACTION TESTING LOCATIONS

N.T.S.

SOIL DE-COMPACTION AND TESTING REQUIREMENTS

SOIL COMPACTION TESTING REQUIREMENTS

1. SUBGRADE SOILS PRIOR TO THE APPLICATION OF TOPSOIL (SEE PERMANENT SEEDING AND STABILIZATION NOTES FOR TOPSOIL REQUIREMENTS) SHALL BE FREE OF EXCESSIVE COMPACTION TO A DEPTH OF 6.0 INCHES TO ENHANCE THE ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
2. AREAS OF THE SITE WHICH ARE SUBJECT TO COMPACTION TESTING AND/OR MITIGATION ARE GRAPHICALLY DENOTED ON THE CERTIFIED SOIL EROSION CONTROL PLAN.
3. COMPACTION TESTING LOCATIONS ARE DENOTED ON THE PLAN. A COPY OF THE PLAN OR PORTION OF THE PLAN SHALL BE USED TO MARK LOCATIONS OF TESTS, AND ATTACHED TO THE COMPACTION REMEDIATION FORM, AVAILABLE FROM THE LOCAL SOIL CONSERVATION DISTRICT. THIS FORM MUST BE FILLED OUT AND SUBMITTED PRIOR TO RECEIVING A CERTIFICATE OF COMPLIANCE FROM THE DISTRICT.
4. IN THE EVENT THAT TESTING INDICATES COMPACTION IN EXCESS OF THE MAXIMUM THRESHOLDS INDICATED FOR THE SIMPLIFIED TESTING METHODS (SEE DETAILS BELOW), THE CONTRACTOR/OWNER SHALL HAVE THE OPTION TO PERFORM EITHER (1) COMPACTION MITIGATION OVER THE ENTIRE MITIGATION AREA DENOTED ON THE PLAN (EXCLUDING EXEMPT AREAS), OR (2) PERFORM ADDITIONAL, MORE DETAILED TESTING TO ESTABLISH THE LIMITS OF EXCESSIVE COMPACTION WHEREUPON ONLY THE EXCESSIVELY COMPACTED AREAS WOULD REQUIRE COMPACTION MITIGATION. ADDITIONAL DETAILED TESTING SHALL BE PERFORMED BY A TRAINED, LICENSED PROFESSIONAL.

COMPACTION TESTING METHODS

A. PROBING WIRE TEST (SEE DETAIL)
B. HAND-HELD PENETROMETER TEST (SEE DETAIL)
C. TUBE BULK DENSITY TEST (LICENSED PROFESSIONAL ENGINEER REQUIRED
D. NUCLEAR DENSITY TEST (LICENSED PROFESSIONAL ENGINEER REQUIRED)

NOTE: ADDITIONAL TESTING METHODS WHICH CONFORM TO ASTM STANDARDS AND SPECIFICATIONS, AND WHICH PRODUCE A DRY WEIGHT, SOIL BULK DENSITY MEASUREMENT MAY BE ALLOWED SUBJECT TO DISTRICT APPROVAL.

SOIL COMPACTION TESTING IS NOT REQUIRED IF/WHEN SUBSOIL COMPACTION REMEDIATION (SCARIFICATION/TILLAGE (6" MINIMUM DEPTH) OR SIMILAR) IS PROPOSED AS PART OF THE SEQUENCE OF CONSTRUCTION.

PROCEDURES FOR SOIL COMPACTION MITIGATION

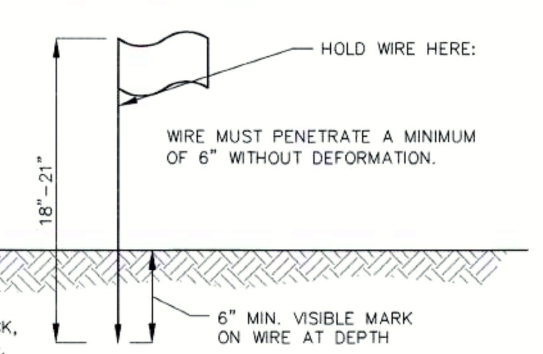
PROCEDURES SHALL BE USED TO MITIGATE EXCESSIVE SOIL COMPACTION PRIOR TO PLACEMENT OF TOPSOIL AND ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.

RESTORATION OF COMPACTED SOILS SHALL BE THROUGH DEEP SCARIFICATION/TILLAGE (6" MINIMUM DEPTH) WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.). IN THE ALTERNATIVE, ANOTHER METHOD AS SPECIFIED BY A NEW JERSEY LICENSED PROFESSIONAL ENGINEER MAYBE SUBSTITUTED SUBJECT TO DISTRICT APPROVAL.

SIMPLIFIED TESTING METHODS

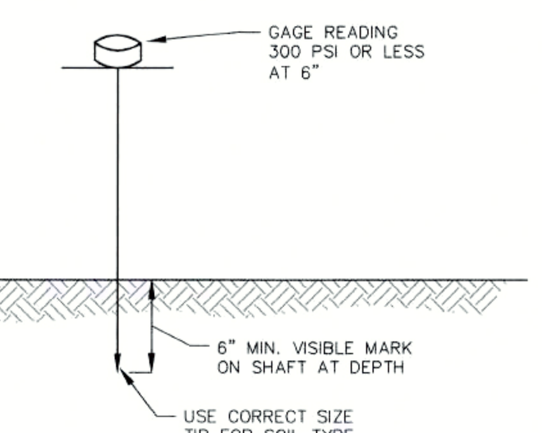
PROBLING WIRE TEST-15.5 GA STEEL WIRE (SURVEY FLAG)

NOTE: SOIL SHOULD BE MOIST BUT NOT SATURATED. DO NOT TEST WHEN SOIL IS EXCESSIVELY DRY OR SUBJECT TO FREEZING TEMPERATURES. SLOW, STEADY DOWNWARD PRESSURE USED TO ADVANCE THE WIRE.



HANDHELD SOIL PENETROMETER TEST

NOTE: SOIL SHOULD BE MOIST BUT NOT SATURATED. DO NOT TEST WHEN SOIL IS EXCESSIVELY DRY OR SUBJECT TO FREEZING TEMPERATURES. SLOW, STEADY DOWNWARD PRESSURE USED TO ADVANCE THE PROBE. PROBE MUST PENETRATE AT LEAST 6" WITH LESS THAN 300 PSI READING ON THE GAGE.



NOTE:
"SOIL COMPACTION MITIGATION VERIFICATION FORM" MUST BE FILLED OUT COMPLETELY AND SUBMITTED TO THE LOCAL SOIL CONSERVATION DISTRICT PRIOR TO THE DISTRICT PERFORMING A REPORT OF COMPLIANCE INSPECTION.

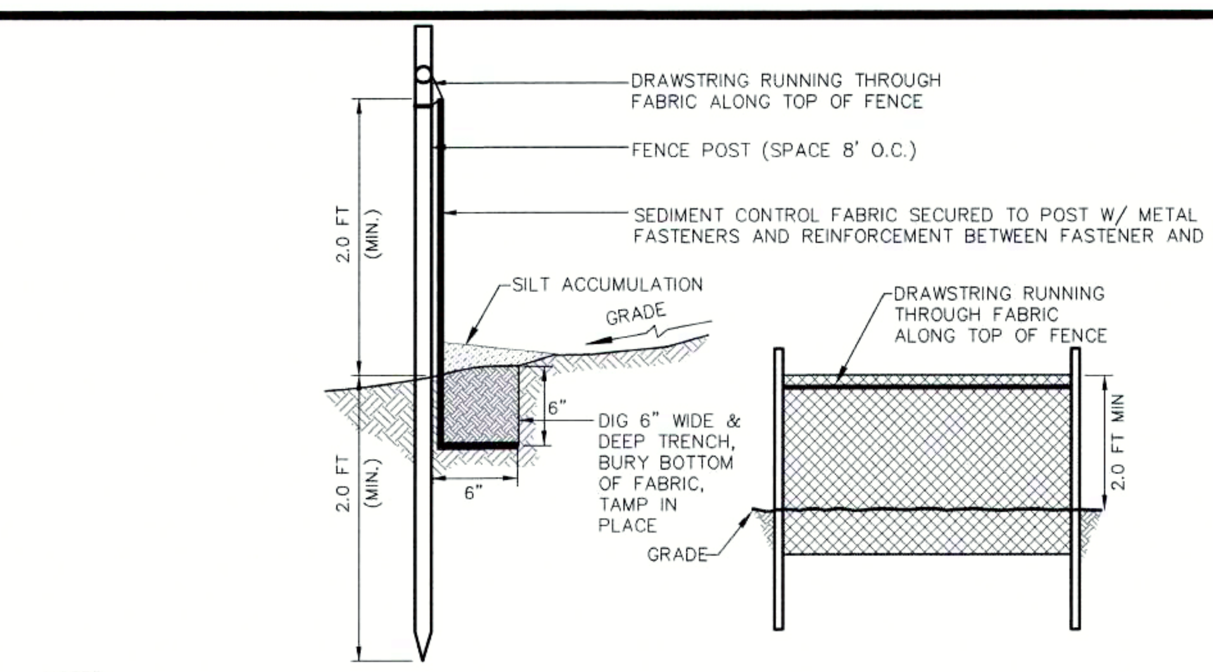
CONSTRUCTION SEQUENCE

CONSTRUCTION COMMENCEMENT DATE: SUMMER 2021

1.	INSTALLATION OF SILT FENCE ALONG LIMIT OF DISTURBANCE LINE AT SECTION DELINEATED ON "SOIL EROSION CONTROL PLANS" – INSTALLATION OF STONE AT CONSTRUCTION ENTRANCES –	_ DAY(S) _ DAY(S)
2.	CLEARING AND GRUBBING –	_ DAY(S)
3.	ROUGH GRADING AND TEMPORARY SEEDING – INSTALLATION OF DETENTION FACILITIES	– WEEK(S)
4.	INSTALLATION OF UTILITIES AND FOUNDATIONS WITH EROSION CONTROL DEVICES (RIP-RAP OUTFALL, TEMPORARY SEEDING, INLET PROTECTION AND TEMPORARY STABILIZATION). –	– WEEK(S)
5.	CURBING –	– WEEK(S)
6.	PAVEMENT SUB-BASE –	– WEEK(S)
7.	FINISHED GRADING AND LIGHTING –	– WEEK(S)
8.	FINAL PAVEMENT –	– WEEK(S)
9.	LANDSCAPING WITH PERMANENT SEEDING –	– WEEK(S)

NOTE: AS C.O.'S FOR INDIVIDUAL BUILDING ARE APPLIED FOR, ALL SITE WORK AROUND THE BUILDING TO BE COMPLETED (No. 10 SUBJECT TO WEATHER CONDITIONS AND TO BE COMPLETED WITHIN 6 MONTHS).

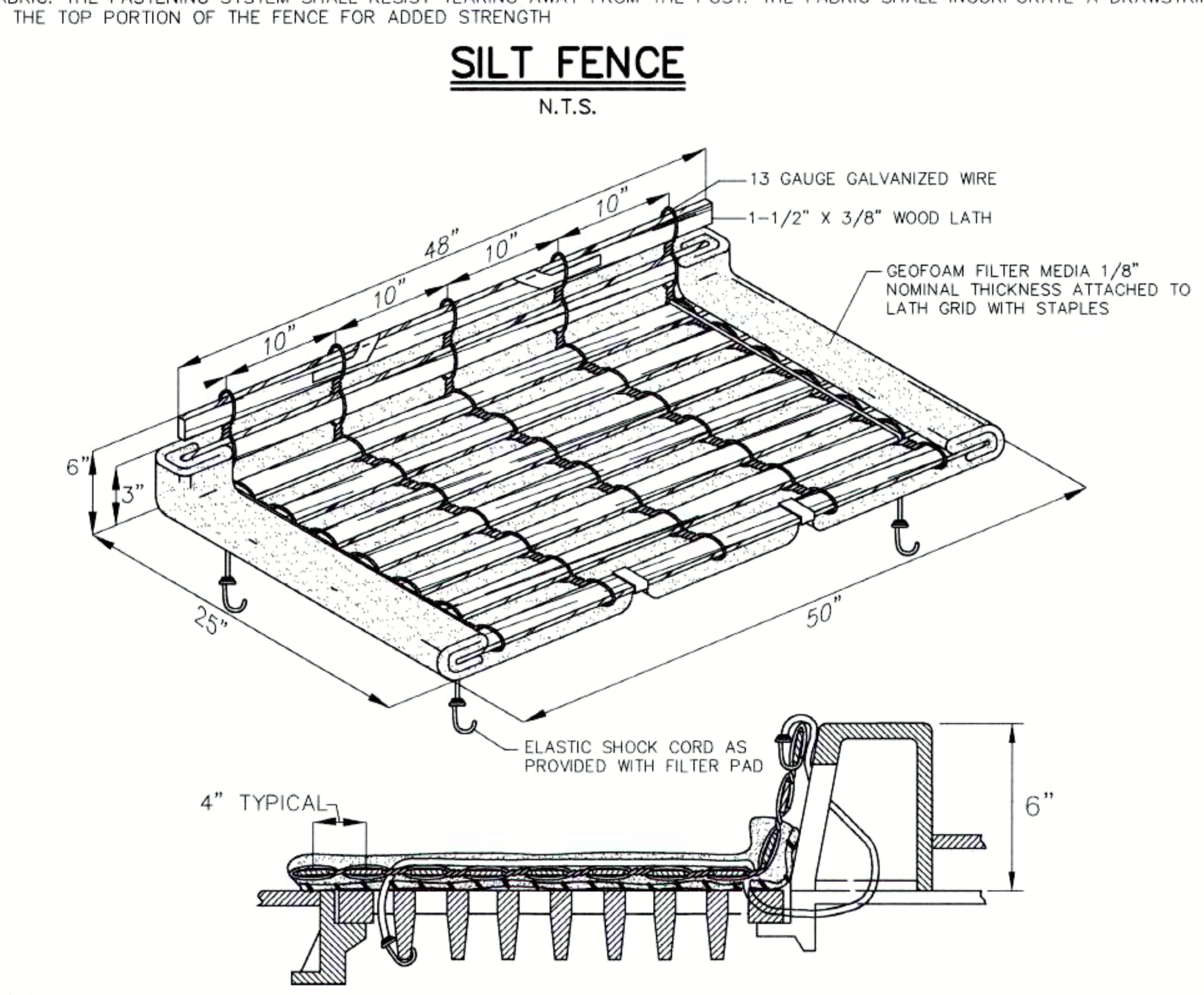
THE ABOVE SCHEDULE SUBJECT TO WEATHER CONDITIONS AND MATERIAL AVAILABILITY.



NOTES:
1) FENCE POSTS SHALL BE SPACE 8 FEET CENTER-TO-CENTER OR CLOSER. THEY SHALL EXTEND AT LEAST TWO (2) FEET INTO THE GROUND AND EXTEND AT LEAST TWO (2) FEET ABOVE GROUND. POSTS SHALL BE CONSTRUCTED OF HARDWOOD WITH A MINIMUM DIAMETER THICKNESS OF 1½ INCHES.
2) A METAL FENCE WITH 6-INCH OR SMALLER OPENINGS AND AT LEAST TWO (2) FEET HIGH MAY BE UTILIZED, FASTENED TO THE FENCE POSTS, TO PROVIDE REINFORCEMENT AND SUPPORT TO THE GEO-TEXTILE FABRIC WHERE SPACE FOR OTHER PRACTICES IS LIMITED AND HEAVY SEDIMENT LOADING IS EXPECTED.
3) A GEO-TEXTILE 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 TWO (2) FEET ABOVE THE GROUND. THE FABRIC MUST BE SECURELY FASTENED TO THE POSTS USING A SYSTEM CONSISTING OF METAL FASTENERS (NAILS OR STAPLES) AND A HIGH STRENGTH REINFORCEMENT MATERIAL (NYLON WEBBING, GROMMETS, WASHERS ETC.) PLACED BETWEEN THE FASTENER AND THE GEO-TEXTILE FABRIC. THE FASTENING SYSTEM SHALL RESIST TEARING AWAY FROM THE POST. THE FABRIC SHALL INCORPORATE A DRAWSTRING IN THE TOP PORTION OF THE FENCE FOR ADDED STRENGTH

SILT FENCE

N.T.S.

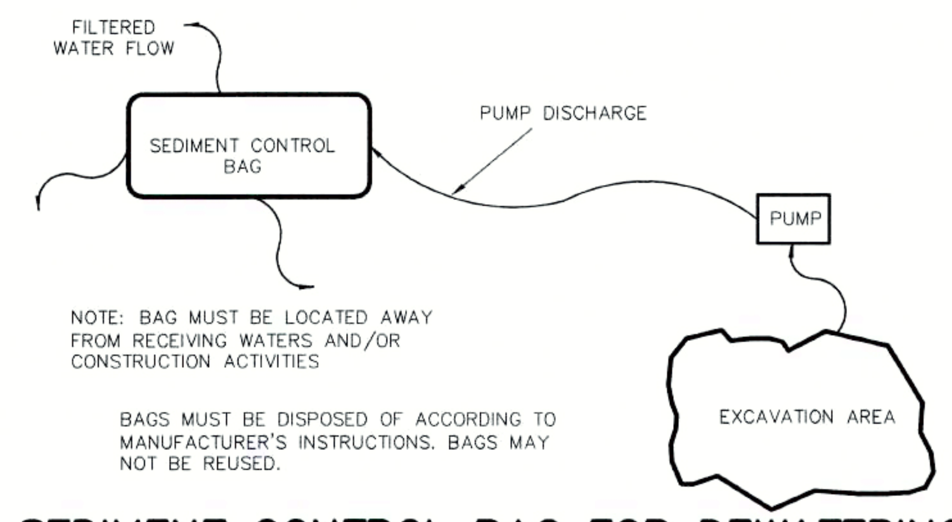


NOTES:
1. FURNISH AND INSTALL INLET FILTER PADS AS MANUFACTURED BY R.B.S. ENTERPRISES, OR APPROVED EQUAL. INSTALL IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. PAD SHALL CONSIST OF 3/8" NORMAL THICKNESS GEOFOAM FILTER MEDIA ATTACHED TO FRAMEWORK. FRAMEWORK SHALL BE COMPRISED ON 1-1/2" x 3/8" x 48" WOOD LATH ON 4" CENTERS FOR A 5 WIRE GRID. FOAM SHALL BE ATTACHED TO LATH GRID WITH STAPLES. PAD SHALL BE ATTACHED TO GRATE WITH THE ELASTIC SHOCK CORD AND HOOKS.
2. 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.

INLET PROTECTION DETAIL

N.T.S.

1. SILT CONTROL BAGS ARE CONTAINERS THROUGH WHICH SEDIMENT LADEN WATER IS PUMPED TO TRAP AND RETAIN THE SEDIMENT. A SILT CONTROL BAG IS TO BE USED ON SITES WERE EXCAVATIONS ARE DEEP, AND SPACES IS LIMITED AND WHERE DIRECT DISCHARGE OF SEDIMENT LADEN WATER TO STREAM AND STORM DRAINAGE SYSTEM IS TO BE AVOIDED.
2. CONTAINERS (BAGS) SHALL BE LOCATED FOR EASE OF CLEAN-OUT AND DISPOSAL OF THE TRAPPED SEDIMENT AND TO MINIMIZE INTERFERENCE WITH CONSTRUCTION ACTIVITIES AND PEDESTRIAN TRAFFIC. BAGS SHALL NOT BE PLACED DIRECTLY INTO RECEIVING WATERS.
3. SEDIMENT CONTROL BAGS MUST BE LOCATED AWAY FROM RECEIVING WATERS AND DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS.



SEDIMENT CONTROL BAG FOR DEWATERING

N.T.S.

SEEDING RATES

SEEDBED PREPARATION: FERTILIZER (10-10-10) 500 LB/AC
LIMESTONE 6,000 LB/AC

TEMPORARY SEEDING (NOT FOR ACIDIC SOILS HAVING A PH OF 4 OR LESS)

SEED MIX: PERENNIAL RYEGRASS 200 LB/AC

PERMANENT SEEDING (NOT FOR ACIDIC SOILS HAVING A PH OF 4 OR LESS)

SEEDING DATES:
(OPTIMAL) ZONE 5b,6a (8/1-10/1); ZONE 6b (8/15-10/15); ZONE 7a,7b (8/15-10/30)
(SEE TABLE 4-2 OF THE SCS STANDARDS FOR ADDITIONAL PLANTING DATES)

SCS SEED MIX #14	TURF-TYPE TALL FESCUE (3 CULTIVAR BLEND)	350 LB/AC
	KENTUCKY BLUEGRASS (BLEND)	30 LB/AC
	PERENNIAL RYEGRASS (BLEND)	30 LB/AC

MULCHING:
UNROTTED SALT HAY OR APPROVED EQUAL 1 1/2 to 2 TONS/AC

MULCH ANCHORING:
HYDROMULCH OR APPROVED EQUAL (USE RATES AS RECOMMENDED BY MANUFACTURER)

NOTES:
1) FOR ADDITIONAL REQUIREMENTS REFER TO THE SCS STANDARD FOR PERMANENT VEGETATIVE COVER.
2) THE FERTILIZER AND LIMESTONE RATES REPRESENT THE UNTESTED SCS REQUIRED RATES. FINAL RATES SUBJECT TO SOIL FERTILITY, pH ANALYSIS AND LAB RECOMMENDATIONS.

CONDITION OF ACCEPTANCE
1) NO EROSION SHALL EXIST.
2) BARE OR THIN SPOTS IN EXCESS OF 5 PERCENT OF ANY AREA WILL NOT BE ACCEPTABLE.
3) ESTABLISHING PERMANENT VEGETATION MEANS 80% VEGETATED COVER (OF THE SEEDED SPECIES) AND MOWED ONCE.

STANDARD FOR TOPSOILING

DEFINITION

TOPSOILING ENTAILS THE DISTRIBUTION OF SUITABLE QUALITY SOIL ON AREAS TO BE VEGETATED.

PURPOSE

TO IMPROVE THE SOIL MEDIUM FOR PLANT ESTABLISHMENT AND MAINTENANCE.

WATER QUALITY ENHANCEMENT

GROWTH AND ESTABLISHMENT OF A VIGOROUS VEGETATIVE COVER IS FACILITATED BY TOPSOIL, PREVENTING SOIL LOSS BY WIND AND RAIN OFFSITE AND INTO STREAMS AND OTHER STORMWATER CONVEYANCES.

WHERE APPLICABLE

TOPSOIL SHALL BE USED WHERE SOILS ARE TO BE DISTURBED AND WILL BE REVEGETATED.

METHODS AND MATERIALS

1. MATERIALS

A. TOPSOIL SHOULD BE FRIABLE[1], LOAMY[2], FREE OF DEBRIS, OBJECTIONABLE WEEDS AND STONES, AND CONTAIN NO TOXIC SUBSTANCE OR ADVERSE CHEMICAL OR PHYSICAL CONDITION THAT MAY BE HARMFUL TO PLANT GROWTH. SOLUBLE SALTS SHOULD NOT BE EXCESSIVE (CONDUCTIVITY LESS THAN 0.5 MILLIMHOS PER CENTIMETER. MORE THAN 0.5 MILLIMHOS MAY DESICCATE SEEDLINGS AND ADVERSELY IMPACT GROWTH). IMPORTED TOPSOIL SHALL HAVE A MINIMUM ORGANIC MATTER CONTENT OF 2.75 PERCENT. ORGANIC MATTER CONTENT MAY BE RAISED BY ADDITIVES.

B. TOPSOIL SUBSTITUTE IS A SOIL MATERIAL WHICH MAY HAVE BEEN AMENDED WITH SAND, SILT, CLAY, ORGANIC MATTER, FERTILIZER OR LIME AND HAS THE APPEARANCE OF TOPSOIL. TOPSOIL SUBSTITUTES MAY BE UTILIZED ON SITES WITH INSUFFICIENT TOPSOIL FOR ESTABLISHING PERMANENT VEGETATION. ALL TOPSOIL SUBSTITUTE MATERIALS SHALL MEET THE REQUIREMENTS OF TOPSOIL NOTED ABOVE. SOIL TESTS SHALL BE PERFORMED TO DETERMINE THE COMPONENTS OF SAND, SILT, CLAY, ORGANIC MATTER, SOLUBLE SALTS AND PH LEVEL.

2. STRIPPING AND STOCKPILING

A. FIELD EXPLORATION SHOULD BE MADE TO DETERMINE WHETHER QUANTITY AND OR QUALITY OF SURFACE SOIL JUSTIFIES STRIPPING.

B. STRIPPING SHALL BE CONFINED TO THE IMMEDIATE CONSTRUCTION AREA.

C. WHERE FEASIBLE, LIME MAY BE APPLIED BEFORE STRIPPING AT A RATE DETERMINED BY SOIL TESTS TO BRING THE SOIL PH TO APPROXIMATELY 6.5.

D. A 4-6 INCH STRIPPING DEPTH IS COMMON, BUT MAY VARY DEPENDING ON THE PARTICULAR SOIL.

E. STOCKPILES OF TOPSOIL SHOULD BE SITUATED SO AS NOT TO OBSTRUCT NATURAL DRAINAGE OR CAUSE OFF-SITE ENVIRONMENTAL DAMAGE.

F. STOCKPILES SHOULD BE VEGETATED IN ACCORDANCE WITH STANDARDS PREVIOUSLY DESCRIBED HEREIN; SEE STANDARDS FOR PERMANENT (PG. 4-1) OR TEMPORARY (PG. 7-1) VEGETATIVE COVER FOR SOIL STABILIZATION. WEEDS SHOULD NOT BE ALLOWED TO GROW ON STOCKPILES.

3. SITE PREPARATION

A. GRADE AT THE ONSET OF THE OPTIMAL SEEDING PERIOD SO AS TO MINIMIZE THE DURATION AND AREA OF EXPOSURE OF DISTURBED SOIL TO EROSION. IMMEDIATELY PROCEED TO ESTABLISH VEGETATIVE COVER IN ACCORDANCE WITH THE SPECIFIED SEED MIXTURE. TIME IS OF THE ESSENCE

B. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION AND ANCHORING, AND MAINTENANCE.
SEE THE STANDARD FOR LAND GRADING, PG. 19-1.

C. AS GUIDANCE FOR IDEAL CONDITIONS, SUBSOIL SHOULD BE TESTED FOR LIME REQUIREMENT. LIMESTONE, IF NEEDED, SHOULD BE APPLIED TO BRING SOIL TO A PH OF APPROXIMATELY 6.5 AND INCORPORATED INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES.

D. PRIOR TO TOPSOILING, THE SUBSOIL SHALL BE IN COMPLIANCE WITH THE STANDARD FOR LAND GRADING, PG. 19-1.

E. EMPLOY NEEDED EROSION CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENTATION BASINS, AND WATERWAYS. SEE STANDARDS 11 THROUGH 42.

4. APPLYING TOPSOIL

A. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING SOIL STRUCTURE; I.E., LESS THAN FIELD CAPACITY (SEE GLOSSARY).

B. A UNIFORM APPLICATION TO AN AVERAGE DEPTH OF 5.0 INCHES, MINIMUM OF 4 INCHES, FIRMED IN PLACE IS REQUIRED. ALTERNATIVE DEPTHS MAY BE CONSIDERED WHERE SPECIAL REGULATORY AND/OR INDUSTRY DESIGN STANDARDS ARE APPROPRIATE SUCH AS ON GOLF COURSES, SPORTS FIELDS, LANDFILL CAPPING, ETC.. SOILS WITH A PH OF 4.0 OR LESS OR CONTAINING IRON SULFIDE SHALL BE COVERED WITH A MINIMUM DEPTH OF 12 INCHES OF SOIL HAVING A PH OF 5.0 OR MORE, IN ACCORDANCE WITH THE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOIL (PG. 1-1).

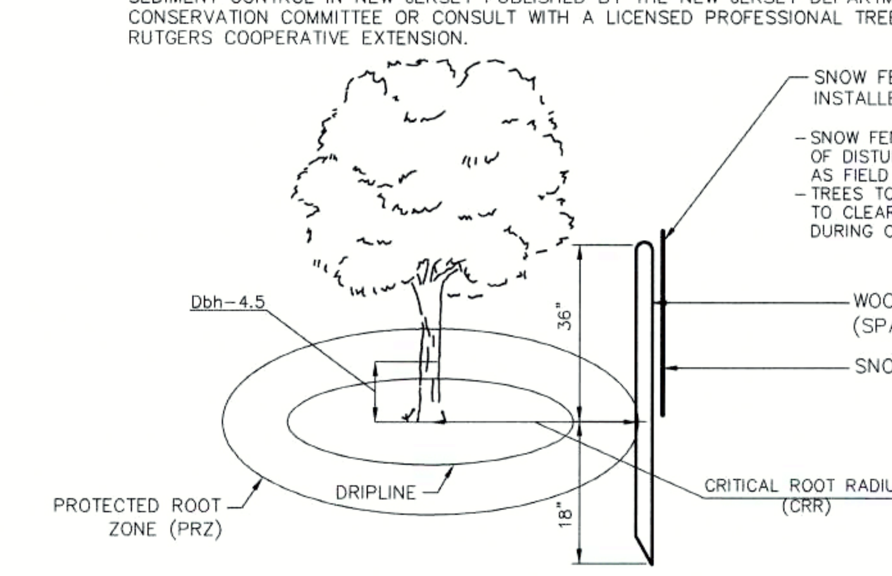
C. PURSUANT TO THE REQUIREMENTS IN SECTION 7 OF THE STANDARD FOR PERMANENT VEGETATIVE STABILIZATION, THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT PERMANENT VEGETATIVE COVER BECOMES ESTABLISHED ON AT LEAST 80% OF THE SOILS TO BE STABILIZED WITH VEGETATION. FAILURE TO ACHIEVE THE MINIMUM COVERAGE MAY REQUIRE ADDITIONAL WORK TO BE PERFORMED BY THE CONTRACTOR TO INCLUDE SOME OR ALL OF THE FOLLOWING: SUPPLEMENTAL SEEDING, RE-APPLICATION OF LIME AND FERTILIZERS, AND/OR THE ADDITION OF ORGANIC MATTER (I.E. COMPOST) AS A TOP DRESSING. SUCH ADDITIONAL MEASURES SHALL BE BASED ON SOIL TESTS SUCH AS THOSE OFFERED BY RUTGERS COOPERATIVE EXTENSION SERVICE OR OTHER APPROVED LABORATORY FACILITIES QUALIFIED TO TEST SOIL SAMPLES FOR AGRONOMIC PROPERTIES.

[1] FRIABLE MEANS EASILY CRUMBLES IN THE FINGERS, AS DEFINED IN MOST SOILS TEXTS.
[2] LOAMY MEANS TEXTURE GROUPS CONSISTING OF COARSE LOAMY SANDS, SANDY LOAM, FINE AND VERY FINE SANDY LOAM, LOAM, SILT LOAM, CLAY LOAM, SANDY CLAY LOAM AND SILTY CLAY LOAM TEXTURES AND HAVING LESS THAN 35% COARSE FRAGMENTS (PARTICLES LESS THAN 2MM IN SIZE) AS DEFINED IN THE GLOSSARY OF SOIL SCIENCE TERMS, 1996, SOIL SCIENCE SOCIETY OF AMERICA.

CRITERIA FOR PROTECTING REMAINING TREES:

1. GENERAL MECHANICAL DAMAGE – SEE BELOW FOR CORRECT ROOT ZONE CALCULATION AND PLACEMENT OF TREE PROTECTION.
2. BOX TREES WITHIN 25 FEET OF A BUILDING SITE TO PREVENT MECHANICAL INJURY. FENCING OR OTHER BARRIER SHOULD BE INSTALLED BEYOND THE CRITICAL ROOT RADIUS. TREE ROOT SYSTEMS COMMONLY EXTEND WELL BEYOND THE DRIP LINE.
3. BOARDS WILL NOT BE NAILED TO TREES DURING BUILDING OPERATIONS.
4. FEEDER ROOTS SHOULD NOT BE CUT IN AN AREA INSIDE THE PROTECTED ROOT ZONE (PRZ).
5. DAMAGED TRUNKS OR EXPOSED ROOTS SHOULD HAVE DAMAGED BARK REMOVED IMMEDIATELY AND NO PAINT SHALL BE APPLIED. EXPOSED ROOTS SHOULD BE COVERED WITH TOPSOIL IMMEDIATELY AFTER EXCAVATION IS COMPLETE. ROOTS SHALL BE PRUNED TO GIVE A CLEAN, SHARP SURFACE AMENABLE TO HEALING. ROOTS EXPOSED DURING HOT WEATHER SHOULD BE IRRIGATED TO PREVENT PERMANENT TREE INJURY. CARE FOR SERIOUS INJURY SHOULD BE PRESCRIBED BY A PROFESSIONAL FORESTER OR LICENSED TREE EXPERT.

NOTE: FOR MORE SPECIFIC TREE CHARACTERISTICS AND TREE LIMB REMOVAL, SEE THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY PUBLISHED BY THE NEW JERSEY DEPARTMENT OF AGRICULTURE-STATE SOIL CONSERVATION COMMITTEE OR CONSULT WITH A LICENSED PROFESSIONAL TREE EXPERT, SOIL CONSERVATION DISTRICT OR RUTGERS COOPERATIVE EXTENSION.



ESTIMATE A TREE'S PROTECTED ROOT ZONE (PRZ) BY CALCULATING THE CRITICAL ROOT RADIUS (CRR).

1. MEASURE THE DBH (DIAMETER OF TREE AT BREAST HEIGHT, 4.5 FEET ABOVE GROUND ON THE UPHILL SIDE OF TREE) IN INCHES.
2. MULTIPLY MEASURED DBH BY 1.5 OR 1.0. EXPRESS THE RESULT IN FEET.

DBH X 1.5: CRITICAL ROOT RADIUS FOR OLDER, UNHEALTHY, OR SENSITIVE SPECIES.

DBH X 1.0: CRITICAL ROOT RADIUS FOR YOUNGER, HEALTHY OR TOLERANT SPECIES

TREE PROTECTION

STANDARD FOR PERMANENT STABILIZATION WITH SOD

DEFINITION

ESTABLISHING PERMANENT VEGETATION USING SOD.

PURPOSE

TO PERMANENTLY STABILIZE TOPSOIL WITH AN IMMEDIATE AESTHETIC COVERING, THUS ASSURING CONSERVATION OF SOIL AND WATER, AND TO ENHANCE THE ENVIRONMENT.

WATER QUALITY ENHANCEMENT

PROVIDES AN IMMEDIATE, PERMANENT VEGETATIVE COVER TO THE SOIL FROM THE IMPACTS OF WIND OR RAIN AND PREVENTS SOIL AND NUTRIENT LOSSES TO STREAMS AND OTHER STORMWATER CONVEYANCES FROM STORMWATER RUNOFF.

WHERE APPLICABLE

ON EXPOSED SOILS THAT HAVE A POTENTIAL FOR CAUSING OFF-SITE ENVIRONMENTAL DAMAGE WHERE AN IMMEDIATE, PERMANENT, VEGETATIVE COVER IS DESIRED. WATER (RAIN OR IRRIGATION) IS REQUIRED FOR SUCCESS; ACCESS TO IRRIGATION IS ESSENTIAL DURING DROUGHT.

METHODS AND MATERIALS

1. HIGH QUALITY CULTIVATED SOD IS PREFERRED OVER NATIVE OR PASTURE SOD.
2. SOD SHOULD BE FREE OF BROADLEAF WEEDS AND UNDESIRABLE COARSE AND FINE WEED GRASSES.
3. SOD SHOULD BE OF UNIFORM THICKNESS, TYPICALLY 5/8 INCH, PLUS OR MINUS 1/4 INCH, AT TIME OF CUTTING (EXCLUDES TOP GROWTH.).
4. SOD SHOULD BE VIGOROUS AND DENSE AND BE ABLE TO RETAIN ITS OWN SHAPE AND WEIGHT WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP FROM THE UPPER 10 PERCENT OF THE STRIP. BROKEN PADS AND ROLLS OR TORN AND UNEVEN ENDS WILL NOT BE ACCEPTABLE.
5. FOR DROUGHTY SITES, A SOD OF TURF-TYPE TALL FESCUE OR TURF-TYPE TALL FESCUE MIXED WITH KENTUCKY BLUEGRASS IS PREFERRED OVER A 100% KENTUCKY BLUEGRASS SOD. ALTHOUGH NOT WIDELY AVAILABLE, A SOD OF FINE FESCUE IS ALSO ACCEPTABLE FOR DROUGHTY SITES.
6. ONLY MOIST, FRESH, UNHEATED SOD SHOULD BE USED. SOD SHOULD BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 24 HOURS OR LESS DURING SUMMER MONTHS.

1. SITE PREPARATION

A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR LIMING, FERTILIZING, INCORPORATION OF ORGANIC MATTER, AND OTHER SOIL PREPARATION PROCEDURES. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARD FOR LAND GRADING.

B. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE. A UNIFORM APPLICATION TO A DEPTH OF 5 INCHES (UNSETTLED) IS REQUIRED ON ALL SITES.

SEE THE STANDARD FOR TOPSOILING FOR TOPSOIL AND AMENDMENT REQUIREMENTS.

C. INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS

2. SOIL PREPARATION

A. UNIFORMLY APPLY GROUND LIMESTONE, AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS OFFERED BY RUTGERS CO-OPERATIVE EXTENSION. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL RUTGERS COOPERATIVE EXTENSION OFFICES (HTTP://NJAES.RUTGERS.EDU/COUNTY/). FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET USING 10-10-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE AND INCORPORATED INTO THE SURFACE 4 INCHES. IF FERTILIZER IS NOT INCORPORATED, APPLY ½ THE RATE DESCRIBED ABOVE DURING SEEDBED PREPARATION AND REPEAT ANOTHER ½ RATE APPLICATION OF THE SAME FERTILIZER WITHIN 3 TO 5 WEEKS AFTER SEEDING. APPLY LIMESTONE AT THE RATE OF 2 TONS/ACRE UNLESS SOIL TESTING INDICATES OTHERWISE. CALCIUM CARBONATE IS THE EQUIVALENT AND STANDARD FOR MEASURING THE ABILITY OF LIMING MATERIALS TO NEUTRALIZE SOIL ACIDITY AND SUPPLY CALCIUM AND MAGNESIUM TO GRASSES AND LEGUMES.

B. WORK LIME, AND FERTILIZER INTO THE TOPSOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRINGTOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISKING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM, FINE SEEDBED IS PREPARED.

C. REMOVE FROM THE SURFACE ALL OBJECTS THAT WOULD PREVENT GOOD SOD TO TOPSOIL CONTACT AND REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, PIECES OF CONCRETE, CLODS, LUMPS, OR OTHER UNSUITABLE MATERIAL.

D. INSPECT SITE JUST BEFORE SODDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED AND FIRMED IN ACCORDANCE WITH THE ABOVE.

3. SOD PLACEMENT

A. SOD STRIPS SHOULD BE LAID ON THE CONTOUR, NEVER UP AND DOWN THE SLOPE, STARTING AT THE BOTTOM OF THE SLOPE AND WORKING UP. ON STEEP SLOPES, THE USE OF LADDERS WILL FACILITATE THE WORK AND PREVENT DAMAGE TO THE SOD. DURING PERIODS OF HIGH TEMPERATURE, LIGHTLY IRRIGATE THE SOIL IMMEDIATELY PRIOR TO LAYING THE SOD.

B. PLACE SOD STRIPS WITH SNUG, EVEN JOINTS (SEAMS) THAT ARE STAGGERED. OPEN SPACES INVITE EROSION.

C. LIGHTLY ROLL OR TAMP SOD IMMEDIATELY FOLLOWING PLACEMENT TO INSURE SOLID CONTACT OF ROOT MAT AND SOIL SURFACE. DO NOT OVERLAP SOD. ALL JOINTS SHOULD BE BUTTED TIGHTLY TO PREVENT VOIDS WHICH WOULD CAUSE DRYING OF THE ROOTS AND INVASION OF WEEDS.

D. ON SLOPES GREATER THAN 3 TO 1, SECURE SOD TO SURFACE SOIL WITH WOOD PEGS, WIRE STAPLES BIODEGRADABLE PLASTIC SPIKES, OR SPLIT SHINGLES (8 TO 10 INCHES LONG BY 3/4 INCH WIDE).

E. SURFACE WATER CANNOT ALWAYS BE DIVERTED FROM FLOWING OVER THE FACE OF THE SLOPE, BUT A CAPPING STRIP OF HEAVY JUTE OR PLASTIC NETTING, PROPERLY SECURED, ALONG THE CROWN OF THE SLOPE AND EDGES WILL PROVIDE EXTRA PROTECTION AGAINST LIFTING AND UNDERCUTTING OF SOD. THE SAME TECHNIQUE CAN BE USED TO ANCHOR SOD IN WATER-CARRYING CHANNELS AND OTHER CRITICAL AREAS. WIRE STAPLES MUST BE USED TO ANCHOR NETTING IN CHANNEL WORK.

F. IMMEDIATELY FOLLOWING INSTALLATION, SOD SHOULD BE WATERED UNTIL WATER PENETRATES THE SOIL LAYER BENEATH SOD TO A DEPTH OF 1 INCH. MAINTAIN OPTIMUM WATER FOR AT LEAST TWO WEEKS.

4. TOPDRESSING – SINCE SOIL ORGANIC MATTER AND SLOW RELEASE NITROGEN FERTILIZER (WATER INSOLUBLE) ARE PRESCRIBED IN SECTIONS 1 AND 2IN THIS STANDARD, A FOLLOW-UP TOPDRESSING IS NOT MANDATORY, EXCEPT WHERE GROSS NITROGEN DEFICIENCY EXISTS IN THE SOIL TO THE EXTENT THAT TURF FAILURE MAY DEVELOP, TOPDRESSING SHALL THEN BE APPLIED. TOPDRESS WITH 10-0-10 OR EQUIVALENT AT 400 POUNDS PER ACRE OR 7 POUNDS PER 1,000 SQUARE FEET EVERY 3 TO 5 WEEKS UNTIL THE GROSS NITROGEN DEFICIENCY IN THE TURF IS AMELIORATED.

FOR CLARIFICATIONS AND ADDITIONAL INFORMATION SEE THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY, 7TH EDITION, JANUARY 2014, REVISED JULY 2017

CONSTRUCTION DETAIL NOTES

1. ALL TRAFFIC SIGNS AND PAVEMENT MARKINGS SHALL CONFORM TO THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. ALL CONSTRUCTION DETAILS SHALL BE SUPERCEDED BY APPLICABLE MUNICIPAL, COUNTY OR STATE DETAILS UNLESS OTHERWISE NOTED.
3. STRUCTURAL DETAILS ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. SHOP DRAWINGS SHALL BE PROVIDED TO THE TOWNSHIP ENGINEER FOR ALL WALLS AND STRUCTURAL ELEMENTS PRIOR TO CONSTRUCTION.
4. SHOP DRAWINGS SHALL BE PROVIDED FOR ALL PRECAST STRUCTURES PRIOR TO THE ORDERING OF MATERIALS.
5. DETAILS ASSUME APPROPRIATE LOAD BEARING CAPACITY AND COMPACTION OF SOILS. ACTUAL FIELD CONDITIONS SHALL BE CONFIRMED BY ON-SITE GEOTECHNICAL ENGINEER.
6. RESIDENTIAL DEVELOPMENTS SHALL CONFORM TO DETAILS WITHIN THE CURRENT EDITION OF THE RESIDENTIAL SITE IMPROVEMENT STANDARDS (R.S.I.S.).
7. ALL CONSTRUCTION DETAILS ARE NOT TO SCALE (N.T.S.) UNLESS OTHERWISE NOTED.

REVISIONS	
1) SITE PLAN REVS.	10/04/21

THIS DRAWING IS FOR PERMIT PURPOSES ONLY

NOT FOR CONSTRUCTION UNTIL THIS BOX HAS BEEN CHECKED AND DATED

☐ CHKD BY: ____ DATE: ________

1-800-272-1000 or 811
STOP CALL BEFORE YOU DIG!

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

menlo engineering associates
Civil Engineering Consultants
Landscape Architects
Professional Planners
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Highland Park, NJ 08904
menloeng.com
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Certificate of Authorization : 24GA27951900

LIVINGSTON WAREHOUSE

TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY
NEW JERSEY

BLOCK 140.01
LOTS 5.02 & 7.01
TAX MAP SHEET 30
21.03 ACRES

SOIL EROSION & SEDIMENT CONTROL DETAILS (2)

DRAWN BY	RM
DESIGNED BY	RJG
APPROVED BY	GSO

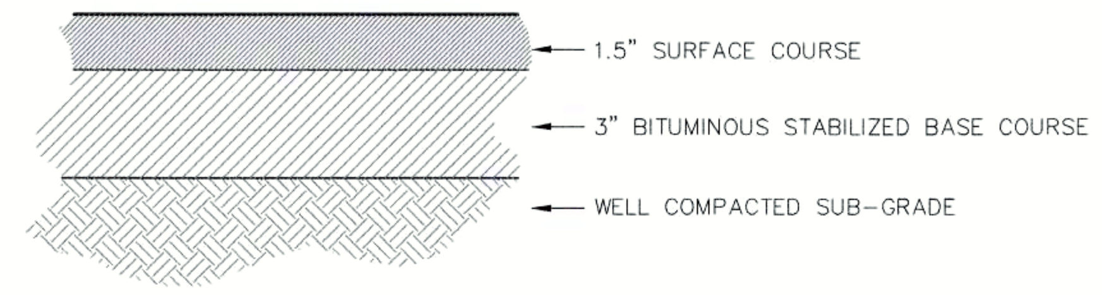
THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...
GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.02	SED-2
DATE OF ISSUE	FEBRUARY 12, 2021	16
REVISION 1	OCTOBER 4, 2021	

GENERAL NOTES

1. HORIZONTAL DATUM IS REFERENCED TO THE NEW JERSEY STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983. SPOT ELEVATIONS AND CONTOURS SHOWN ARE REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1988.
2. ALL CONSTRUCTION IS TO BE PERFORMED IN STRICT CONFORMANCE WITH ALL APPLICABLE TOWNSHIPS, COUNTY, STATE AND/OR ANY OTHER GOVERNING BODIES STANDARDS.
3. THE CONTRACT DRAWINGS INDICATE THE APPROXIMATE LOCATION OF EXISTING SUBSURFACE UTILITIES IN THE VICINITY OF THE PROJECT AND ARE NOT GUARANTEED FOR ACCURACY AND/OR COMPLETENESS. CONTRACTOR TO VERIFY DEPTH AND LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION (1-800-272-1000). ANY CONFLICTS WITH PROPOSED CONSTRUCTION ARE TO BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER. ALL EXISTING UTILITIES THAT ARE TO BE RELOCATED OR ALTERED IN ANY MANNER ARE TO BE DONE IN ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANIES STANDARDS. ALL EXISTING UTILITIES EXPOSED DURING CONSTRUCTION ARE TO BE SUPPORTED UNTIL BACKFILL IS IN PLACE. ANY CROSSINGS LESS THAN ONE FOOT CLEAR TO BE SUPPORTED WITH A SADDLE (CONCRETE OR SAND AS NOTED).
4. DESIGN AND INSTALLATION OF ELECTRIC, GAS, TELEPHONE AND CABLE TV TO BE PROVIDED BY RESPECTIVE UTILITY COMPANIES.
5. ALL DRAINAGE TO BE REINFORCED CONCRETE PIPE CLASS III- WALL B UNLESS OTHERWISE NOTED. ALL SANITARY PIPES TO BE SDR-35 PVC PIPE UNLESS OTHERWISE NOTED. ALL WATERLINES TO BE CLASS 52 CEMENT-LINED DUCTILE IRON PIPE UNLESS OTHERWISE NOTED.
6. WATERLINE AND SANITARY SEWER TO BE A MINIMUM OF TEN (10) FEET APART HORIZONTALLY AND EIGHTEEN (18) INCHES VERTICALLY UNLESS OTHERWISE NOTED.
7. WATERLINES TO HAVE A MINIMUM OF FOUR (4) FEET COVER.
8. CONSTRUCTION MATERIALS AND METHODS NOT OTHERWISE SPECIFIED OR SHOWN HEREIN SHALL CONFORM TO NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (THE LATEST EDITION AND AMENDMENTS).
9. FOR SPECIFIC BUILDING DETAILS SEE ARCHITECTURAL DRAWINGS.
10. SITE GRADING AND UTILITY WORK ARE TO BE PERFORMED IN A MANNER TO MINIMIZE DAMAGE TO EXISTING VEGETATION AND TREES. ALL AREAS NOT AFFECTED BY CONSTRUCTION ARE TO REMAIN NATURAL AND UNDISTURBED.
11. ALL EXISTING OR PROJECT GENERATED DEBRIS IS TO BE REMOVED AND PROPERLY DISPOSED ACCORDING TO ALL APPLICABLE REGULATIONS.
12. TOPSOIL THAT HAS BEEN REMOVED FOR THE GRADING OF THE SITE SHALL NOT BE USED AS SOIL. THE TOPSOIL SHALL BE REDISTRIBUTED ON GREEN AREAS SO AS TO PROVIDE A MINIMUM OF AT LEAST SIX (6) INCHES OF COVER ON THOSE AREAS.
13. SIDE SLOPES TO BE GRADED AT A MAXIMUM OF 3:1.
14. COMPACTION IN FILL AREAS BENEATH ALL PROPOSED UTILITIES AND STRUCTURES SHOULD MEET ALL MANUFACTURES AND TOWNSHIP REQUIREMENTS AND BE EQUAL TO THE MINIMUM 95% MODIFIED PROCTOR DENSITY.
15. ADEQUACY OF WATER SUPPLY SYSTEM FOR FIRE PROTECTION HAS NOT BEEN CONFIRMED WITH RESPECTIVE WATER SUPPLIER OR INSURANCE COMPANY. WATER SUPPLY SYSTEM TO BE REVIEWED AND APPROVED BY THE ARCHITECT AND WATER COMPANY PRIOR TO CONSTRUCTION OR ORDERING.
16. THE APPLICANT SHALL BE RESPONSIBLE FOR THE INSTALLATION OF STREET LIGHTING FACILITIES AS DESIGNED AND INSTALLED BY RESPECTIVE COMPANY, AS APPROVED BY THE PLANNING BOARD, AND IN ACCORDANCE WITH ALL APPLICABLE STANDARDS AND SPECIFICATIONS. STREET LIGHTING SHALL BE APPROPRIATELY SHIELDED TO AVOID GLARE INTO NEARBY HOMES. LIGHTING PLANS TO BE SUBMITTED TO BOROUGH FOR APPROVAL.
17. SANITARY SEWER DESIGN (N.J.A.C. 7:14A-23.6(B)4&I.)
SEWERS CONVEYING SANITARY FLOW, COMBINED SANITARY AND STORM WATER FLOW, OR INDUSTRIAL FLOW SHALL BE SEPARATED FROM WATER MAINS BY A DISTANCE OF AT LEAST TEN (10) FEET HORIZONTALLY. IF SUCH LATERAL SEPARATION IS NOT POSSIBLE, THE PIPES SHALL BE IN SEPARATE TRENCHES WITH THE SEWER AT LEAST EIGHTEEN (18) INCHES BELOW THE BOTTOM OF THE WATER MAIN, OR SUCH OTHER SEPARATION AS APPROVED BY THE DEPARTMENT.

WHERE APPROPRIATE SEPARATION FROM A WATER MAIN IS NOT POSSIBLE, THE SEWER SHALL BE ENCASED IN CONCRETE, OR CONSTRUCTED OF DUCTILE IRON PIPE USING MECHANICAL OR SLIP-ON JOINTS FOR A DISTANCE OF AT LEAST TEN (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 SHALL BE PROVIDED. THE DEPARTMENT MAY ALSO REQUIRE ADDITIONAL STRUCTURAL SUPPORT FOR STORM SEWERS OVER SEWER LINES.

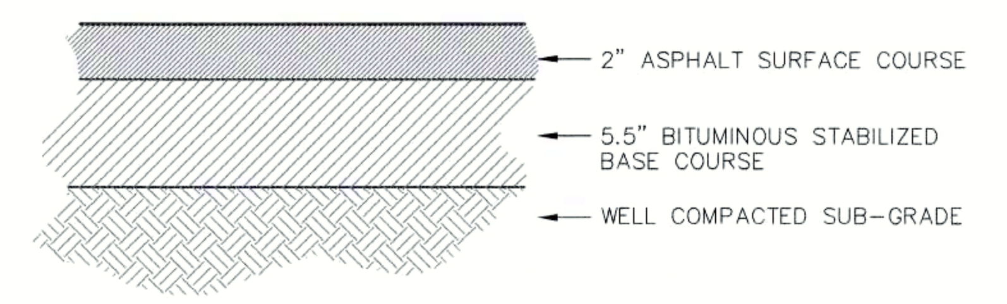


NOTES:
1) NOT A DESIGN PAVEMENT, SUBJECT TO ONSITE SOILS TESTING.
2) ALL MATERIALS AND METHODS TO BE IN CONFORMANCE WITH THE STANDARD SPECIFICATIONS.

(3 LAYER)

STANDARD ASPHALT PAVEMENT SECTION

N.T.S.

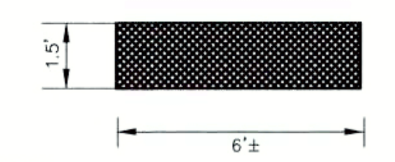


NOTES:
1) NOT A DESIGN PAVEMENT, SUBJECT TO ONSITE SOILS TESTING.
2) ALL MATERIALS AND METHODS TO BE IN CONFORMANCE WITH THE STANDARD SPECIFICATIONS.

(3 LAYER)

HEAVY DUTY ASPHALT PAVEMENT SECTION

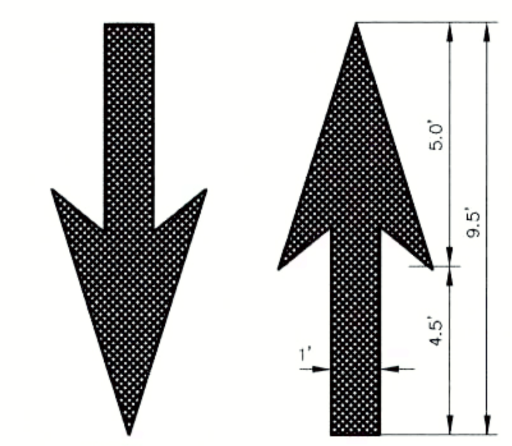
N.T.S.



NOTE:
FOR PROPORTIONS SEE "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS." FHWA

STOP BAR PAVEMENT MARKING

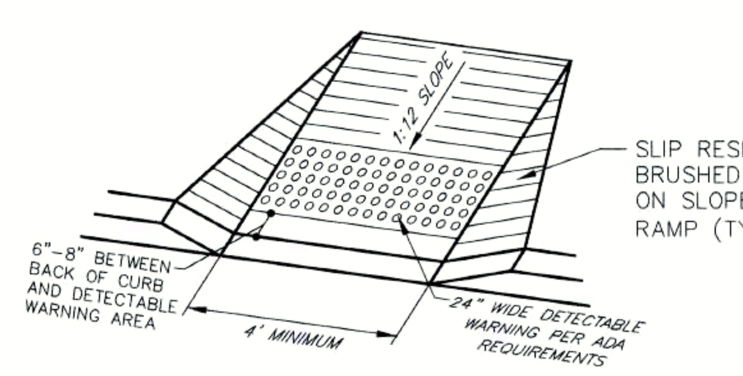
N.T.S.



NOTE:
FOR PROPORTIONS SEE "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS." FHWA

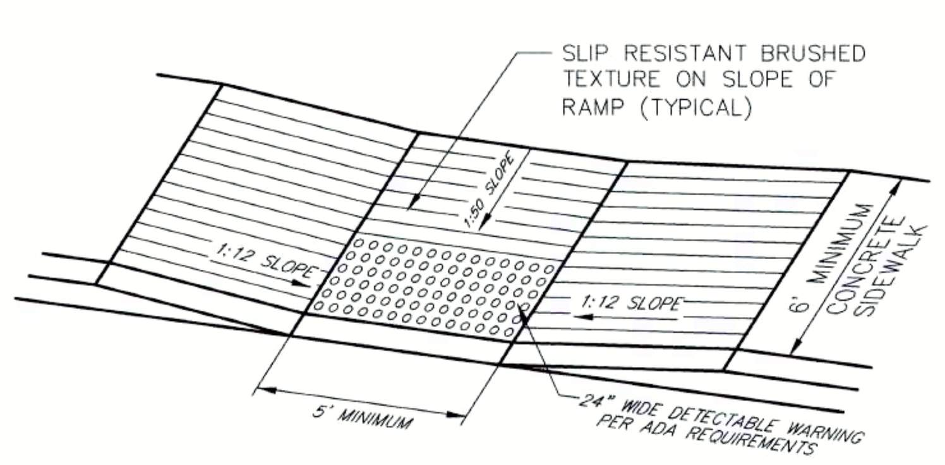
DOUBLE STRAIGHT ARROW DETAIL

N.T.S.



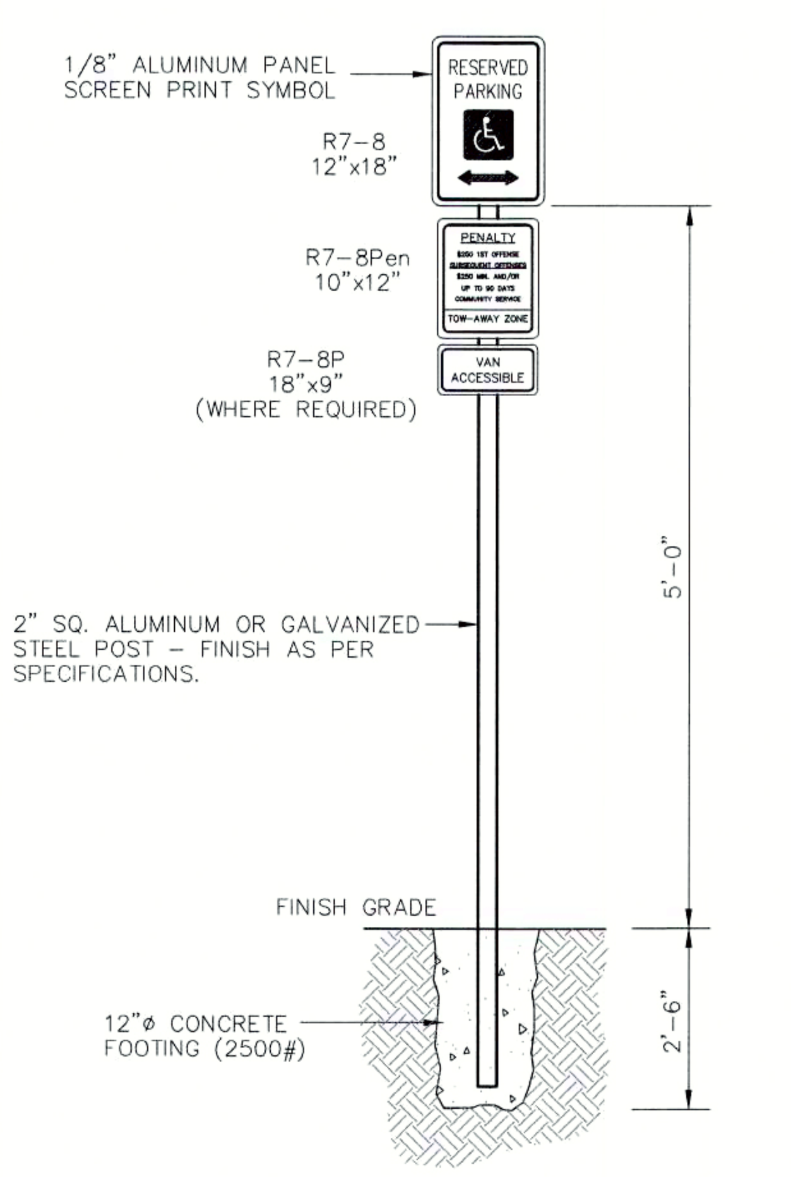
CURB RAMP - TYPE E

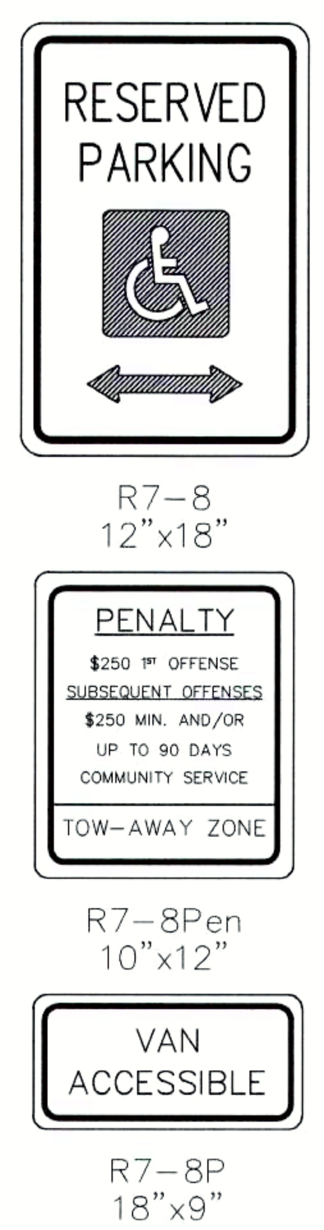
N.T.S.



CURB RAMP - TYPE B

N.T.S.





ACCESSIBLE SIGN DETAIL

N.T.S.

SIGN DETAILS

N.T.S.

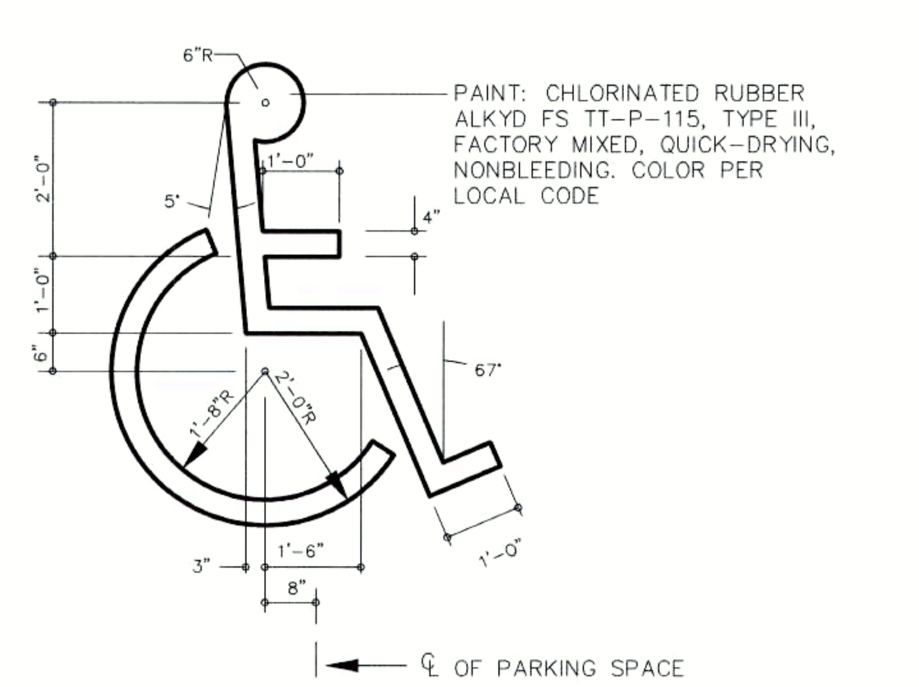
NOTES:
1) ALL POSTS SHALL BE OF ADEQUATE LENGTH TO MEET THE REQUIREMENTS FOR ERECTION AS STATED IN THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREET AND HIGHWAYS".
2) ALL STEEL POSTS AND BRACKETS SHALL BE CUT, BENT AND HOLES PUNCHED AND DRILLED BEFORE GALVANIZING. GALVANIZING SHALL BE IN CONFORMANCE WITH CURRENT A.S.T.M. SPECIFICATIONS A 123.
3) POSTS MAY BE STEEL OR 2 PIECE STEEL U-POST IN CONFORMANCE WITH THE NOTES BELOW.
4) SIGN PANEL SIZES SHALL DETERMINE POST TYPE AND NUMBER AS SHOWN ON THIS DETAIL.
5) BOLTS SHALL NOT PROTRUDE MORE THAN 3/4" BEYOND THE NUT WHEN TIGHT BUT SHALL ENGAGE ALL THREADS IN THE NUT.
6) THE MINIMUM VERTICAL CLEARANCE REQUIREMENTS FOR SIGNS ARE:

EDGE OF PAVEMENT TO BOTTOM OF SIGN AS PER SECTION 2A-23 OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS."

GROUNDLINE TO BOTTOM OF SIGN SHALL BE 7 FEET MINIMUM.

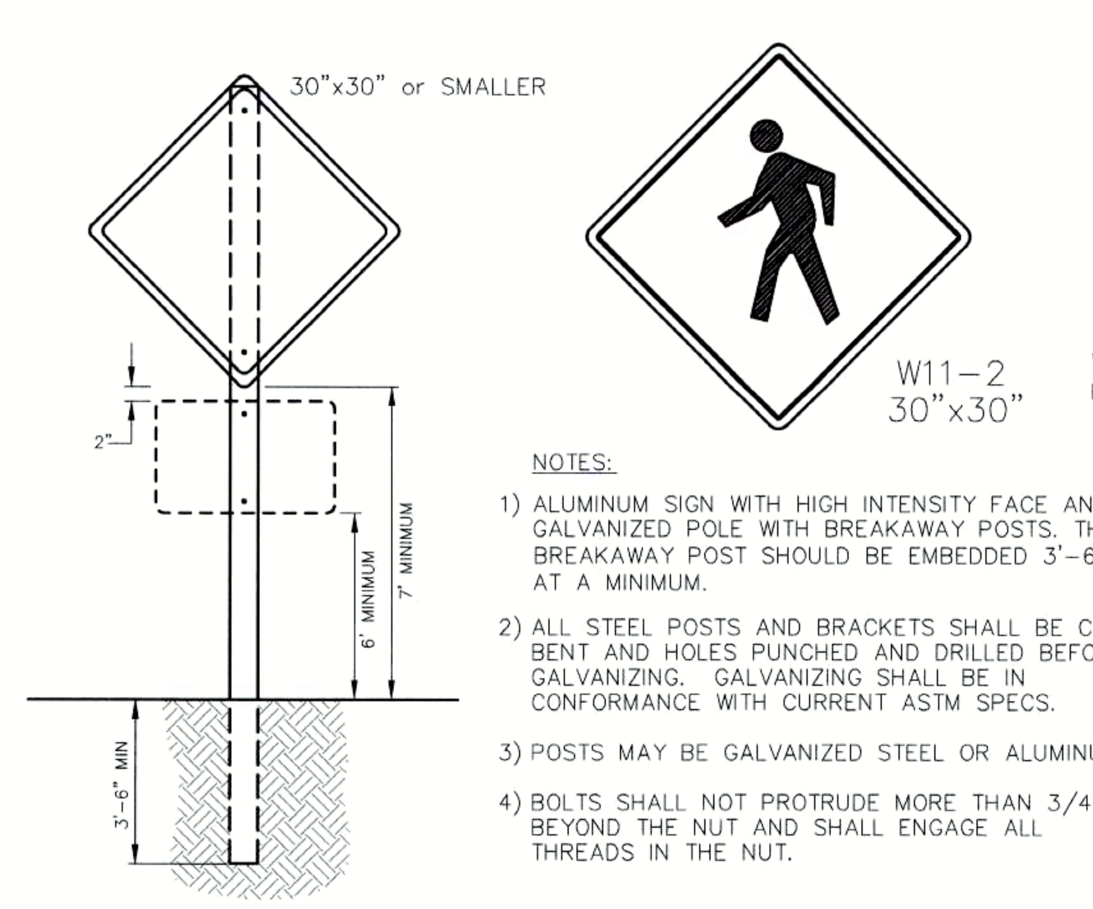
FOR SINGLE POST INSTALLATIONS, THE MINIMUM DISTANCE FROM GROUNDLINE TO THE TOP OF SIGN MUST BE 9 FEET.

8) PERMANENT SIGN SUPPORTS SHALL NOT BE INSTALLED ON SLOPES GREATER THAN 10:1, UNLESS BEHIND A TRAFFIC BARRIER, AND THE SLOPE SHALL EXTEND A MINIMUM OF 3'-0" BEYOND THE OUTSIDE EDGE OF SIGN (SEE GRADING DETAIL FOR SLOPE TREATMENT).
9) NO SIGN POSTS SHOULD BE PLACED IN FRONT OF GUIDERAIL.
10) ALL SIGNS SHALL BE MOUNTED ON BREAKAWAY POSTS.



ACCESSIBLE PARKING DETAIL

N.T.S.

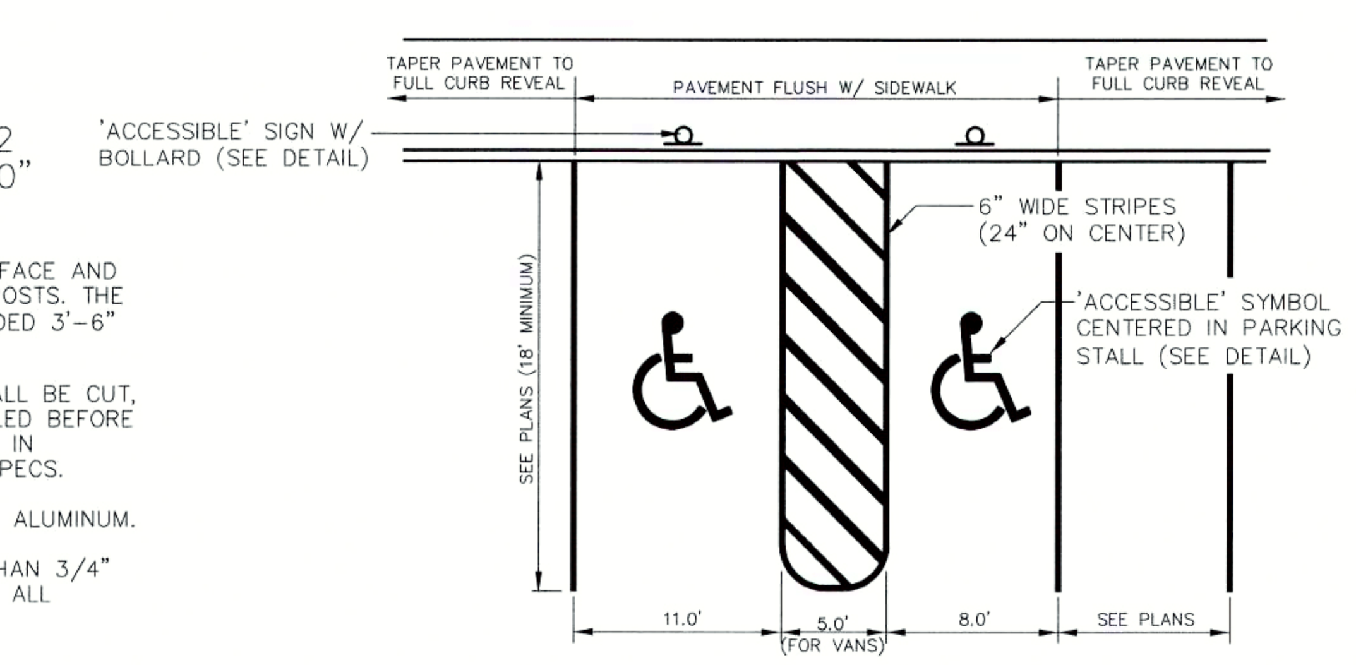


NOTES:
1) ALUMINUM SIGN WITH HIGH INTENSITY FACE AND GALVANIZED POLE WITH BREAKAWAY POSTS. THE BREAKAWAY POST SHOULD BE EMBEDDED 3'-6" AT A MINIMUM.
2) ALL STEEL POSTS AND BRACKETS SHALL BE CUT, BENT AND HOLES PUNCHED AND DRILLED BEFORE GALVANIZING. GALVANIZING SHALL BE IN CONFORMANCE WITH CURRENT ASTM SPECS.
3) POSTS MAY BE GALVANIZED STEEL OR ALUMINUM.
4) BOLTS SHALL NOT PROTRUDE MORE THAN 3/4" BEYOND THE NUT AND SHALL ENGAGE ALL THREADS IN THE NUT.

TRAFFIC SIGN DETAIL

(FOR USE ON SITE, OUTSIDE BURLINGTON COUNTY R.O.W.)

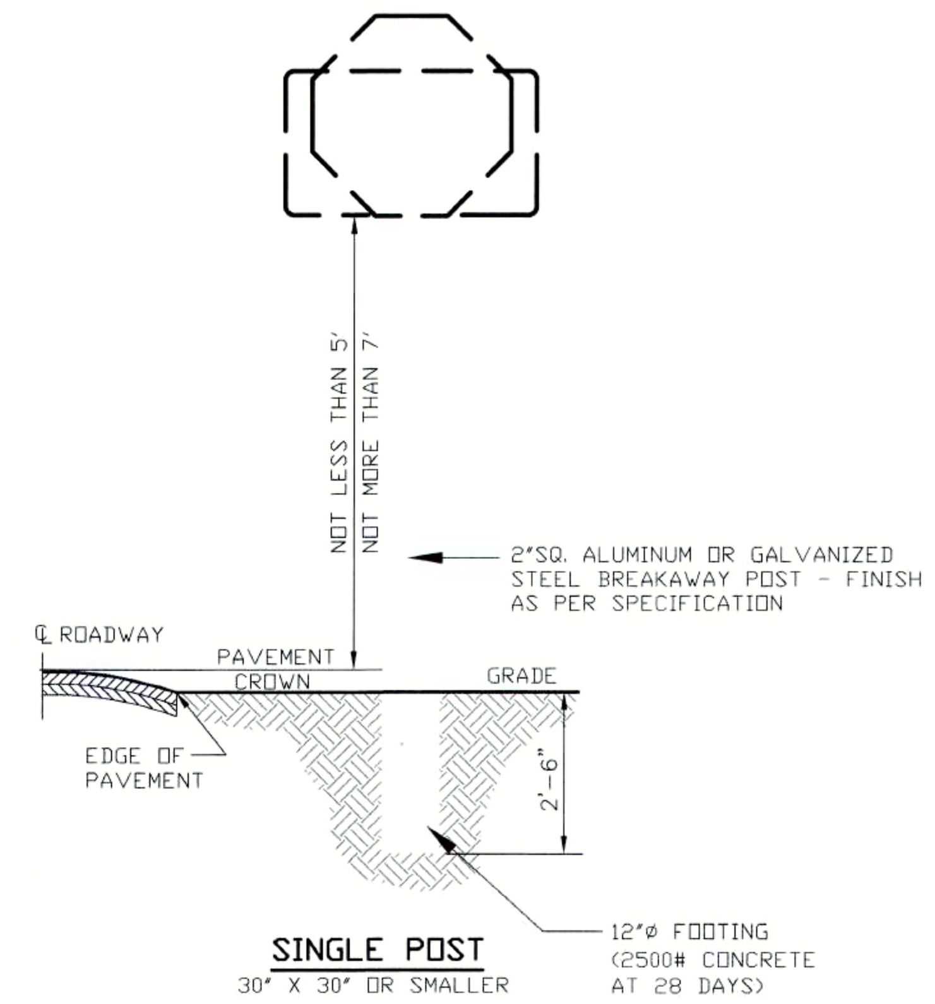
N.T.S.



(ABUTTING CURB / VAN SPACE)

ADA PARKING STALL STRIPING

N.T.S.



SIGN MOUNTING DETAIL

N.T.S.

GENERAL ADA NOTES

1. PEDESTRIAN CURBS
- PEDESTRIAN CURBS ARE PERMITTED WHEN ADJACENT TO NON-WALK AREAS OR ELEVATION DIFFERENCES WHICH CANNOT BE ACCOMMODATED BY FLARES OR GRADING.

2. CROSSWALKS
- FOR CURB RAMPS THAT LEAD TO A SINGLE CROSSWALK, THE RAMP (EXCLUDING FLARES) TO BE FULLY INSIDE OF MARKED CROSSWALK LINES.
- SHOULD BE PLACED A MINIMUM DISTANCE OF 4'-0" FROM STOP AND YIELD LINES.
- FOR UN-SIGNALIZED AREAS, CROSSWALKS SHOULD BE PLACED A MINIMUM DISTANCE OF 20'-0" AWAY FROM ON ROAD PARKING ZONES. FOR SIGNALIZED AREAS, CROSSWALKS SHOULD BE PLACED A MINIMUM DISTANCE OF 30'-0" FROM ON ROAD PARKING ZONES.
- PEDESTRIAN CROSSWALKS ARE 6'-0" MINIMUM MEASURED FROM INSIDE THE PAINTED EDGE TO INSIDE PAINTED EDGE AND THE INSIDE LINES MUST BE OUTSIDE THE PROJECTED CURB LINES.
- AVOID USING THE PARALLEL LINE CROSSWALK DESIGN. INSTEAD USE THE LONGITUDINAL LINES AT 6'-0" LONG AND 1'-2' WIDE WITH A SPACING OF 1'-2' APART. SPACING SHOULD BE DESIGNED SO THE PAINTED AREAS AVOID THE WHEEL PATHS.

3. CURB RAMPS
- CONSTRUCT CURB RAMPS WITH A MINIMUM 4'-0" X 4'-0" CLEAR SPACE BEFORE THE CURB FACE, WITHIN THE WIDTH OF THE CROSSWALK.
- SLOPES THAT EXCEED 8.00%, OR CONTRACT DOCUMENTS AS APPLICABLE, WILL NOT BE ACCEPTED AND WILL BE RECONSTRUCTED.
- PROVIDE SLIP RESISTANT TEXTURE ON CURB RAMP BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP. EXTEND TEXTURE THE FULL WIDTH AND LENGTH OF THE CURB RAMP INCLUDING FLARED SIDE RAMPS.
- TO AVOID CHASING GRADE INDEFINITELY WHEN TRAVERSING THE HEIGHT OF CURB, RAMP LENGTH NOT TO EXCEED 15'-0". ADJUST RAMP SLOPE AS NEEDED TO PROVIDE ACCESS TO THE MAXIMUM EXTENT FEASIBLE.
- FOR NEW CONSTRUCTION AND ALTERATIONS, CONSTRUCT CURB RAMP AND FLARE SLOPES WITH THE FLATTEST SLOPE POSSIBLE.
- FOR NEW CONSTRUCTION, ATTEMPT TO KEEP THE CROSS SLOPE AS FLAT AS POSSIBLE. DO NOT EXCEED 2.00% CROSS SLOPE ON THE CURB RAMP OR PEDESTRIAN ACCESSIBLE ROUTE (MEASURED PERPENDICULAR TO THE DIRECTION OF TRAVEL).
- CURB RAMP AND SIDE FLARE LENGTHS ARE VARIABLE AND BASED ON CURB HEIGHT AND THE SIDEWALK SLOPE.
- CURB RAMP WIDTH IS 4'-0" MINIMUM.
- AVOID CURB RAMP DESIGNS WHERE THE WIDTH OF THE CROSSWALK WILL NEED TO BE GREATER THAN 10'-0" WIDE.
- ALL SLOPES ARE MEASURED WITH RESPECT TO A LEVEL PLANE. THEREFORE, THE LENGTH OF RAMP IS NOT SOLELY DEPENDANT ON THE HEIGHT OF CURB. (FOR EXAMPLE, A 6" CURB DOES NOT NECESSARILY MEAN A RAMP LENGTH OF 6'-0" FOR A 12:1 SLOPE.
- THE CHANGE IN GRADE AT THE BOTTOM OF THE CURB RAMP AND ADJOINING ROAD SURFACE IS NOT TO EXCEED AN ALGEBRAIC DIFFERENCE OF 11.00%. THE COUNTER SLOPE OF THE GUTTER OR ROAD AT THE FOOT OF A CURB RAMP, LANDING OR BLENDED TRANSITION IS NOT TO EXCEED 8.00% AND IT IS NOT NECESSARY TO HAVE THE LENGTH GREATER THAN 15'-0".
- WHEN TWO CROSSWALKS LEAD TO A SINGLE CURB RAMP, THE MAXIMUM RUNNING SLOPE IS 5% WITH A MAXIMUM 2% CROSS SLOPE. THESE TYPES OF RAMPS REQUIRE THE ENGINEERING DEPARTMENT'S APPROVAL AS THEY ARE NOT PREFERRED.

4. DEPRESSED CURBS
- CONSTRUCT TOP OF PLAIN CEMENT CONCRETE DEPRESSED CURB TO BE FLUSH WITH ADJACENT SURFACES (RAMPS, SIDEWALKS, FLARES).
- CONSTRUCT DEPRESSED CURB FOR CURB RAMPS FLUSH TO ADJACENT ROADWAY. GRADE EDGE OF ROAD ELEVATIONS AT THE FLOW LINE TO ENSURE POSITIVE DRAINAGE AND PREVENT PONDING. FOR LEVEL LANDINGS BEHIND DEPRESSED CURB, ADJUST SLOPES TO PROVIDE POSITIVE DRAINAGE. THE VERTICAL ALIGNMENT OF A CURB RAMP, EXCLUDING FLARES, SHALL BE PLANAR. GRADE BREAKS SHALL BE FLUSH AND PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN. RAMP TRANSITIONS BETWEEN WALKS, GUTTERS, LANDINGS, OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT VERTICAL CHANGES (1/4" MAXIMUM).
- WHEN TWO CROSSWALKS LEAD TO A SINGLE CURB RAMP, THE DEPRESSED CURB MUST EXTEND FROM THE OUTER MOST EDGE OF EACH CROSSWALK.

5. DETECTABLE WARNING SURFACES
- NO SEPARATION BETWEEN DETECTABLE WARNING SURFACES FOR MEDIANS LESS THAN 4'-0" BETWEEN BACK OF CURBS.
- PROVIDE DETECTABLE WARNING SURFACES (DWS) 24" MINIMUM (IN THE DIRECTION OF PEDESTRIAN TRAVEL) ACROSS FULL WIDTH OF RAMP AT THE GRADE BREAK NEAR STREET EDGE. PROVIDE DWS THAT CONTRAST VISUALLY WITH ADJACENT WALKWAY SURFACES, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT FOR THE FULL WIDTH OF RAMP.
- ALIGN DETECTABLE WARNING SURFACE TRUNCATED DOMES ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF THE RAMP AND PERPENDICULAR TO CURB WHEN APPROPRIATE.
- DETECTABLE WARNING SURFACES SHALL BE SAFETY RED COLOR, EXCEPT IF THE MUNICIPALITIES HAVE ESTABLISHED AN ALTERNATIVE COLOR SCHEME.
- FOR TWO CROSSWALKS LEADING TO A SINGLE CURB RAMP, THE DETECTABLE WARNING SURFACE MUST BE PLACED ALONG THE ENTIRE DEPRESSED CURB AND THE DOMES MUST BE PLACED IN SUCH A WAY THAT THE DIRECTION OF TRAVEL IS ORIENTED INTO THE CROSSWALK.

6. DRIVEWAYS
- 5.00% MAXIMUM SLOPE FOR THE DRIVEWAY APRON.
- 1 1/2" MAXIMUM VERTICAL CHANGE IN HEIGHT BETWEEN THE ROAD SURFACE AND THE DEPRESSED CURB AT THE DRIVEWAY APRON.

7. JOINTS
- PROVIDE EXPANSION JOINT MATERIAL 1/2" THICK WHERE CURB RAMP ADJOINS ANY RIGID PAVEMENT, SIDEWALK OR STRUCTURE WITH THE TOP OF JOINT FILLER FLUSH WITH ADJACENT CONCRETE SURFACE.
- SEAL JOINTS WITH AN APPROVED SEALING MATERIAL.

8. LANDINGS (AKA TURNING SPACE)
- LANDING AREA, APPROACH SIDEWALK TRANSITIONS, AND CURB RAMP SHALL BE KEPT CLEAR OF OBSTRUCTIONS, UNLESS AN EXCEPTION IS GRANTED.
- DO NOT EXCEED 2.00% SLOPE IN ALL DIRECTIONS.
- LANDING AREA SHOULD BE 4'-0" X 4'-0" MINIMUM CLEAR SPACE. IF THE TURNING SPACE IS CONSTRAINED ON 2 OR MORE SIDES, IT MUST BE 4'x5' WITH THE 5' LENGTH ALONG THE UNOBSTRUCTED SIDE. FOR TWO CROSSWALKS LEADING TO A SINGLE CURB, THE LANDING AREA MUST HAVE A MINIMUM OF A 5'-0" DEPTH (INCLUDING THE DETECTABLE WARNING SURFACE) ALONG THE DEPRESSED CURB/ROADWAY.
- ENGINEERING DEPARTMENT APPROVAL IS REQUIRED IF LANDING FOR TURNING MANEUVER IS NOT ON THE SIDEWALK, I.E. IF THE LANDING AREA "CLEAR SPACE" IS IN THE ROADWAY.
- 4'x4' LANDINGS ARE REQUIRED AT EVERY ACCESSIBLE PEDESTRIAN SIGNAL/PUSHBUTTON LOCATION.

9. NON-WALK SURFACES
- NON-WALK AREA IS AN OBSTRUCTION OR GRASS/NON-PAVED AREA ADJACENT TO THE PEDESTRIAN ACCESS ROUTE THAT IS NOT USED BY THE PEDESTRIAN FOR ACCESS.

10. PEDESTRIAN PUSHBUTTONS
- THE DETAILS DEPICT PEDESTRIAN PUSHBUTTON POLES TO ILLUSTRATE THE RECOMMENDED PLACEMENT OF PEDESTRIAN PUSHBUTTONS. FOR ALTERATION PROJECTS, PROVIDE ACCESS TO EXISTING PEDESTRIAN PUSHBUTTONS TO THE MAXIMUM EXTENT FEASIBLE. INSTALL PEDESTRIAN PUSHBUTTON STUB POLES, WHERE APPLICABLE, SO AS NOT TO CREATE PEDESTRIAN OBSTRUCTIONS.
- NEW CONSTRUCTION MUST COMPLY WITH RECOMMENDED LOCATIONS FOR ALTERATION PROJECTS LOCATE PEDESTRIAN PUSHBUTTONS, TO THE MAXIMUM EXTENT FEASIBLE (SEE 2009 MUTCD FIG 4E-3)
- ADJACENT TO A LEVEL NON-SLIP SURFACE TO PROVIDE ACCESS FROM A WHEELCHAIR, AND WHERE THERE IS A NON-SLIP WHEELCHAIR ACCESSIBLE ROUTE TO THE RAMP
- WITHIN 5'-0" OF THE CROSSWALK EXTENDED
- BETWEEN 1'-6" AND 10'-0" OF THE EDGE OF CURB, SHOULDER OR PAVEMENT
- PARALLEL TO THE CROSSWALK TO BE USED
- MOUNT PEDESTRIAN PUSHBUTTON 42" ABOVE THE SIDEWALK OR FINISHED GRADE TO THE CENTER OF THE PUSHBUTTON AND 10" MAXIMUM LATERALLY FROM LANDING. IN ADDITION, THE PEDESTRIAN PUSHBUTTON MUST ALSO BE 5'-0" MINIMUM DISTANCE FROM THE CURB RAMP AND 2'-0" MINIMUM DISTANCE BETWEEN A CATCH BASIN AND THE PEDESTRIAN PUSHBUTTON.

11. SIDE FLARES
- ALL SLOPES ARE MEASURED WITH RESPECT TO A LEVEL PLANE. THEREFORE, THE LENGTH OF RAMP IS NOT SOLELY DEPENDANT ON THE HEIGHT OF CURB. (FOR EXAMPLE, A 6" CURB DOES NOT NECESSARILY MEAN A RAMP LENGTH OF 6'-0" FOR A 12:1 SLOPE.
- SIDE FLARES 10.00% MAXIMUM SLOPE WHERE THE PEDESTRIAN PATH CROSSES THE CURB RAMP
- SIDE FLARES MUST BE PARALLEL TO THE CURB LINE
- CURB RAMP AND SIDE FLARE LENGTHS ARE VARIABLE AND BASED ON CURB HEIGHT AND THE SIDEWALK SLOPE
- GRADE GRASS AREAS OR OTHER NON-WALK AREAS AT 3:1 (1:3) MAXIMUM. DO NOT INSTALL CHEEK WALLS THAT INTERSECT THE PEDESTRIAN ACCESS ROUTE
- SIDE FLARE WIDTH IS TYPICALLY 24" AND A MINIMUM OF 12".

12. SIDEWALKS
- NOTE THE AREA CONSIDERED TO BE THE "PEDESTRIAN ACCESSIBLE ROUTE"
- THE MAXIMUM SIDEWALK CROSS SLOPE IS 2.00% (MEASURED PERPENDICULAR TO THE DIRECTION OF TRAVEL). THE MAXIMUM GRADE IS 5.00%. FOR SIDEWALKS ALONG STREETS; HOWEVER, THE LONGITUDINAL GRADE OF THE SIDEWALK SHOULD BE CONSISTENT WITH THE GRADE OF THE ADJACENT ROADWAY. IF THE 5.00% GRADE IS NOT FEASIBLE DUE TO TOPOGRAPHY AND OTHER PHYSICAL CONSTRAINTS, THE LOWEST PRACTICAL GRADE GREATER THAN 5.00% SHOULD BE USED
- SIDEWALK WIDTH MAY BE REDUCED TO 4'-0", WHEN PASSING AREAS 5'-0" X 5'-0" ARE PROVIDED EVERY 200'.

13. TRAVEL LANES
- THE TRAVEL LANE IS DEFINED BY THE OUTSIDE EDGE OF THE WHITE PAVEMENT MARKING LINE. IF A WHITE PAVEMENT MARKING LINE DOES NOT EXIST, THE TRAVEL LANE IS DEFINED BY THE CONTRACT DOCUMENTS.

14. MODIFY CONSTRUCTION DETAILS TO ADAPT DIMENSIONS TO EXISTING CURB HEIGHTS WHERE THE CURB IS LESS OR MORE THAN THE STANDARD 6" HEIGHT.

15. CONSTRUCTION MUST MEET THE STANDARDS CONTAINED HEREIN UNLESS OTHERWISE NOTED OR DIRECTED.

16. PREFERRED AND ALTERNATE TREATMENTS SHOULD NOT BE INTERMIXED WITHIN THE SAME INTERSECTION.

17. ALL HANDICAP RAMPS CONSTRUCTED IN THIS CONTRACT SHALL MEET ACCESSIBILITY REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT.

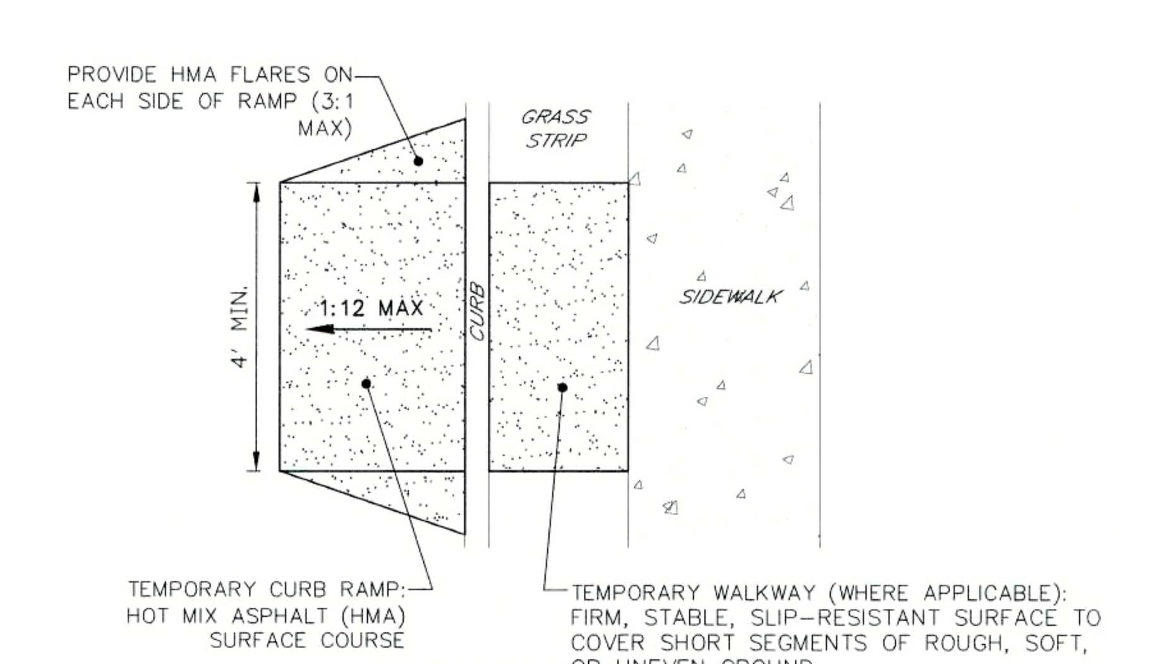
18. THE CONTRACTOR IS REQUIRED TO CONTACT THE TRAFFIC ENGINEERING DEPARTMENT ABOUT THE CONSTRUCTION OF ALL HANDICAP CURB RAMPS AT SIGNALIZED INTERSECTIONS AND VERIFY THE STRIPING PLAN IS IN ACCORDANCE WITH THE MOST RECENT NO PASSING ZONE PLAN.

19. GRADE BREAKS
- GRADE BREAKS AT THE TOP AND BOTTOM OF THE CURB RAMP SHALL BE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN.
- GRADE BREAKS ARE NOT PERMITTED ON THE SURFACE OF RAMP RUNS OR LANDING AREAS.
- SURFACE SLOPES THAT MEET AT THE GRADE BREAKS SHALL BE FLUSH.

20. FOR NEW CONSTRUCTION AND ALTERATIONS, CONSTRUCT CURB RAMP AND FLARE SLOPES WITH THE FLATTEST SLOPE POSSIBLE.

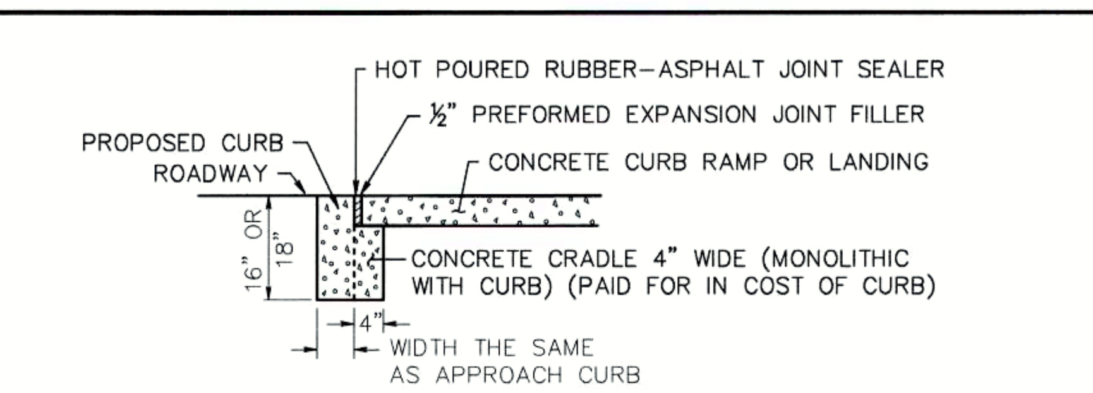
21. ALL VERTICAL SURFACE DISCONTINUITIES SHALL NOT EXCEED 1/4" IN HEIGHT. ANY VERTICAL SURFACE DISCONTINUITY BETWEEN 1/4" AND 1/2" SHALL BE BEVELED AT A SLOPE NO GREATER THAN 50% ACROSS THE ENTIRE DISCONTINUITY.

22. HORIZONTAL OPENINGS IN GRATES AND JOINTS SHALL NOT EXCEED 1/2" IN DIAMETER AND THE GRATES SHALL BE PLACED SO THE LONG DIMENSION IS PERPENDICULAR TO THE DIRECTION OF TRAVEL.

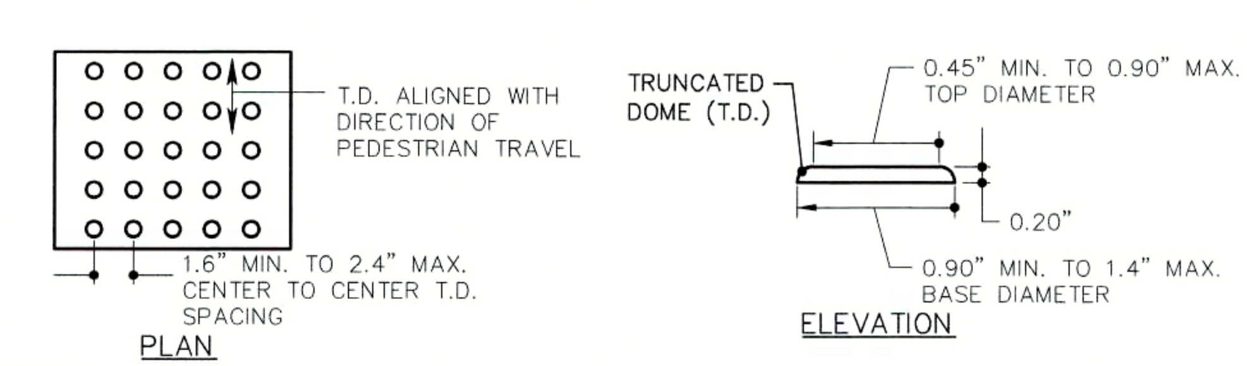


TEMPORARY CURB RAMP (HOT MIX ASPHALT)

N.T.S.



DROPPED CURB AND CRADLE



NOTES:
1. DETECTABLE WARNING SURFACE (DWS) SHALL EXTEND FULL WIDTH OF CURB RAMP (EXCLUSIVE OF FLARES) OR FULL WIDTH OF LANDING/TURNING SPACE.
2. DWS SHALL EXTEND 2 FEET MINIMUM IN THE DIRECTION OF PEDESTRIAN TRAVEL.
3. DWS SHOULD BE COLORED AS FOLLOWS:
   a. WITHIN TOWNSHIP/COUNTY RIGHT OF WAY, COLOR SHALL CONTRAST VISUALLY WITH ADJACENT SURFACES, EITHER LIGHT ON DARK OR DARK ON LIGHT, OR AS PER SPECIFIED REQUIREMENTS.
   b. WITHIN STATE RIGHT OF WAY, USE A SURFACE OR A COATING MATERIAL THAT IS SAFETY RED IN COLOR ACCORDING TO FED-STD-595B COLOR CHIP NO. 31350 AND HAS A 35 BPM MINIMUM SLIP RESISTANCE WHEN TESTED ACCORDING TO ASTM R 303. ENSURE THAT THE FINISHED PRODUCT IS STABILIZED AGAINST UV DEGRADATION AND ADHERES TO THE SUBSTRATE WITHOUT PEELING OR BLISTERING.
4. TYPICALLY, DWS SHALL BE PLACED ADJACENT TO BACK OF CURB. SEE "PLACEMENT OF DETECTABLE WARNING SURFACE ON CURB RADIUS" FOR EXCEPTIONS.

DETECTABLE WARNING SURFACE

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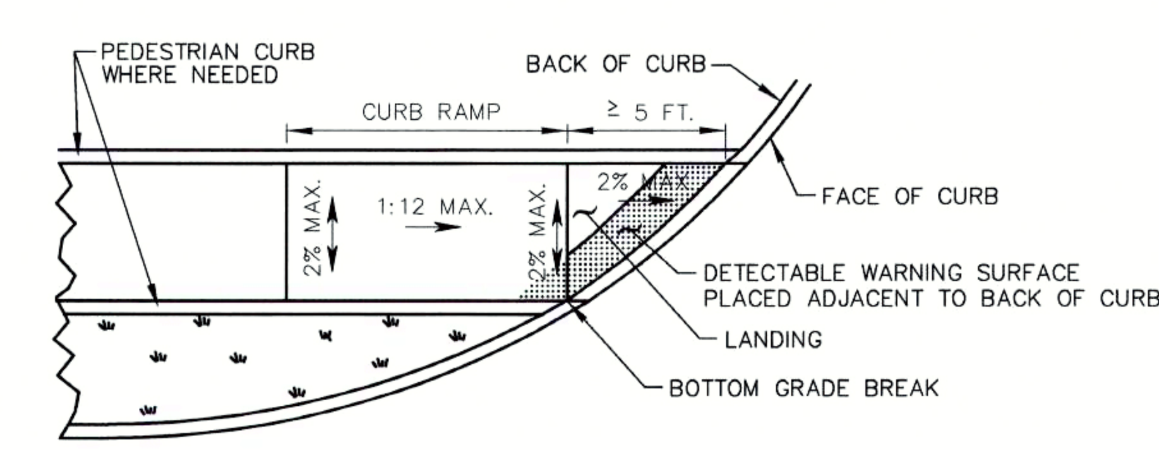
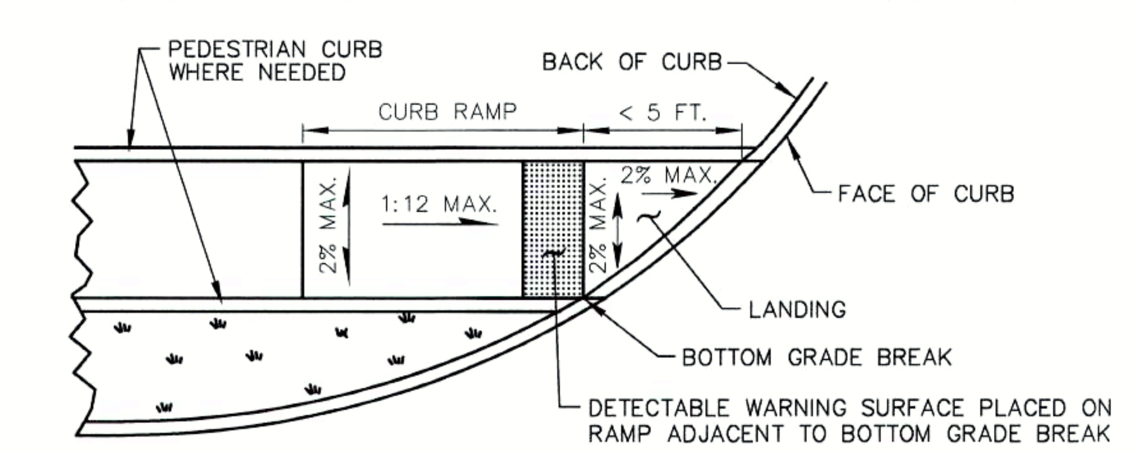


CONDITION 1
FOR RAMPS INTERSECTING A CURB RADIUS AT A SKEWED ANGLE WHERE AT LEAST ONE END OF BOTTOM GRADE BREAK IS GREATER THAN OR EQUAL TO 5 FEET FROM BACK OF CURB: DETECTABLE WARNING SURFACE SHALL BE PLACED ADJACENT TO BACK OF CURB.



CONDITION 2
FOR RAMPS INTERSECTING A CURB RADIUS AT A SKEWED ANGLE WHERE BOTH ENDS OF BOTTOM GRADE BREAK ARE LESS THAN 5 FEET FROM BACK OF CURB: DETECTABLE WARNING SURFACE SHALL BE PLACED ON THE RAMP ADJACENT TO BOTTOM GRADE BREAK.

PLACEMENT OF DETECTABLE WARNING SURFACE ON CURB RADIUS

N.T.S.

CONSTRUCTION DETAIL NOTES

1. ALL TRAFFIC SIGNS AND PAVEMENT MARKINGS SHALL CONFORM TO THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. ALL CONSTRUCTION DETAILS SHALL BE SUPERCEDED BY APPLICABLE MUNICIPAL, COUNTY OR STATE DETAILS UNLESS OTHERWISE NOTED.
3. STRUCTURAL DETAILS ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. SHOP DRAWINGS SHALL BE PROVIDED TO THE TOWNSHIP ENGINEER FOR ALL WALLS AND STRUCTURAL ELEMENTS PRIOR TO CONSTRUCTION.
4. SHOP DRAWINGS SHALL BE PROVIDED FOR ALL PRECAST STRUCTURES PRIOR TO THE ORDERING OF MATERIALS.
5. DETAILS ASSUME APPROPRIATE LOAD BEARING CAPACITY AND COMPACTION OF SOILS. ACTUAL FIELD CONDITIONS SHALL BE CONFIRMED BY ON-SITE GEOTECHNICAL ENGINEER.
6. RESIDENTIAL DEVELOPMENTS SHALL CONFORM TO DETAILS WITHIN THE CURRENT EDITION OF THE RESIDENTIAL SITE IMPROVEMENT STANDARDS (R.S.I.S.).
7. ALL CONSTRUCTION DETAILS ARE NOT TO SCALE (N.T.S.) UNLESS OTHERWISE NOTED.

REVISIONS	
1) SITE PLAN REVS.	10/04/21

THIS DRAWING IS FOR PERMIT PURPOSES ONLY

NOT FOR CONSTRUCTION UNTIL THIS BOX HAS BEEN CHECKED AND DATED

☐ CHKD BY: _____ DATE: _________

1-800-272-1000 or 811 STOP CALL BEFORE YOU DIG!

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

menlo engineering associates
Civil Engineering Consultants
Landscape Architects
Professional Planners
261 Cleveland Avenue
Highland Park, NJ 08904
menloeng.com
732-846-8585 732-846-9439
Certificate of Authorization : 24GA27951900

LIVINGSTON WAREHOUSE

TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY
NEW JERSEY

BLOCK 140.01
LOTS 5.02 & 7.01
TAX MAP SHEET 30
21.03 ACRES

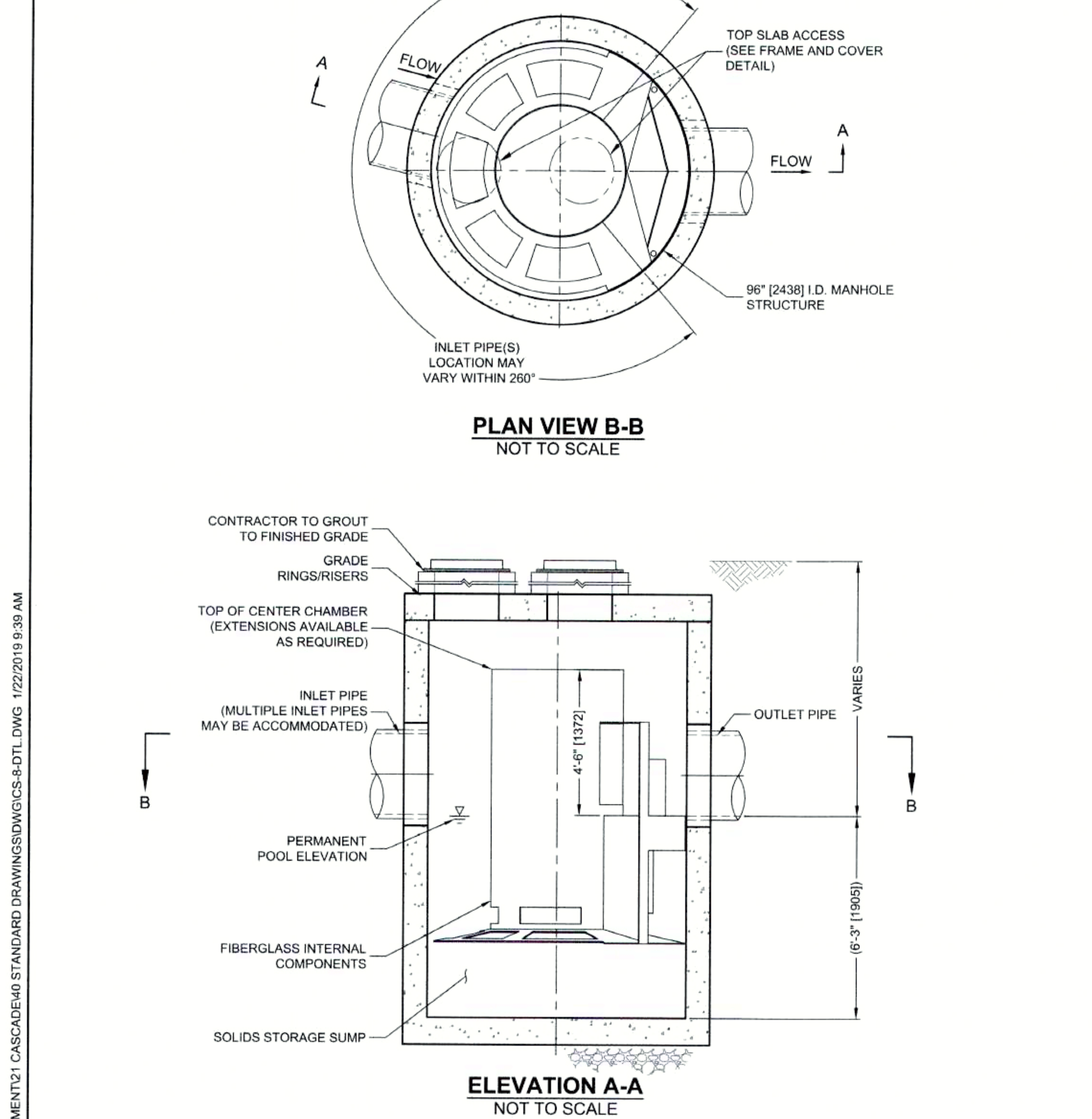
CONSTRUCTION DETAILS (1)

DRAWN BY	RM
DESIGNED BY	RJG
APPROVED BY	GSO

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

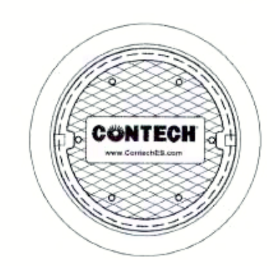
PROJECT NUMBER	2018.047.02	DE-1
DATE OF ISSUE	FEBRUARY 12, 2021	17
REVISION 1	OCTOBER 4, 2021	



CASCADE SEPARATOR DESIGN NOTES

THE STANDARD CS-8 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES



FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			A2
WATER QUALITY FLOW RATE (cfs [L/s])			6.39
PEAK FLOW RATE (cfs [L/s])			16.55
RETURN PERIOD OF PEAK FLOW (yrs)			25
RIM ELEVATION			121.25
PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1	115.60	RCP	36"
INLET PIPE 2			
OUTLET PIPE	115.60	RCP	36"
NOTES / SPECIAL REQUIREMENTS:			

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' [610], AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

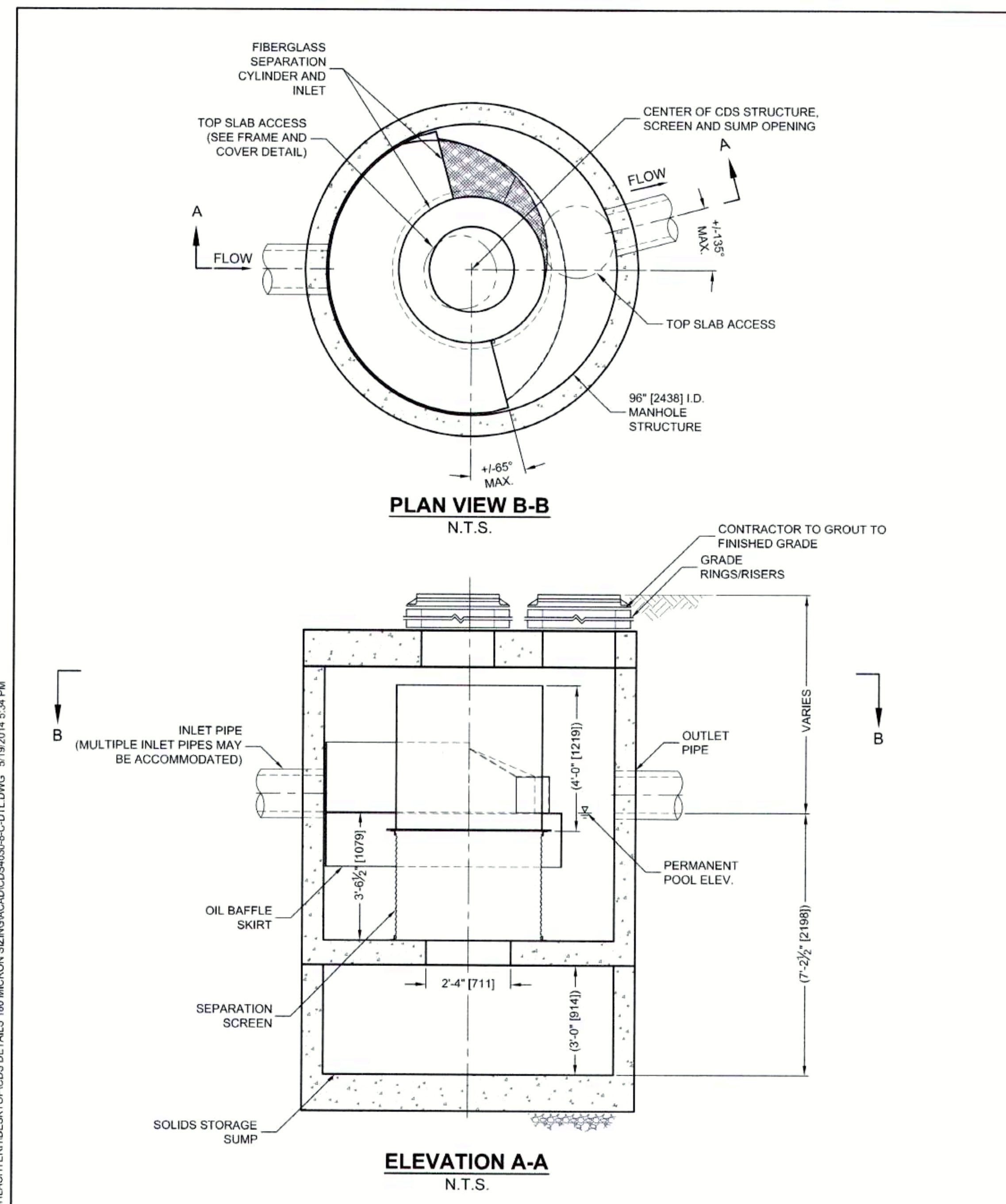
INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CASCADE separator™

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CS-8
CASCADE SEPARATOR
STANDARD DETAIL

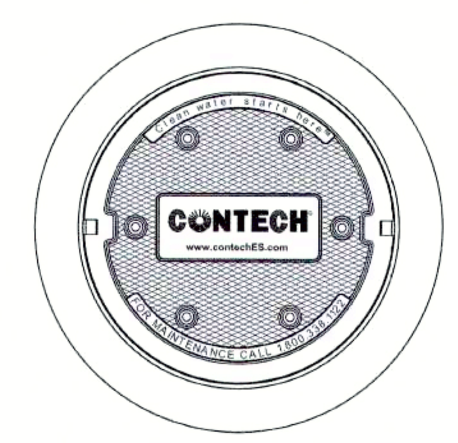
WATER QUALITY STRUCTURE A2
N.T.S.



CDS4030-8-C DESIGN NOTES

THE STANDARD CDS4030-8-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES
SEPARATE OIL BAFFLE (SINGLE INLET PIPE REQUIRED FOR THIS CONFIGURATION)
SEDIMENT WEIR FOR NJDEP / NJCAT CONFORMING UNITS



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			D2
WATER QUALITY FLOW RATE (CFS OR L/s)			2.67
PEAK FLOW RATE (CFS OR L/s)			7.43
RETURN PERIOD OF PEAK FLOW (YRS)			25
SCREEN APERTURE (2400 OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	115.75	RCP	30"
INLET PIPE 2	*	*	*
OUTLET PIPE	115.75	RCP	30"
RIM ELEVATION			121.00
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECHENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

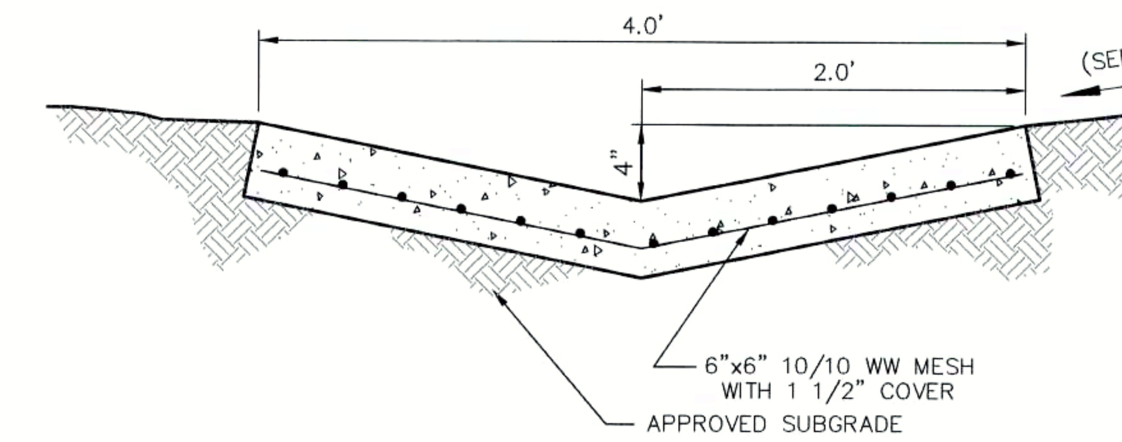
INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS4030-8-C
INLINE CDS
STANDARD DETAIL

WATER QUALITY STRUCTURE D2
N.T.S.

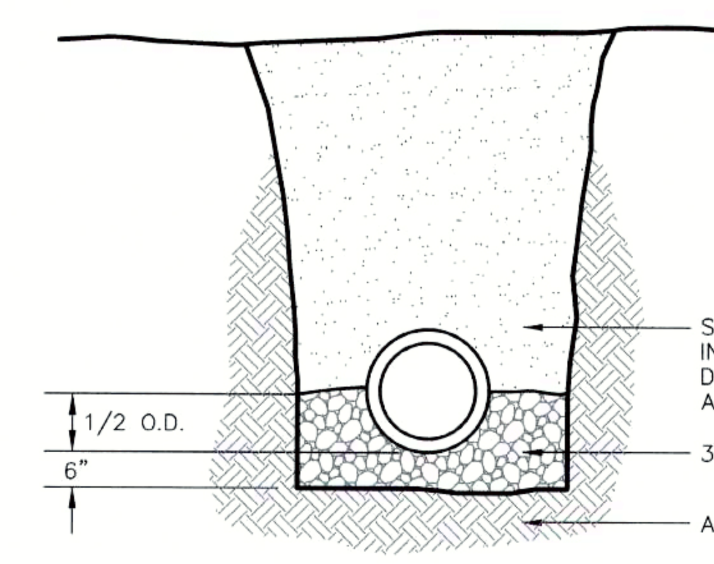
NOTES:
1) 4" THICK 3000PSI CONCRETE (TROWEL FINISH)
2) EXPANSION JOINTS TO BE LOCATED A MAXIMUM OF 20' O.C.
3) EXPANSION MATERIAL TO BE PREMOLDED, ASPHALT IMPREGNATED, 1/2" THICK.



CONCRETE LOW FLOW CHANNEL
N.T.S.

GENERAL NOTES:
1) ALL CONSTRUCTION SHALL MEET STANDARD DOT SPECIFICATIONS, THE LATEST EDITION.
2) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST OSHA STANDARDS.

PIPE DIAMETER	TRENCH WIDTH
4"	2'-0"
6"	2'-0"
8"	2'-6"
10"	3'-0"
12"	3'-0"
15"	3'-6"
18"	3'-6"
21"	4'-0"
24"	4'-0"
27"	4'-0"
30"	4'-0"
33"	4'-6"
36"	4'-6"
42"	5'-6"
48"	6'-0"
54"	6'-0"



(STORM SEWER)
TRENCH DETAIL 'A'
N.T.S.

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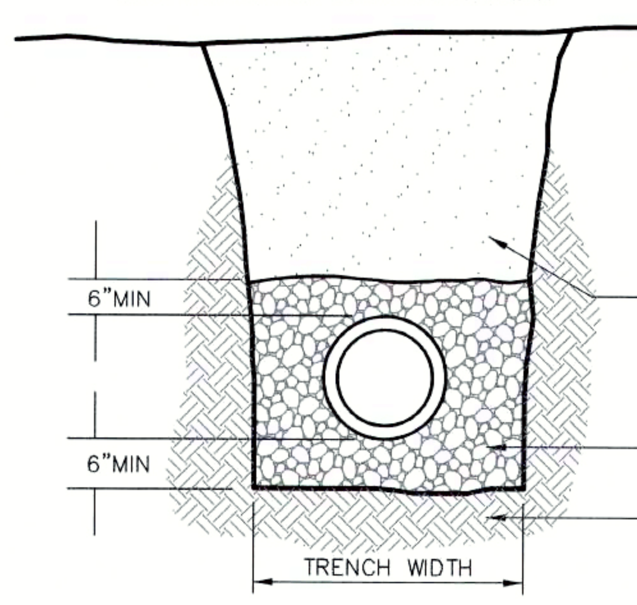

(SANITARY SEWER)
TRENCH DETAIL 'A'
N.T.S.

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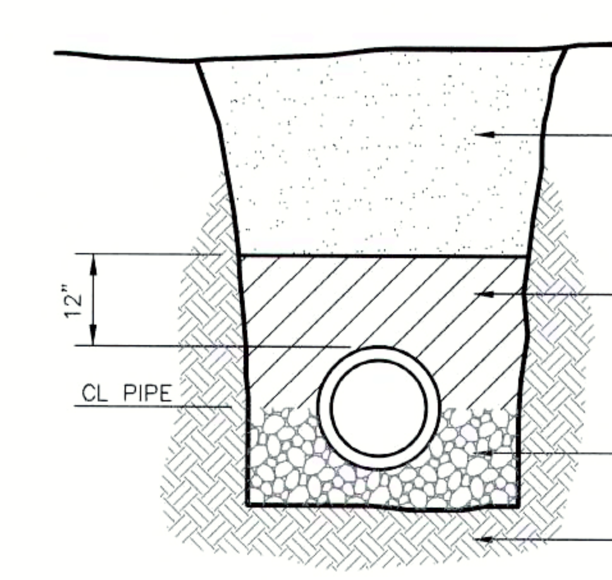
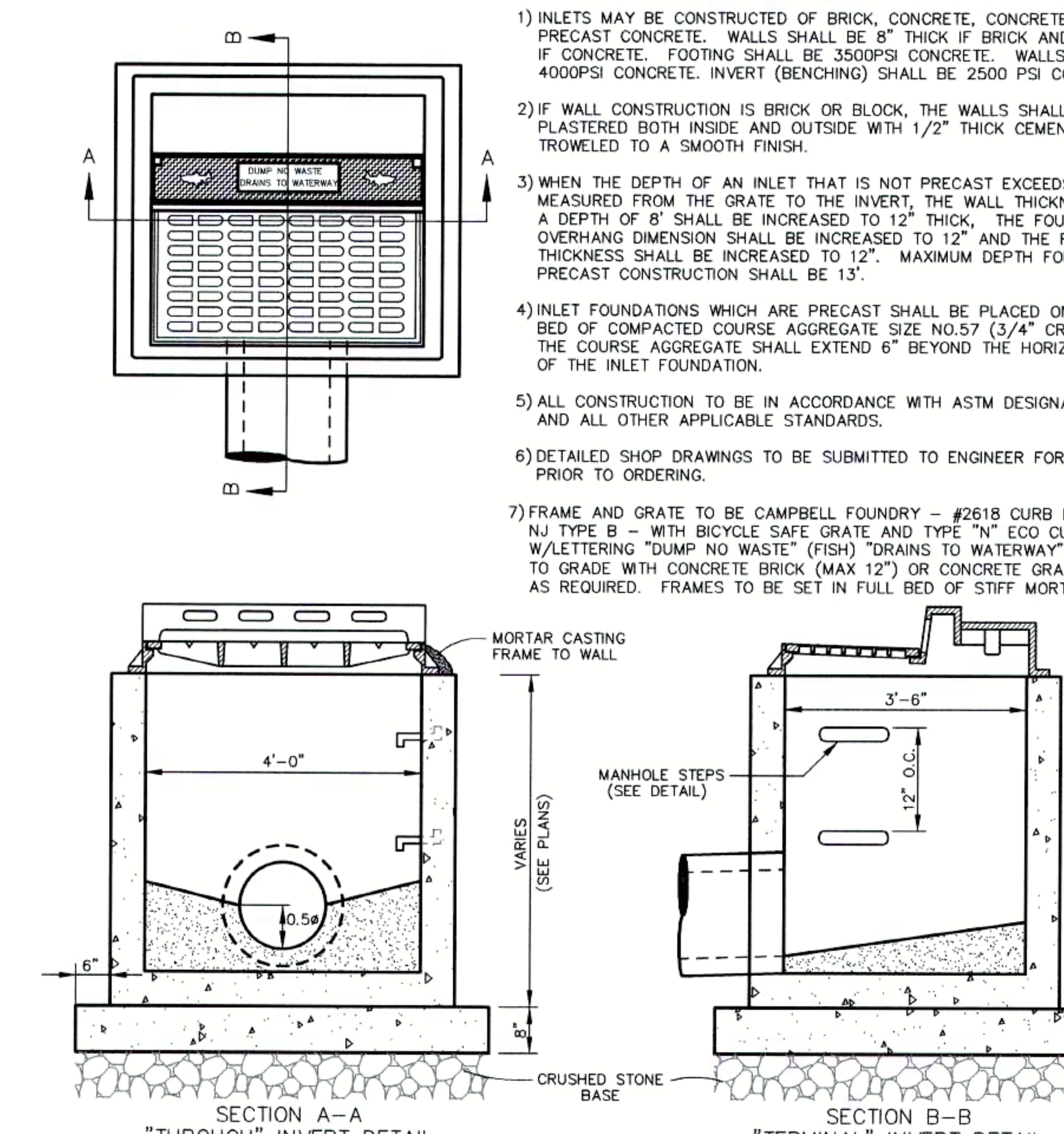


(WATER MAIN)
TRENCH DETAIL 'C'
N.T.S.

GENERAL NOTES:
1) INLETS MAY BE CONSTRUCTED OF BRICK, CONCRETE, CONCRETE BLOCK OR PRECAST CONCRETE. WALLS SHALL BE 8" THICK IF BRICK AND 6" THICK IF CONCRETE. FOOTING SHALL BE 3500PSI CONCRETE. WALLS SHALL BE 4000PSI CONCRETE. INVERT (BENCHING) SHALL BE 2500 PSI CONCRETE.
2) IF WALL CONSTRUCTION IS BRICK OR BLOCK, THE WALLS SHALL BE PLASTERED BOTH INSIDE AND OUTSIDE WITH 1/2" THICK CEMENT PLASTER TROWELED TO A SMOOTH FINISH.
3) WHEN THE DEPTH OF AN INLET THAT IS NOT PRECAST EXCEEDS 8' AS MEASURED FROM THE GRATE TO THE INVERT, THE WALL THICKNESS BELOW A DEPTH OF 8' SHALL BE INCREASED TO 12" THICK, THE FOUNDATION OVERHANG DIMENSION SHALL BE INCREASED TO 12" AND THE FOUNDATION THICKNESS SHALL BE INCREASED TO 12". MAXIMUM DEPTH FOR NON-PRECAST CONSTRUCTION SHALL BE 13'.
4) INLET FOUNDATIONS WHICH ARE PRECAST SHALL BE PLACED ON A 6" THICK BED OF COMPACTED COURSE AGGREGATE SIZE NO.57 (3/4" CRUSHED STONE). THE COURSE AGGREGATE SHALL EXTEND 6" BEYOND THE HORIZONTAL LIMITS OF THE INLET FOUNDATION.
5) ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ASTM DESIGNATION C478 AND ALL OTHER APPLICABLE STANDARDS.
6) DETAILED SHOP DRAWINGS TO BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO ORDERING.
7) FRAME AND GRATE TO BE CAMPBELL FOUNDRY – #2618 CURB INLET – NJ TYPE B – WITH BICYCLE SAFE GRATE AND TYPE "N" ECO CURB PIECE W/LETTERING "DUMP NO WASTE" (FISH) "DRAINS TO WATERWAY". ADJUST TO GRADE WITH CONCRETE BRICK (MAX 12") OR CONCRETE GRADE RING AS REQUIRED. FRAMES TO BE SET IN FULL BED OF STIFF MORTAR.



TYPE "B" INLET
N.T.S.

GENERAL NOTES:
1) INLETS MAY BE CONSTRUCTED OF BRICK, CONCRETE, CONCRETE BLOCK OR PRECAST CONCRETE. WALLS SHALL BE 8" THICK IF BRICK AND 6" THICK IF CONCRETE. FOOTING SHALL BE 3500PSI CONCRETE. WALLS SHALL BE 4000PSI CONCRETE. INVERT (BENCHING) SHALL BE 2500 PSI CONCRETE.
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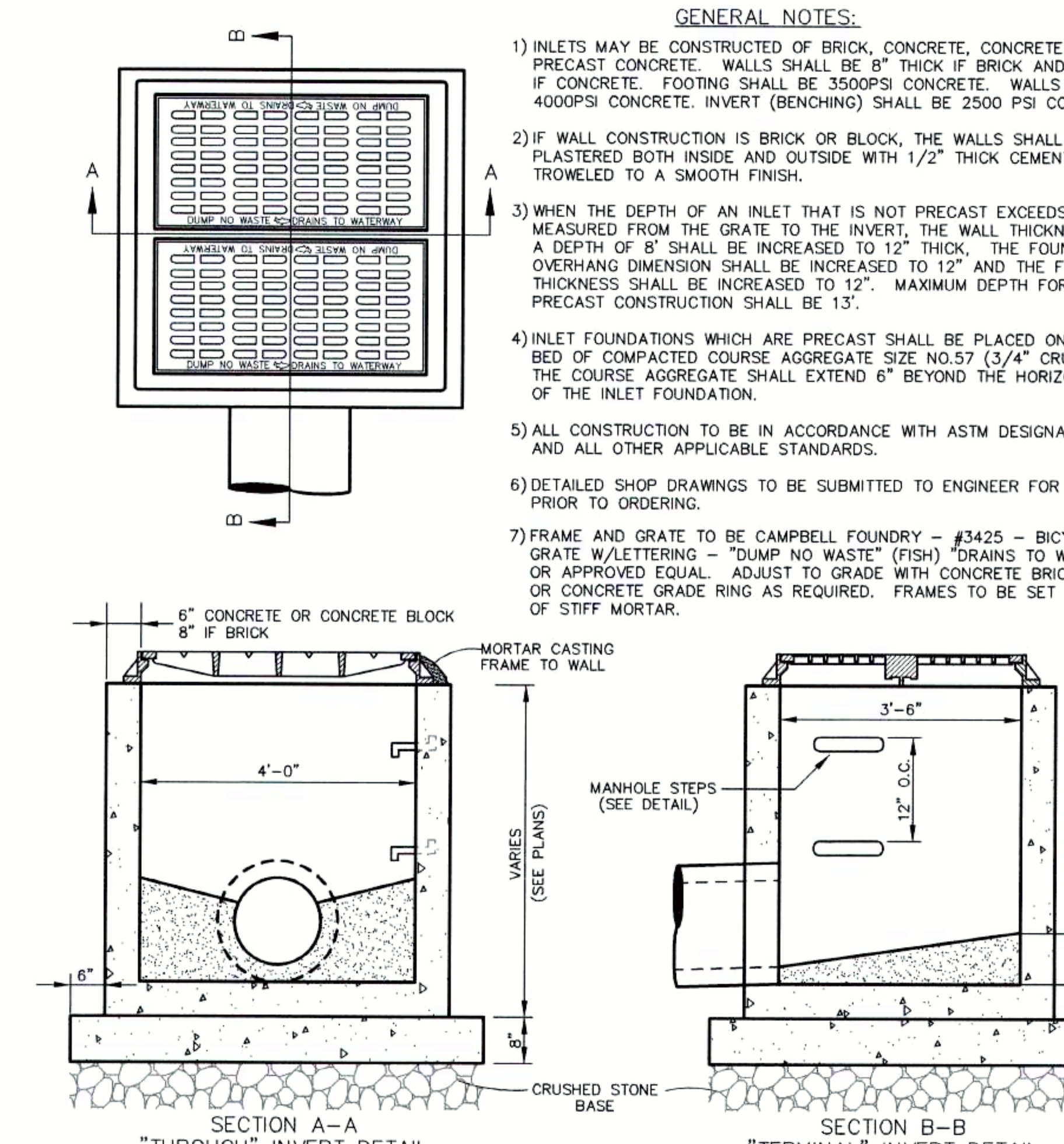
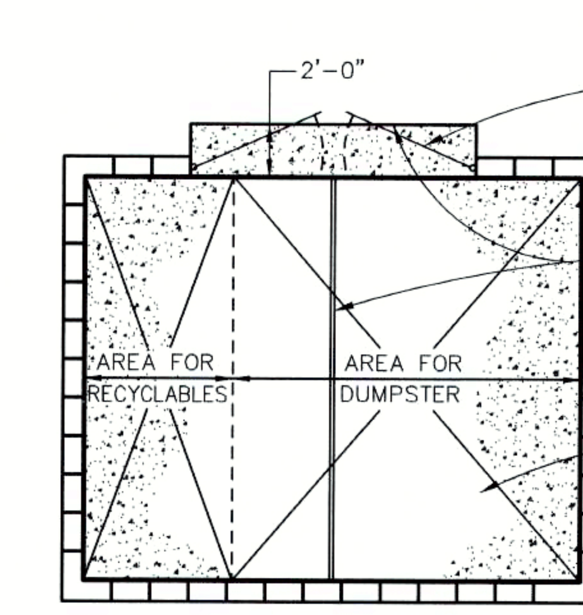
5) ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ASTM DESIGNATION C478 AND ALL OTHER APPLICABLE STANDARDS.
6) DETAILED SHOP DRAWINGS TO BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO ORDERING.
7) FRAME AND GRATE TO BE CAMPBELL FOUNDRY – #3425 – BICYCLE SAFE GRATE W/LETTERING – "DUMP NO WASTE" (FISH) "DRAINS TO WATERWAY" OR APPROVED EQUAL. ADJUST TO GRADE WITH CONCRETE BRICK (MAX 12") OR CONCRETE GRADE RING AS REQUIRED. FRAMES TO BE SET IN FULL BED OF STIFF MORTAR.



TYPE "E" INLET
N.T.S.



DUMPSTER/RECYCLABLE PAD DETAIL
N.T.S.

CONSTRUCTION DETAIL NOTES

1. ALL TRAFFIC SIGNS AND PAVEMENT MARKINGS SHALL CONFORM TO THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. ALL CONSTRUCTION DETAILS SHALL BE SUPERCEDED BY APPLICABLE MUNICIPAL, COUNTY OR STATE DETAILS UNLESS OTHERWISE NOTED.
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4. SHOP DRAWINGS SHALL BE PROVIDED FOR ALL PRECAST STRUCTURES PRIOR TO THE ORDERING OF MATERIALS.
5. DETAILS ASSUME APPROPRIATE LOAD BEARING CAPACITY AND COMPACTION OF SOILS. ACTUAL FIELD CONDITIONS SHALL BE CONFIRMED BY ON-SITE GEOTECHNICAL ENGINEER.
6. RESIDENTIAL DEVELOPMENTS SHALL CONFORM TO DETAILS WITHIN THE CURRENT EDITION OF THE RESIDENTIAL SITE IMPROVEMENT STANDARDS (R.S.I.S.).
7. ALL CONSTRUCTION DETAILS ARE NOT TO SCALE (N.T.S.) UNLESS OTHERWISE NOTED.

REVISIONS	
1) SITE PLAN REVS.	10/04/21

THIS DRAWING IS FOR PERMIT PURPOSES ONLY

NOT FOR CONSTRUCTION UNTIL THIS BOX HAS BEEN CHECKED AND DATED

☐ CHKD BY: ____ DATE: ______

STOP CALL BEFORE YOU DIG! 1-800-272-1000 or 811

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LIVINGSTON WAREHOUSE

TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY
NEW JERSEY

BLOCK 140.01
LOTS 5.02 & 7.01
TAX MAP SHEET 30
21.03 ACRES

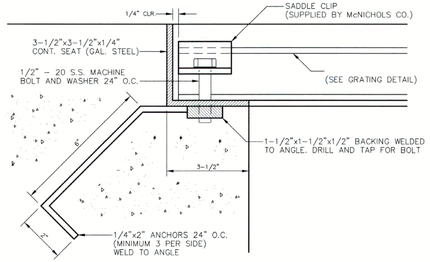
CONSTRUCTION DETAILS (2)

DRAWN BY .... RM
DESIGNED BY .... RJG
APPROVED BY .... GSO

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

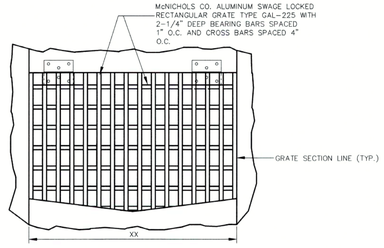
GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.02	DE-2
DATE OF ISSUE	FEBRUARY 12, 2021	18
REVISION 1	OCTOBER 4, 2021	

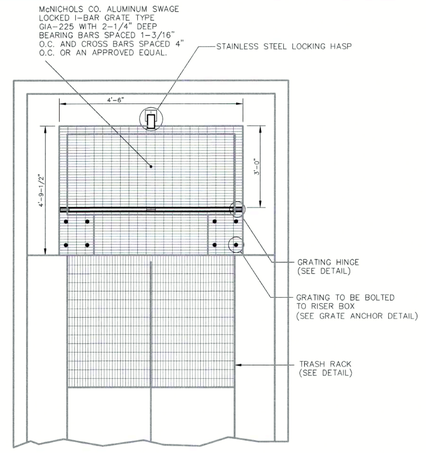


GRATING ANCHOR DETAIL

N.T.S.

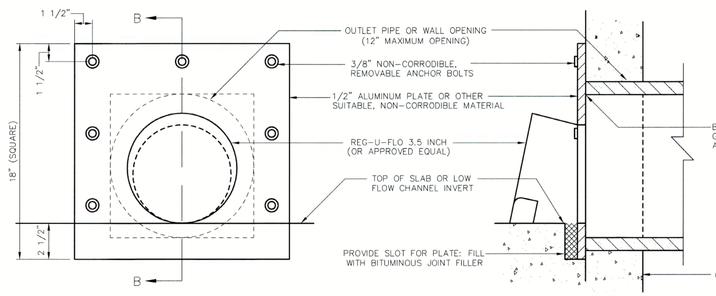


FRONT VIEW



RISER BOX GRATING DETAIL

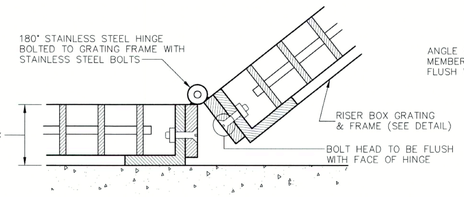
N.T.S.



FRONT VIEW SECTION B-B

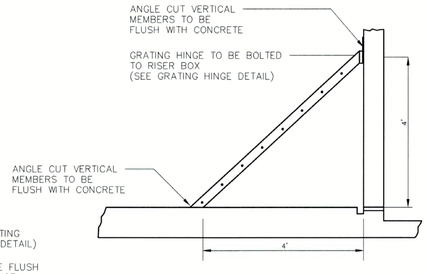
REG-U-FLO 3.5 INCH DETAIL

N.T.S.



GRATING HINGE DETAIL

N.T.S.

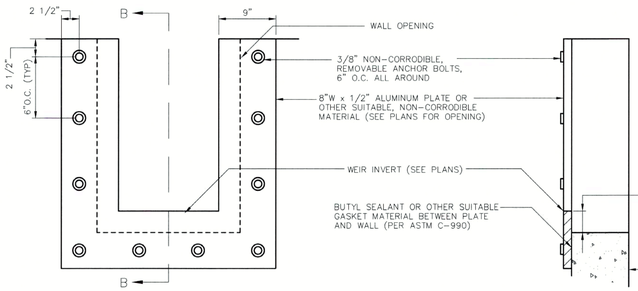


SECTION

NOTES:
1) ALUMINUM TO BE 6061-T6 GRADE. ALL WELDED CONSTRUCTION.
2) SUITABLE TRASH RACK OF SIMILAR DIMENSION MAY BE SUBSTITUTED.

TRASH RACK FOR ORIFICE

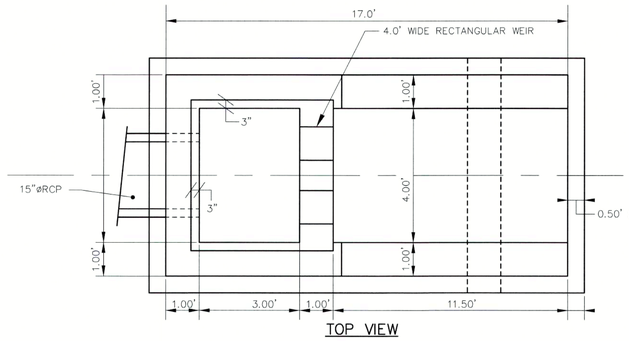
N.T.S.



FRONT VIEW SECTION B-B

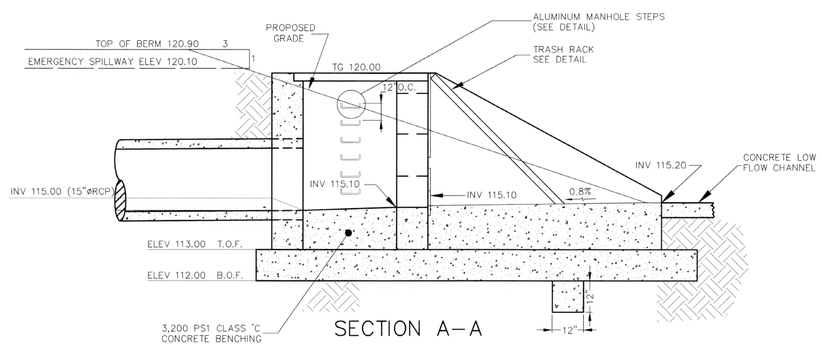
WEIR PLATE DETAIL

N.T.S.



TOP VIEW

GENERAL NOTES:
1) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MOST RECENT N.J. DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND SUPPLEMENTS.
2) ALL CONCRETE SHALL HAVE A MIN. 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI. ALLOWABLE EXTREME FIBER STRESS IN COMPRESSION SHALL BE 1,200 PSI.
3) ALL CONCRETE SHALL BE PLACED ON FIRM UNDISTURBED SOIL.
4) ALL EXPOSED CONCRETE EDGES SHALL HAVE A 1 INCH, 45 DEGREE CHAMFER UNLESS OTHERWISES APPROVED.
5) ALL REINFORCING STEEL SHALL BE INTERMEDIATE GRADE, NEW DEFORMED BILLET-STEEL CONFORMING TO ASTM A615 (LATEST EDITION), GRADE 40 MIN. ALLOWABLE STRESS IN TENSION SHALL BE 20,000 PSI.
6) ALL REINFORCEMENT STEEL SPLICES SHALL BE MIN. 30 BAR DIAMETERS UNLESS OTHERWISE APPROVED.
7) FINAL REINFORCEMENT STEEL BAR LIST SHALL BE SUBMITTED PRIOR TO FINAL APPROVAL. ALL REINFORCEMENT SHALL BE SUITABLY SUPPORTED AND SECURELY HELD IN PLACE WHILE PLACING CONCRETE.
8) CONCRETE PLACING OPERATIONS SHALL NOT COMMENCE UNTIL FINAL INSPECTION AND APPROVAL OF ALL REINFORCEMENT HAS BEEN PERFORMED. ALL LOW FLOW CHANNELS SHALL BE CONSTRUCTED AS REQUIRED IN DETAILS.

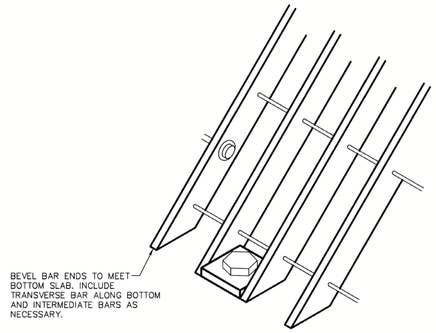


SECTION A-A

NOTE:
SEE GRADING & UTILITY PLANS
FOR FURTHER DETAIL

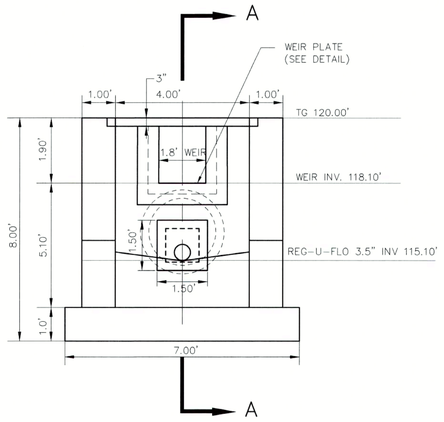
OUTLET CONTROL STRUCTURE DETAIL

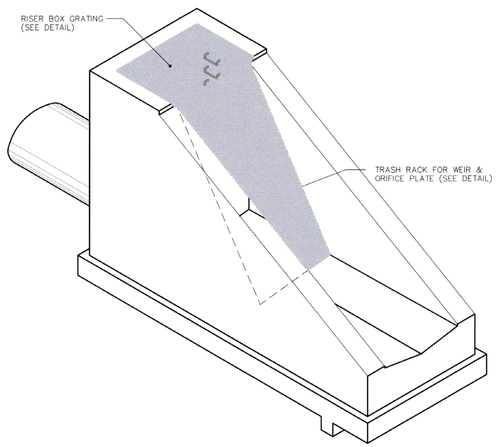
N.T.S.



TRASH RACK FOR ORIFICE DETAIL

N.T.S.





OUTLET CONTROL STRUCTURE ISOMETRIC VIEW

N.T.S.

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REVISIONS

1) SITE PLAN REVS.	10/04/21

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☐ CHKD BY:____ DATE:____

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TAX MAP SHEET 30
21.03 ACRES

CONSTRUCTION DETAILS (3)

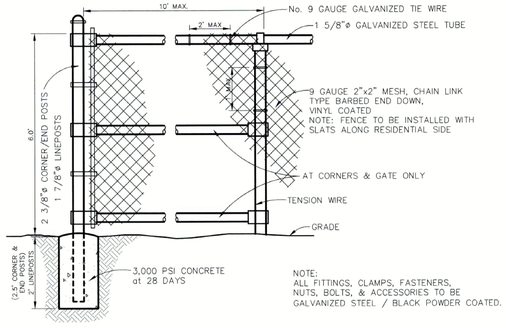
DRAWN BY	RM
DESIGNED BY	RJG
APPROVED BY	GSO

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.02	DE-3
DATE OF ISSUE	FEBRUARY 12, 2021	19
REVISION 1	OCTOBER 4, 2021	

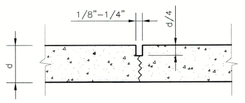
C:\Jobs\2018.047-Livingston Warehouse\2018.047-DETAILS.dwg PLOTTED: 10/4/2021 9:12 PM BY: SERGI AYUNA



6' CHAIN LINK FENCE DETAIL

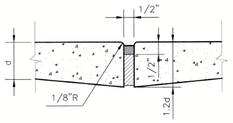
N.T.S.

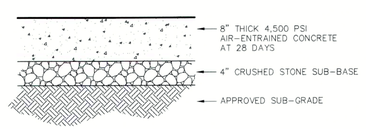
CONTROL (CONTRACTION) JOINTS



TRANSVERSE CONTRACTION OR LONGITUDINAL JOINT, SAWED OR PER-MOLDED. FILL WITH JOINT SEALANT.

ISOLATION (EXPANSION) JOINTS

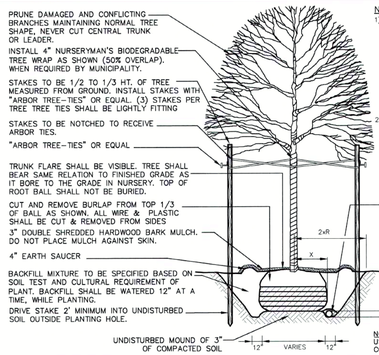




NOTE:
CONTRACTION JOINTS TO BE PLACED AT 90 FT O.C. MAX.
EXPANSION JOINTS TO BE PLACED AT 15 FT O.C. MAX. EACH WAY

CONCRETE PAVEMENT DETAIL

N.T.S.



DECIDUOUS TREE PLANTING DETAIL

N.T.S.

PLANTING NOTES

THE FOLLOWING RECOMMENDED PLANTING PERIODS SHOULD BE ADHERED TO WHENEVER POSSIBLE: 1) BROADLEAF AND CONIFEROUS EVERGREEN TREES, SHRUBS, VINES AND GROUND COVERS SHALL BE PLANTED BETWEEN AUGUST 15th AND SEPTEMBER 15th AND BETWEEN APRIL 15th AND MAY 15th. DECIDUOUS TREES, SHRUBS, VINES, GROUND COVERS AND PERENNIALS SHALL BE PLANTED BETWEEN OCTOBER 15th AND NOVEMBER 15th AND BETWEEN MARCH 15th AND MAY 15th. THESE PLANTING SEASONS MAY BE EXTENDED OR SHORTENED ACCORDING TO PREVAILING WEATHER CONDITIONS, SOIL CONDITIONS, AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE.

2) THE PLANTING OPERATION INCLUDES ALL LABOR, MATERIALS, PLANTS, EQUIPMENT, SHIPPING, INCIDENTALS AND CLEAN-UP BY THE CONTRACTOR FOR THE INSTALLATION OF THE ENTIRE LANDSCAPE PLAN.

3) THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLANTING AT CORRECT GRADES AND ALIGNMENT.

4) THE CONTRACTOR WILL EXAMINE ALL FIELD CONDITIONS FOR EXACT LOCATIONS OF UTILITIES, DRAINAGE SYSTEMS AND IRRIGATION SYSTEMS AND ADJUST PROPOSED PLANTINGS ACCORDINGLY. THE LANDSCAPE CONTRACTOR WILL BE RESPONSIBLE FOR THE PROPER DEPTH OF TOPSOIL IN ALL AREAS AND THE PROVISION OF POSITIVE DRAINAGE. THE CONTRACTOR SHALL NOTIFY THE CLIENT, ENGINEER, AND/OR LANDSCAPE ARCHITECT OF ANY DETRIMENTAL DRAINAGE HAZARD, INCLUDING BUT NOT LIMITED TO INSUFFICIENT TOPSOIL, ETC. PRIOR TO THE INSTALLATION OF ANY MATERIALS, INCLUDING LAWN AREAS.

5) THE CONTRACTOR WILL NOTIFY THE LANDSCAPE ARCHITECT IN WRITING OF ALL SOIL OR DRAINAGE CONDITIONS WHICH THE CONTRACTOR CONSIDERS DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL. STATE CONDITION AND SUBMIT A PROPOSAL FOR CORRECTION IF FEASIBLE.

6) PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY; HAVE NORMAL GROWTH HABITS; WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE FROM DEFECTS AND INJURIES. QUALITY AND SIZE OF PLANTS, SPREAD OR ROOTS, AND SIZE OF BALLS SHALL BE IN ACCORDANCE WITH THE MOST RECENT ANSI Z60 "AMERICAN STANDARD FOR NURSERY STOCK" AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.

7) PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES. PLANTS SHALL BE HANDLED FROM THE BOTTOM OF THE BALL ONLY.

8) GUARANTEE OF PLANT GROWTH: ALL PLANTS AND TREES SHALL BE GUARANTEED BY THE CONTRACTOR TO BE IN VIGOROUS GROWING CONDITION. PROVISION SHALL BE MADE FOR A GROWTH GUARANTEE OF AT LEAST ONE (1) YEAR FOR TREES AND SHRUBS FROM THE DATE OF FINAL ACCEPTANCE OR AS REQUIRED BY TOWNSHIP. REPLACEMENTS SHALL BE MADE AT THE BEGINNING OF THE FIRST SUCCEEDING PLANTING SEASON. ALL REPLACEMENTS SHALL HAVE A GUARANTEE EQUAL TO THE ABOVE STATED.

9) INSOFAR AS IT IS PRACTICAL, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THIS IS NOT POSSIBLE, THE CONTRACTOR SHALL PROTECT STOCK NOT PLANTED. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE (3) DAY PERIOD AFTER DELIVERY.

10) IF PLANT AVAILABILITY IS RESTRICTED, SUBSTITUTIONS MAY BE MADE WITHIN PLANT TYPE TO MAINTAIN SIMILAR GROWTH AND ORNAMENTAL QUALITIES UPON NOTIFICATION AND APPROVAL BY THE LANDSCAPE ARCHITECT.

11) PLANT LOCATIONS SHOWN ARE DIAGRAMMATIC. ALL PLANTS SHOWN SEMI-MATURE SIZE ON PLANS. THE STAKING LAYOUT OF ALL PLANTINGS WILL BE INSPECTED BY THE LANDSCAPE ARCHITECT PRIOR INSTALLATION AS REQUESTED BY OWNER.

12) AREAS DISTURBED BY LANDSCAPE OPERATIONS SHALL BE GRADED TO MATCH EXISTING. TOPSOIL AND SEED OR SOD AS REQUIRED.

13) NO PLANT, EXCEPT GROUND COVERS AND FOUNDATIONS PLANTS SHALL BE PLANTED LESS THAN TWO (2) FEET FROM EXISTING STRUCTURES AND SIDEWALKS.

14) ALL PLANTS SHALL BE PLANTED IN TOPSOIL THAT IS THOROUGHLY WATERED AND TAMPED AS BACKFILLING PROGRESSES. NOTHING BUT SUITABLE TOPSOIL FREE OF DRY SOD, STIFF CLAY, LITTER, STONES IN EXCESS OF 1"ø, ETC., SHALL BE USED FOR PLANTING.

15) SET ALL PLANTS PLUMB AND STRAIGHT, SET AT SUCH LEVEL THAT, AFTER SETTLEMENT, A NORMAL OR NATURAL RELATIONSHIP TO THE CROWN OF THE PLANT WITH THE GROUND SURFACE WILL BE ESTABLISHED. LOCATE PLANT THE CENTER OF THE PIT.

16) IT IS ADVISABLE TO PRUNE APPROXIMATELY 1/3 OF THE GROWTH OF LARGE TREES (2" CALIPER AND OVER) BY THE REMOVAL OF SUPERFLUOUS BRANCHES, THOSE WHICH CROSS, THOSE WHICH RUN PARALLEL, ETC. MAIN LEADER TO TREES MUST NOT BE CUT BACK. LONG SIDE BRANCHES, HOWEVER, MUST BE SHORTENED. TREES WITH THE CENTRAL LEADER PRUNED WILL BE REJECTED.

17) EACH TREE AND SHRUB SHALL BE PRUNED IN ACCORDANCE WITH STANDARD HORTICULTURAL PRACTICE TO PRESERVE NATURAL CHARACTER OF PLANT. PRUNING SHALL BE DONE WITH CLEAN, SHARP TOOLS.

18) ALL TREES SHALL BE SUPPORTED IMMEDIATELY AFTER PLANTING. ALL TREES SIX (6) INCHES AND OVER IN CALIPER SHALL BE TIED, WHILE SMALLER TREES SHALL BE STAKED. ARBOR TREE TIES AND STAKES SHALL BE INSTALLED AS INDICATED. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ARBOR TREE TIES ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE.

19) THE TRUNKS OF ALL TREES SHALL BE WRAPPED AS SOON AS POSSIBLE AFTER PLANTING ACCORDING TO STANDARD PROCEDURES AND IF REQUIRED BY TOWNSHIP.

20) MULCH FOR PLANTING BEDS SHALL BE DOUBLE SHREDDED HARDWOOD BARK MULCH UNLESS OTHERWISE SPECIFIED ON THE PLANS AND SHALL HAVE NO LEAVES, YOUNG GREEN GROWTH, BRANCHES, TWIGS GREATER IN DIAMETER OF 1/2"ø WEEDS, SHAVINGS OR FOREIGN MATERIAL SUCH AS STONES, ETC. SHALL BE MIXED WITH THE MULCH. ALL SHRUB MASSES SHALL BE PLANTED IN CONTINUOUS MULCHED BEDS WITH A COMPACTED DEPTH OF 3". NO MULCH SHALL BE PLACED AGAINST PLANT STEMS.

21) WATER APPLIED TO SEEDED OR SODDED AREAS, PLANTS OR PLANTED AREAS SHALL BE FREE FROM IMPURITIES INJURIOUS TO VEGETATION AND APPLIED AT A RATE OF FIVE GALLONS OF WATER PER SQUARE YARD OF PLANT PIT.

22) FALL PLANTING HAZARDS:
IT IS VERY RISKY TO TRANSPLANT THE FOLLOWING LIST OF TREES BARE ROOT OR B&B IN THE FALL:

PLATANUS ACERIFOLIA	BETULA VARIETIES
PRUNUS-ALL STONE FRUITS	PYRUS-ALL PEARS
CARPINUS VARIETIES	QUERCUS-ALL OAKS
CORNUS FLORIDA & VARS	SALIX-WEEPING VARS
CRATAEGUS VARIETIES	STYRAX JAPONICA
HALESIA	TILIA TOMENTOSA
KOELREUTERIA	ZELKOVA VARIETIES
LIQUIDAMBAR STYRACIFLUA	LIRIODENDRON TULIPIFERA

THE CONTRACTOR ASSUMES RESPONSIBILITY FOR PLANT SURVIVAL OF THESE MATERIALS IF MOVED DURING THE FALL SEASON.

23) TREES TO REMAIN ON-SITE TO BE SELECTIVELY THINNED AND PRUNED REMOVING ALL DEAD AND DISEASED LIMBS WHILE PROTECTED BY FENCING DURING CONSTRUCTION (SEE DETAIL). FENCE TO BE MAINTAINED DURING CONSTRUCTION BY CONTRACTOR.

24) THE PLANTING PLAN SHALL TAKE PRECEDENCE OVER THE PLANT SCHEDULE SHOULD ANY PLANT QUANTITY DISCREPANCIES OCCUR.

25) ALL STREET TREES AND SHADE TREES PLANTED NEAR PEDESTRIAN OR VEHICULAR ACCESS SHOULD NOT BE BRANCHED LOWER THAN 7'-0" ABOVE GRADE. ALL PLANT MATERIAL LOCATED WITHIN ANY SIGHT TRIANGLE EASEMENTS SHALL NOT EXCEED A MATURE HEIGHT OF 30" ABOVE THE ELEVATION OF THE ADJACENT CURB. ALL STREET TREES PLANTED IN ANY SIGHT TRIANGLE SHALL BE PRUNED AS MENTIONED ABOVE.

26) SEE DETAIL DRAWINGS FOR TYPICAL PLANTING DETAILS.

CONSTRUCTION DETAIL NOTES

1. ALL TRAFFIC SIGNS AND PAVEMENT MARKINGS SHALL CONFORM TO THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. ALL CONSTRUCTION DETAILS SHALL BE SUPERCEDED BY APPLICABLE MUNICIPAL, COUNTY OR STATE DETAILS UNLESS OTHERWISE NOTED.
3. STRUCTURAL DETAILS ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. SHOP DRAWINGS SHALL BE PROVIDED TO THE TOWNSHIP ENGINEER FOR ALL WALLS AND STRUCTURAL ELEMENTS PRIOR TO CONSTRUCTION.
4. SHOP DRAWINGS SHALL BE PROVIDED FOR ALL PRECAST STRUCTURES PRIOR TO THE ORDERING OF MATERIALS.
5. DETAILS ASSUME APPROPRIATE LOAD BEARING CAPACITY AND COMPACTION OF SOILS. ACTUAL FIELD CONDITIONS SHALL BE CONFIRMED BY ON-SITE GEOTECHNICAL ENGINEER.
6. RESIDENTIAL DEVELOPMENTS SHALL CONFORM TO DETAILS WITHIN THE CURRENT EDITION OF THE RESIDENTIAL SITE IMPROVEMENT STANDARDS (R.S.I.S.).
7. ALL CONSTRUCTION DETAILS ARE NOT TO SCALE (N.T.S.) UNLESS OTHERWISE NOTED.

REVISIONS

1) SITE PLAN REVS.	10/04/21

THIS DRAWING IS FOR PERMIT PURPOSES ONLY

NOT FOR CONSTRUCTION UNTIL THIS BOX HAS BEEN CHECKED AND DATED

☐ CHKD BY:____ DATE:____

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

menlo engineering associates
Civil Engineering Consultants
Landscape Architects
Professional Planners
261 Cleveland Avenue
Highland Park, NJ 08904
menloeng.com
732-846-8585 732-846-9439
Certificate of Authorization : 24GA27951900

LIVINGSTON WAREHOUSE

TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY
NEW JERSEY

BLOCK 140.01
LOTS 5.02 & 7.01
TAX MAP SHEET 30
21.03 ACRES

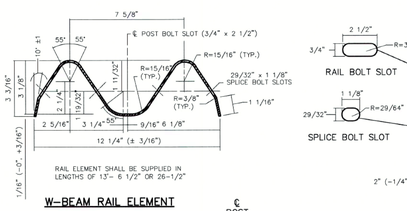
CONSTRUCTION DETAILS (4)

DRAWN BY	X
DESIGNED BY	X
APPROVED BY	X

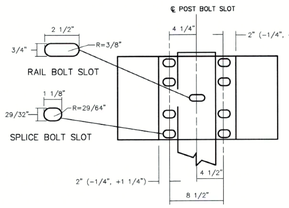
THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

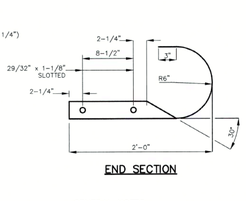
PROJECT NUMBER	2018.047.02	DE-4
DATE OF ISSUE	FEBRUARY 12, 2021	20
REVISION 1	OCTOBER 4, 2021	



W-BEAM RAIL ELEMENT

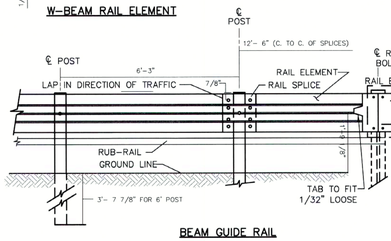


RAIL SPLICE

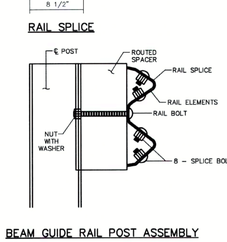


END SECTION

GENERAL NOTES:
1. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
2. RAIL ELEMENTS SHALL BE FURNISHED SHOPCURVED, CONCAVE OR CONVEX, FOR RADII LESS THAN 150 FEET.
3. THE STEEL FOR RAIL ELEMENTS AND BOLTS SHALL CONFORM TO NJDOT STANDARD SPECIFICATIONS AND ITS AMENDMENTS.



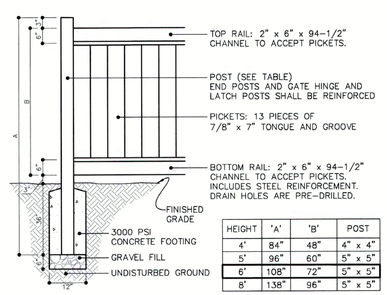
BEAM GUIDE RAIL



BEAM GUIDE RAIL POST ASSEMBLY

GUIDE RAIL DETAIL

(NJDOT STANDARD DETAIL #CD-609-1)
N.T.S.

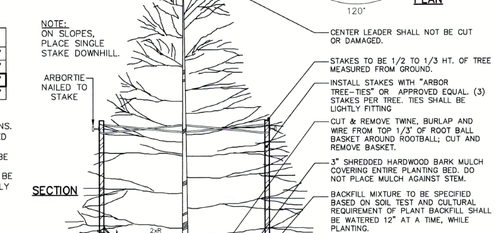


HEIGHT	'A'	'B'	POST
4'	84"	48"	4" x 4"
5'	96"	60"	5" x 5"
6'	108"	72"	5" x 5"
8'	138"	96"	5" x 5"

NOTES:
1. INSTALLATION TO BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. CERTAINTEED CORPORATION STYLE: 'CHESTERFIELD VINYL FENCING' OR APPROVED EQUAL. (800) 333-0569.
2. ALL FASTENERS AND HARDWARE TO BE STAINLESS STEEL. ALL FASTENERS TO BE CONCEALED OR COLORED HEADS TO MATCH.
3. POSTS, RAILS, PICKETS, GATE UPRIGHTS, POST CAPS AND ACCESSORIES SHALL BE OF HIGH IMPACT, ULTRA VIOLET (U.V.) RESISTANT, RIGID PVC AND SHALL COMPLY WITH ASTM D 1784, CLASS 14344B.
4. POSTS TO BE SPACED 96-1/8" O.C., 8 FOOT STRINGERS BETWEEN POSTS.
5. END POSTS AND GATE HINGE AND LATCH POSTS SHALL BE REINFORCED WITH ALUMINUM GATE POST STIFFENERS OR WITH CONCRETE AND REBAR PER MANUFACTURER'S SPECIFICATIONS.

6' HIGH SOLID BROWN VINYL FENCE DETAIL

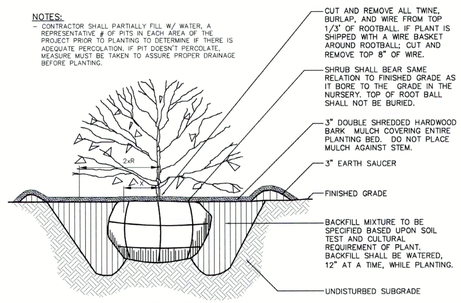
N.T.S.



(UP TO 10' HT.)

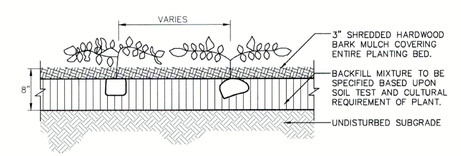
EVERGREEN TREE PLANTING DETAIL

N.T.S.



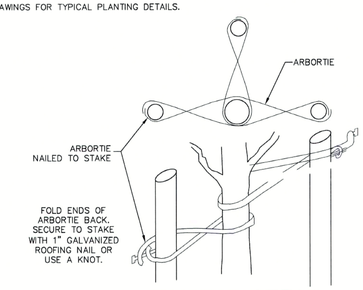
SHRUB PLANTING DETAIL

N.T.S.



GROUNDCOVER PLANTING DETAIL

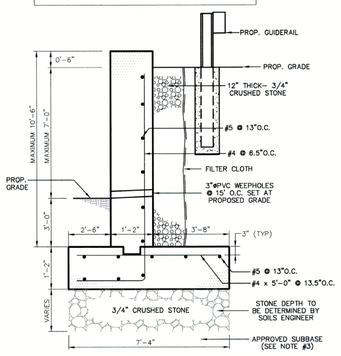
N.T.S.



STAKING DETAIL

N.T.S.

CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING WALL MANUFACTURER DESIGN AND SUPPLY SIGNED AND SEALED STRUCTURAL CALCULATIONS AND DETAILS TO THE TOWNSHIP ENGINEER FOR REVIEW AND APPROVAL.

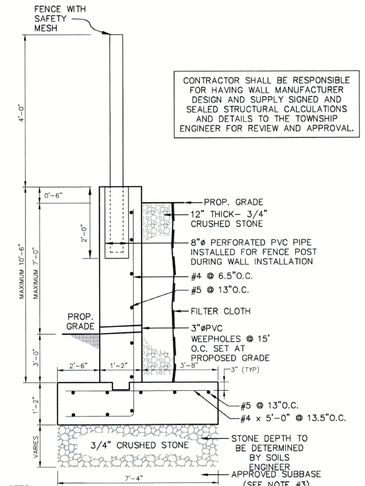


NOTES:
1) CONCRETE TO BE A MINIMUM OF 5,000 PSI at 28 DAYS.
2) ALL REINFORCING TO BE DEFORMED BARS, ASTM A615 GRADE 60 WITH TIES AND SPLICES AS PER ASCI 318, 1971 AND LATEST SUPPLEMENTS.
3) SOIL BEARING CAPACITY SHALL BE 1,000 PSF (MINIMUM).
4) 1" CHAMFER ALL EXPOSED EDGES.

CONCRETE RETAINING WALL WITH GUIDERAIL

N.T.S.

CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING WALL MANUFACTURER DESIGN AND SUPPLY SIGNED AND SEALED STRUCTURAL CALCULATIONS AND DETAILS TO THE TOWNSHIP ENGINEER FOR REVIEW AND APPROVAL.



NOTES:
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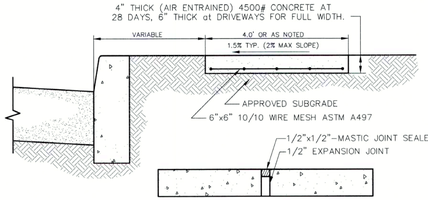
CONCRETE RETAINING WALL

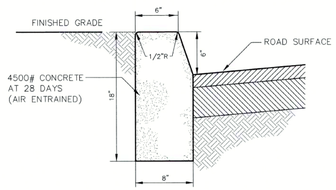
N.T.S.



NOTES:
1) EXPANSION JOINTS TO BE LOCATED AT MAXIMUM OF 20' O.C.; AT ALL STRUCTURES; AND WHERE SIDEWALK ABUTS THE CURB.
2) EXPANSION MATERIALS TO BE 1/2" PREMOLDED, ASPHALT IMPREGNATED, JOINT FILLER.
3) TOOLED JOINTS TO BE SPACED EQUAL TO THE SIDEWALK WIDTH (6' MAX).
4) ALL MATERIALS AND METHODS TO BE IN CONFORMANCE WITH THE STANDARD SPECIFICATIONS.

CONCRETE SIDEWALK

N.T.S.



NOTES:
1) EXPANSION JOINTS TO BE 1/2" PREMOLDED, ASPHALT IMPREGNATED, JOINT FILLER MATERIAL, CUT TO FIT CROSS SECTION, RECESSED 1/4" FROM EXPOSED FACES AND ARE TO BE PLACED: IN TRAVERSE JOINTS 20' O.C. MAX; BETWEEN CURB AND CONCRETE SIDEWALK OR PAVEMENT; AT ALL STRUCTURES; AND AT THE END OF EACH WORK DAY.
2) ALL MATERIALS AND METHODS TO BE IN CONFORMANCE WITH THE STANDARD SPECIFICATIONS.

(8"WIDE / 6"REVEAL)

STANDARD CONCRETE CURB (18")

N.T.S.

Project		Catalog #		Type	
Prepared by		Notes		Date	

McGraw-Edison

GALN Galleon II

Area / Site Luminaire

Typical Applications

Outdoor • Parking Lots • Walkways • Roadways • Building Areas

Interactive Menu

Product Certifications

Resources

LumenSafe Technology · Light ARchitect™

Quick Facts

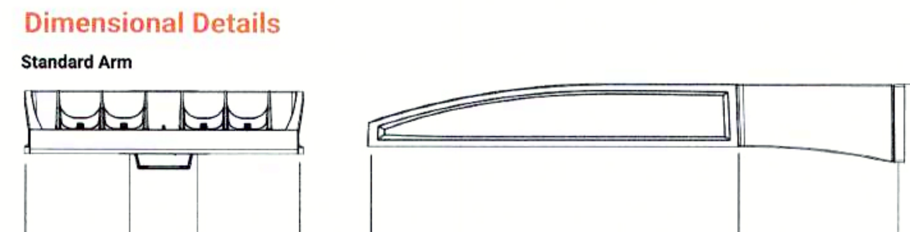
- Lumen packages range from 3,300 - 73,500 (33W - 552W)
- 16 optical distributions
- Efficacy up to 159 lumens per watt

Connected Systems

- WaveLinx Lite
- WaveLinx

Dimensional Details

Standard Arm



Number of Light Squares	Width "A"	Housing Length "B"	Weight with Standard or QM Arm	EPA with Standard or QM Arm
1-4	16"	22"	29 lb	0.95
5-6	22"	22"	39 lb	0.95
7-9	22"	28-1/8"	48 lb	1.1

NOTES:
For arm selection requirements and additional line art, see Mounting Details section.

WL-1,2 & SL-1 thru 7 LIGHT FIXTURE DETAIL-1

N.T.S.

McGraw-Edison — GALN Galleon II

Ordering Information

SAMPLE NUMBER: **GALN-SA4C-740-U-T4FT-GM**

Product Family [1,2]	Light Engine: Configuration	Light Engine: Drive Current	Color Temperature	Voltage	Distribution	Mounting	Finish
GALN=Galleon II	SA1=1 Square SA2=2 Squares SA3=3 Squares SA4=4 Squares SA5=5 Squares SA6=6 Squares SA7=7 Squares SA8=8 Squares SA9=9 Squares	A=600mA B=800mA C=1000mA D=1200mA [4,17]	722=70CRI, 2200K 727=70CRI, 2700K 730=70CRI, 3000K 735=70CRI, 3500K 740=70CRI, 4000K 750=70CRI, 5000K 760=70CRI, 6000K 827=80CRI, 2700K 830=80CRI, 3000K AMB=Amber, 590nm [15,17]	U=120-277V H=347V-480V [7] 1=120V 2=208V 3=240V 4=277V 8=480V [7] 9=347V [7]	T2=Type II T2R=Type II Roadway T3=Type III T3R=Type III Roadway T4FT=Type IV Forward Throw T4W=Type IV Wide 5NQ=Type V Narrow 5MQ=Type V Square Medium 5WQ=Type V Square Wide SL2=Type II w/Spill Control SL3=Type III w/Spill Control SL4=Type IV w/Spill Control SLL=90° Spill Light Eliminator Left SLR=90° Spill Light Eliminator Right RW=Rectangular Wide Type I AFL=Automotive Frontline	[Blank]=Standard Pole Mount Arm QM=Standard Pole Mount Arm with Quick Mount Adaptor PA=Pole Mount, Adjustable SP=Slipfitter, Adjustable [8] MA=Mast Arm, Fixed WM=Wall Mount, Fixed WA=Wall Mount, Adjustable UP=Upswept Arm	AP=Grey BZ=Bronze BK=Black DP=Dark Platinum GM=Graphite Metallic WH=White

Options (Add as Suffix)	Controls and Systems Options (Add as Suffix)	Accessories (Order Separately)
DIM=External 0-10V Dimming Leads [20] F=Single Fuse (120, 277 or 347V Specify Voltage) FF=Double Fuse (208, 240 or 480V Specify Voltage) 20K=20kV UL 1449 fused surge protective device [10] 2L=Two Circuits [10] HA=50°C High Ambient HSS=Installed House Side Shield [18] GRSBK=Glare Reducing Shield, Black [23] GRSWH=Glare Reducing Shield, White [23] LCF=Light Square Trim Painted to Match Housing [26] TH=Tool-less Door Hardware [5] CC=Coastal Construction finish [3] L90=Optics Rotated 90° Left R90=Optics Rotated 90° Right AHD145=After Hours Dim, 5 Hours [22] AHD245=After Hours Dim, 6 Hours [22] AHD255=After Hours Dim, 7 Hours [22] AHD355=After Hours Dim, 8 Hours [22] DALI=DALI Drivers	BPC=Button Type Photocontrol [6] PR=NEMA 3-PIN Photocontrol Receptacle PR7=NEMA 7-PIN Photocontrol Receptacle [21] SPB2=Dimming Motion Sensor, 9'-20' mounting [24] SPB4=Dimming Motion Sensor, 21'-40' mounting [24] SPB2/X=Dimming Motion Sensor, limited square count, 9'-20' mounting [24] SPB4/X=Dimming Motion Sensor, limited square count, 21'-40' mounting [24] ZW=WaveLinx Module and 4-PIN Receptacle [19] ZD=WaveLinx Module with DALI driver and 4-PIN Receptacle [19] ZW-SWPD4XX=WaveLinx Sensor Only, 7-15ft [19,12,13] ZW-SWPD5XX=WaveLinx Sensor Only, 15-40ft [19,12,13] ZW-WOBXX=WaveLinx Sensor with Bluetooth, 7-15ft [19,12,13] ZW-WOFXX=WaveLinx Sensor with Bluetooth, 15-40ft [19,12,13] ZD-SWPD4XX=WaveLinx Sensor Only, 7-15ft [19,12,13] ZD-SWPD5XX=WaveLinx Sensor Only, 15-40ft [19,12,13] ZD-WOBXX=WaveLinx Sensor with Bluetooth, 7-15ft [19,12,13] ZD-WOFXX=WaveLinx Sensor with Bluetooth, 15-40ft [19,12,13] DIM10-MS/DIM-L20=Synapse Occupancy Sensor (9'-20' Mounting) [19] DIM10-MS/DIM-L40=Synapse Occupancy Sensor (21'-40' Mounting) [19]	OA/RA1016=NEMA Photocontrol Multi-Tap - 105-285V OA/RA1027=NEMA Photocontrol - 480V OA/RA1201=NEMA Photocontrol - 347V OA/RA1013=Photocontrol Shorting Cap OA/RA1014=120V Photocontrol MA1252=10kV Surge Module Replacement MA1036-XX=Single Tenon Adapter for 2-3/8" O.D. Tenon MA1037-XX=2@180° Tenon Adapter for 2-3/8" O.D. Tenon MA1197-XX=3@120° Tenon Adapter for 2-3/8" O.D. Tenon MA1188-XX=4@90° Tenon Adapter for 2-3/8" O.D. Tenon MA1189-XX=2@90° Tenon Adapter for 2-3/8" O.D. Tenon MA1190-XX=3@90° Tenon Adapter for 2-3/8" O.D. Tenon MA1191-XX=2@120° Tenon Adapter for 2-3/8" O.D. Tenon MA1038-XX=Single Tenon Adapter for 3-1/2" O.D. Tenon MA1039-XX=2@180° Tenon Adapter for 3-1/2" O.D. Tenon MA1192-XX=3@120° Tenon Adapter for 3-1/2" O.D. Tenon MA1193-XX=4@90° Tenon Adapter for 3-1/2" O.D. Tenon MA1194-XX=2@90° Tenon Adapter for 3-1/2" O.D. Tenon MA1195-XX=3@90° Tenon Adapter for 3-1/2" O.D. Tenon SRA238=Adapter kit for mounting to 2-3/8" O.D. Tenon LS/HSS=Field Installed House Side Shield [9,18] LS/GRSBK=Glare Reducing Shield, Black [9,23] LS/GRSWH=Glare Reducing Shield, White [9,23] LS/PFS=Perimeter Shield, Black [18] WOLC-7P-10A=WaveLinx Outdoor Control Module [11,19] WOA-XX=WaveLinx Wireless Sensor, 7'-15' Mounting Height [12,13,14,19] WOE-XX=WaveLinx Wireless Sensor, 15'-40' Mounting Height [12,13,14,19]

NOTES:
1. Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information.
2. DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details.
3. Coastal construction finish salt spray tested to over 5,000-hours per ASTM B117, with a scribe rating of 9 per ASTM D1654. Not available with TH option.
4. Drive current 1200mA not available with color temperatures 722, 727 or 830 when either HA or HSS options are selected.
5. TH option not 3G rated. Not available with Coastal Construction (CC) option.
6. Not available with voltage options H, 8 or 9.
7. Requires the use of an internal step down transformer when combined with sensor options. Not available with sensor at 1200mA. Not available in combination with the HA high ambient and sensor options at 1A.
8. Adjustable Slipfitter arm limited to vertical 3" tenon. For mounting to 2-3/8" O.D. tenons, order accessory SRA238.
9. One required for each Light Square.
10. 2L is not available with SPB at 347V or 480V. Not available with WaveLinx or Enlighted sensors, or 20kV surge option.
11. Requires PR7.
12. Replace XX with sensor color (WH, BZ or BK.)
13. WAC Gateway required to enable field-configurability: Order WAC-PoE and WPOE-120 (10V to PoE injector) power supply if needed. WAC not required for LC Bluetooth sensors.
14. Requires ZW or ZD receptacle.
15. Narrow-band 590nm +/- 5nm for wildlife and observatory use. Choose drive current A; supplied at 500mA drive current only. Available with 5WQ, 5MQ, SL2, SL3 and SL4 distributions. Can be used with HSS option.
16. Set of 4 pcs. One set required per Light Square.
17. Not available with HA option.
18. Not for use with 5NQ, 5MQ, 5WQ or RW optics. A black trim plate is used when HSS is selected.
19. Cannot be used with other control options.
20. Low voltage control lead brought out 18" outside fixture. Not available with DALI or integrated controls options
21. Not available if any SPB, LWR, or WaveLinx sensor is selected. Motion sensor has an integral photocell.
22. Requires the use of BPC photocontrol or the PR7 or PR photocontrol receptacle with photocontrol accessory.
23. Not for use with T4FT, T4W or SL4 optics. See IES files for details.
24. Sensor configuration mobile application required for configuration. See controls page for details.
25. Replace X with number of Light Squares controlled by the SPB, referencing the "SPB/X Availability Table" on the controls page.
26. Not available with HSS, GRSWH or GRSBK.

LumenSafe Integrated Network Security Camera Technology Options (Add as Suffix)

Product Family	Camera Type	Data Backhaul	
L=LumenSafe Technology	D=Standard Dome Camera H=Hi-Res Dome Camera Z=Remote PTZ Camera	C=Cellular, No SIM A=Cellular, AT&T V=Cellular, Verizon S=Cellular, Sprint	R=Cellular, Rogers W=Wi-Fi Networking w/ Omni-Directional Antenna E=Ethernet Networking

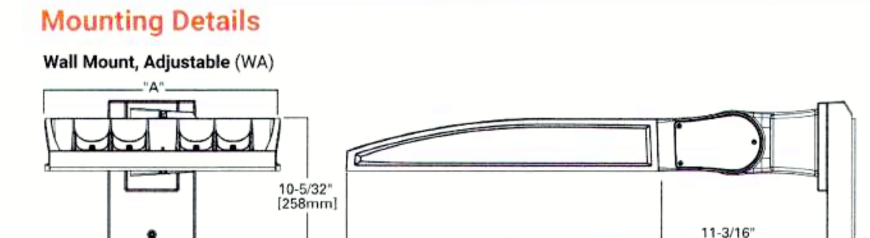
WL-1,2 & SL-1 thru 7 LIGHT FIXTURE DETAIL-2

N.T.S.

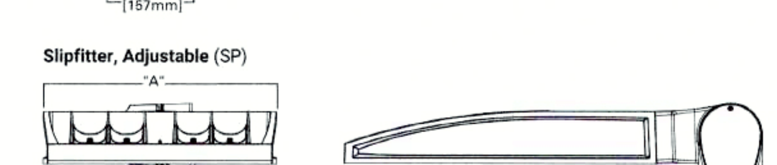
McGraw-Edison — GALN Galleon II

Mounting Details

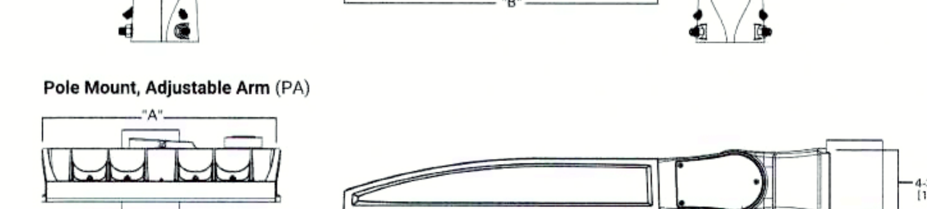
Wall Mount, Adjustable (WA)



Slipfitter, Adjustable (SP)

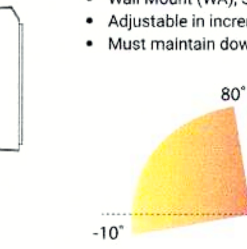


Pole Mount, Adjustable Arm (PA)



Adjustable Arm Range of Motion

- Wall Mount (WA), Slipfitter (SP) and Pole Mount (PA)
- Adjustable in increments of 5°
- Must maintain downward facing orientation



Fixture Weights and EPAs

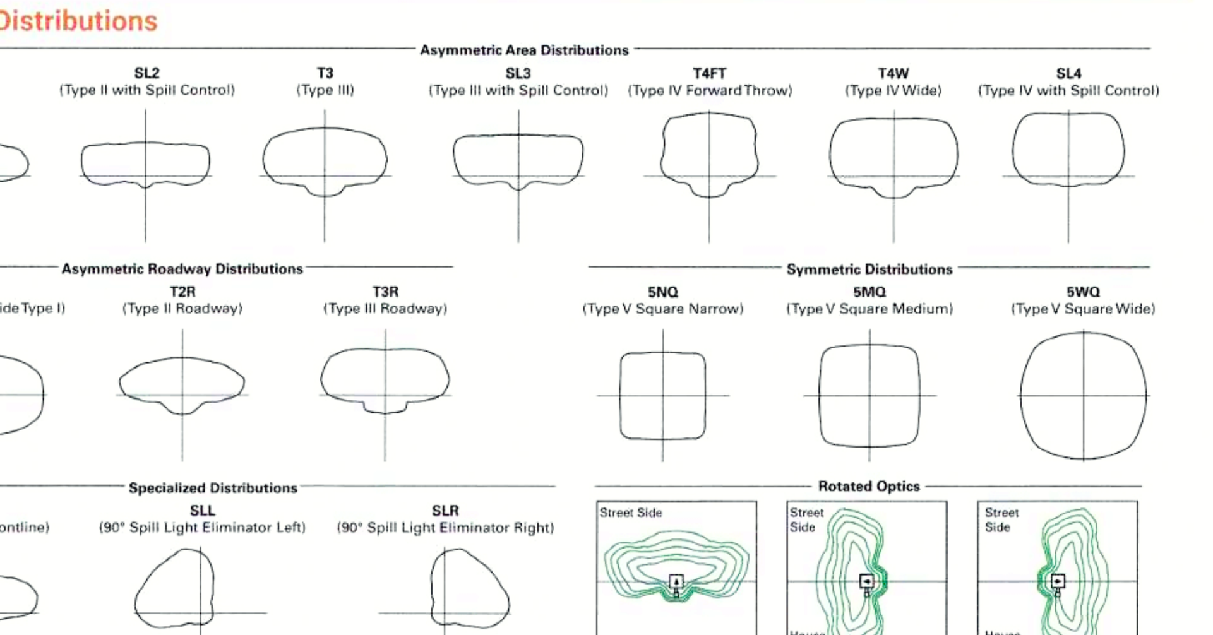
Tilt Angle (Degrees)	Number of Light Squares	Weight	1 @ 90°	2 @ 180°	2 @ 90°	2 @ 120°	3 @ 90°	3 @ 120°	4 @ 90°
0°	1-4	33.5 lb (15.2 kg)	0.85	1.70	1.46	1.66	2.31	2.25	2.35
	5-6	43.5 lb (19.7 kg)	0.86	1.71	1.62	1.80	2.49	2.35	2.50
	7-9	52.5 lb (23.8 kg)	0.98	1.95	1.75	1.98	2.73	2.55	2.76
15°	1-4	33.5 lb (15.2 kg)	1.10	1.71	1.95	2.26	2.81	3.30	2.87
	5-6	43.5 lb (19.7 kg)	1.42	1.71	2.27	2.72	3.13	3.63	3.15
	7-9	52.5 lb (23.8 kg)	1.69	1.96	2.67	3.22	3.65	4.38	3.72
30°	1-4	33.5 lb (15.2 kg)	1.72	1.81	2.58	3.21	3.44	4.59	3.53
	5-6	43.5 lb (19.7 kg)	2.26	2.29	3.11	4.00	3.97	5.27	4.00
	7-9	52.5 lb (23.8 kg)	2.75	2.85	3.73	4.83	4.71	6.45	4.81
45°	1-4	33.5 lb (15.2 kg)	2.25	2.36	3.10	4.00	3.96	5.63	4.08
	5-6	43.5 lb (19.7 kg)	2.96	2.99	3.81	5.06	4.67	6.49	4.71
	7-9	52.5 lb (23.8 kg)	3.63	3.76	3.73	6.17	5.59	8.03	5.73
60°	1-4	33.5 lb (15.2 kg)	2.63	2.77	3.49	4.58	4.34	6.21	4.48
	5-6	43.5 lb (19.7 kg)	3.46	3.51	4.32	5.84	5.19	7.01	5.22
	7-9	52.5 lb (23.8 kg)	4.27	4.44	5.25	7.15	6.23	8.80	6.40

WL-1,2 & SL-1 thru 7 LIGHT FIXTURE DETAIL-3

N.T.S.

McGraw-Edison — GALN Galleon II

Optical Distributions



Product Specifications

Construction
- Die-cast aluminum housing and heat sink
- Three housing sizes, using 1 to 9 light squares

Optics
- High-efficiency injection-molded AccuLED Optics technology
- 16 optical distributions for area site and roadway applications
- 3 shielding options include HSS, GRS and PFS
- IDA certified (3000K CCT and warmer only, arms at 0° tilt)

Electrical
- Removable power tray assembly includes drivers, surge modules and control modules for ease of maintenance and serviceability
- Standard with 0-10V dimming
- Standard with 10kV surge module, optional 20kV surge module
- Suitable for operation in -40°C to 40°C ambient environments. Optional 50°C high ambient (HA) configuration

Mounting
- Arms are factory installed, enabling closed-housing installation
- All arms suitable for round or square pole installation
- All arms provide clearance for multiple fixture installations at 90°

Finish
- 6 standard finishes use super durable TGIC polyester powder coat paint, providing 2.5 mil nominal thickness and salt-spray tested to 3,000 hours per ASTM B117
- RAL and custom color matches available
- Coastal Construction (CC) option salt-spray tested to 5,000 hours per ASTM B117, achieving a scribe rating of 9 per ASTM D1654

Warranty
- Five year limited warranty

Energy and Performance Data

Lumen Maintenance (TM-21)

Drive Current	Ambient Temperature	25,000 hours*	50,000 hours*	60,000 hours*	100,000 hours**	Theoretical L70 hours**
Up to 1A	25°C	99.4%	99.0%	98.9%	98.3%	> 2.4M
	40°C	98.7%	98.3%	98.1%	97.4%	> 1.9M
	50°C	98.2%	97.2%	96.8%	95.2%	> 851,000
1.2A	25°C	99.4%	99.0%	98.9%	98.3%	> 2.4M
	40°C	98.5%	97.9%	97.7%	96.7%	> 1.3M

* Supported by IES TM-21 standards
** Theoretical values represent estimations commonly used; however, refer to the IES position on LED Product Lifetime Prediction, IES PS-10-18, explaining proper use of IES TM-21 and LM-80.

Lumen Multiplier

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

WL-1,2 & SL-1 thru 7 LIGHT FIXTURE DETAIL-4

N.T.S.

Steel Poles

Catalog #		Type
Project		
Comments		Date
Prepared by		

SSS SQUARE STRAIGHT STEEL

FEATURES
- ASTM Grade steel base plate with ASTM A366 base cover
- Hand hole assembly 3" x 5" on 5" and 6" pole; and 2" x 4" on 4" pole
- 10'-39' mounting heights
- Drilled or tenon (specify)

DESIGN CONSIDERATIONS

Wind induced vibrations resulting from steady, unidirectional winds and other aerodynamic forces, as well as vibration and coefficient of height factors for non-grounded mounted installations (e.g., installations on bridges or buildings) are not included in this document. The information contained herein is for general guidance only and is not a replacment for professional judgement. Consult with a professional, and local and federal standards, before ordering to ensure product is appropriate for the intended purpose and installation location. Also, please review Cooper Lighting Solutions Light Pole White Paper for risk factors and design considerations. Learn more.

Specifications and dimensions subject to change without notice. Consult your lighting representative at Cooper Lighting Solutions or visit www.cooperlighting.com for available options, accessories and ordering information.

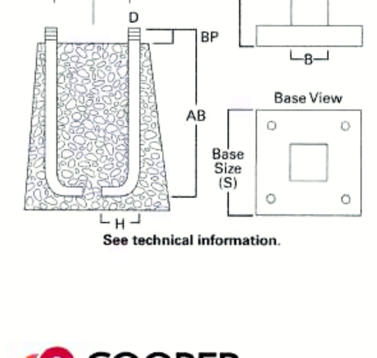
ORDERING INFORMATION

SAMPLE NUMBER: SSA5A20SFM1XG

Product Family	Shaft Size (Inches)[1]	Wall Thickness (Inches)	Mounting Height (Feet)	Base Type	Finish	Mounting Type	Number and Location of Arms	Arm Lengths (Feet)	Options (Add as Suffix)
SSS=Square Straight Steel	4=4" 5=5" 6=6"	A=0.120" M=0.188" X=0.250"	10=10' 15=15' 20=20' 25=25' 30=30' 35=35' 39=39'	S=Square Steel Base	F=Dark Bronze G=Galvanized Steel J=Summit White K=Carbon Bronze L=Dark Platinum R=Hartford Green S=Silver T=Graphite Metallic V=Grey W=White X=Custom Color Y=Black	2=2-3/8" O.D. Tenon (4" Long) 3=3-1/2" O.D. Tenon (5" Long) 4=4" O.D. Tenon (6" Long) 9=3" O.D. Tenon (4" Long) 6=2-3/8" O.D. Tenon (6" Long) 7=4" O.D. Tenon (10" Long) A=Type A Drilling C=Type C Drilling E=Type E Drilling F=Type F Drilling G=Type G Drilling J=Type J Drilling K=Type K Drilling M=Type M Drilling N=Type N Drilling R=Type R Drilling S=Standard Upsweep Arm[6] Z=Type Z Drilling	1=Single 2=2 at 180° 3=Triple[2] 4=4 at 90° 5=2 at 90° X=None	X=None 2=2' 3=2.5' 4=4' 6=6' 8=8'	A=1/2" Tapped Hub[3] B=3/4" Tapped Hub[3] C=Convenience Outlet[4] E=GFCI Convenience Outlet[4] G=Ground Lug H=Additional Hand Hole[5] V=Vibration Dampener

NOTES: 1. All shaft sizes nominal. 2. Square poles are 3 at 90°, round poles are 3 at 120°. 3. Tapped Hub is located 5' below the pole top and on the same side of pole as hand hole, unless specified otherwise. 4. Outlet is located 4' above base and on same side of pole as hand hole, unless specified otherwise. Receptacle not included, provision only. 5. Additional hand hole is located 12" below pole top and 90° from standard hand hole location, unless otherwise specified. 6. Arm must be ordered separately.

ANCHORAGE DATA



See technical information.

Pole	Template Number	Bolt Number	Bolt Circle (inches)	Number of Bolts	Bolt Size (inches)
SSS4	TMP1	AB1	8.5 - 11.0	4	3/4 x 25 x 3
SSS5	TMP1	AB1	11.0	4	3/4 x 25 x 3
SSS6	TMP2	AB3	12.5	4	1 x 36 x 4

SITE LIGHT POLE DETAIL-1

N.T.S.

Effective Projected Area (At Pole Top)

Mounting Height (Feet)	Catalog Number [1,2]	Wall Thickness (Inches)	Base Square [3] (Inches)	Bolt Circle Diameter (Inches)	Anchor Bolt Projection [3] (Inches)	Shaft Size [3] (Inches)	Anchor Bolt Diameter x Length x Hook (Inches)	Net Weight (Pounds)	Maximum Effective Projected Area (Square Feet) [4]: 80 mph	90 mph	100 mph	110 mph	Max. Fixture Load - Includes Bracket (Pounds)
MH			S	BC	BP	B	D x AB x H		80 mph	90 mph	100 mph	110 mph	
10	SSS4A10S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	85	30.0	22.0	17.0	13.0	100
15	SSS4A15S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	118	15.0	11.5	8.7	6.5	100
20	SSS4A20S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	150	8.7	5.9	3.9	2.5	150
20	SSS5A20S	0.120	10-1/2	11	4-1/2	5	3/4 x 25 x 3	183	15.4	11.1	7.9	5.5	150
25	SSS4A25S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	181	3.7	1.7	0.3	--	200
25	SSS5A25S	0.120	10-1/2	11	5	5	3/4 x 25 x 3	222	9.3	6.0	3.5	1.6	200
25	SSS6A25S	0.120	12-1/2	12-1/2	5	6	1 x 36 x 4	284	9.9	6.1	3.5	1.2	200
30	SSS5A30S	0.120	10-1/2	11	4-1/2	5	3/4 x 25 x 3	260	4.7	2.1	--	--	200
30	SSS5M30S	0.188	10-1/2	11	4-1/2	5	3/4 x 25 x 3	392	10.4	6.4	3.5	1.5	200
30	SSS6A30S	0.120	12-1/2	12-1/2	5	6	1 x 36 x 4	330	4.3	1.4	--	--	200
30	SSS6M30S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	489	19.0	13.0	8.7	5.6	200
35	SSS5M35S	0.188	10-1/2	11	4-1/2	5	3/4 x 25 x 3	453	5.8	2.8	--	--	200
35	SSS6M35S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	564	12.8	7.2	3.7	1.0	200
35	SSS6X35S	0.250	12-1/2	12-1/2	5	6	1 x 36 x 4	738	16.5	11.0	6.8	3.5	200
39	SSS6M39S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	618	7.3	3.0	--	--	300
39	SSS6X39S	0.250	12-1/2	12-1/2	5	6	1 x 36 x 4	816	13.0	7.0	3.7	0.8	300

Effective Projected Area (Two Feet Above Pole Top)

Mounting Height (Feet)	Catalog Number [1,2]	Wall Thickness (Inches)	Base Square [3] (Inches)	Bolt Circle Diameter (Inches)	Anchor Bolt Projection [3] (Inches)	Shaft Size [3] (Inches)	Anchor Bolt Diameter x Length x Hook (Inches)	Net Weight (Pounds)	Maximum Effective Projected Area (Square Feet) [4]: 80 mph	90 mph	100 mph	110 mph	Max. Fixture Load - Includes Bracket (Pounds)
MH			S	BC	BP	B	D x AB x H		80 mph	90 mph	100 mph	110 mph	
10	SSS4A10S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	85	23.0	17.5	14.0	11.0	100
15	SSS4A15S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	118	13.4	10.0	7.5	5.7	100
20	SSS4A20S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	150	7.6	5.2	3.4	2.1	150
20	SSS5A20S	0.120	10-1/2	11	4-1/2	5	3/4 x 25 x 3	183	13.8	9.9	7.1	4.9	150
25	SSS4A25S	0.120	10-1/2	11	4-1/2	4	3/4 x 25 x 3	181	3.4	1.6	0.3	--	200
25	SSS5A25S	0.120	10-1/2	11	5	5	3/4 x 25 x 3	222	8.5	5.5	3.2	1.5	200
25	SSS6A25S	0.120	12-1/2	12-1/2	5	6	1 x 36 x 4	284	9.1	5.6	3.0	1.2	200
30	SSS5A30S	0.120	10-1/2	11	4-1/2	5	3/4 x 25 x 3	260	1.8	--	--	--	200
30	SSS5M30S	0.188	10-1/2	11	4-1/2	5	3/4 x 25 x 3	392	9.6	5.9	1.9	0.2	200
30	SSS6A30S	0.120	12-1/2	12-1/2	5	6	1 x 36 x 4	330	4.1	1.3	--	--	200
30	SSS6M30S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	489	18.5	12.5	8.4	5.3	200
35	SSS5M35S	0.188	10-1/2	11	4-1/2	5	3/4 x 25 x 3	453	5.5	2.4	--	--	200
35	SSS6M35S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	564	11.8	7.0	3.5	1.0	200
35	SSS6X35S	0.250	12-1/2	12-1/2	5	6	1 x 36 x 4	738	16.0	10.5	6.4	3.4	200
39	SSS6M39S	0.188	12-1/2	12-1/2	5	6	1 x 36 x 4	618	7.0	2.4	--	--	300
39	SSS6X39S	0.250	12-1/2	12-1/2	5	6	1 x 36 x 4	816	12.0	6.7	3.0	0.5	300

NOTES:
1. Catalog number includes pole with hardware kit. Anchor bolts not included. Before installing, make sure proper anchor bolts and templates are obtained.
2. Tenon size or machining for rectangular arms must be specified. Hand hole position relative to drill location.
3. Shaft size, base square, anchor bolts and projections may vary slightly. All dimensions nominal.
4. EPAs based on shaft properties with wind normal to flat. EPAs calculated using base wind velocity as indicated plus 30% gust factor.

SITE LIGHT POLE DETAIL-2

N.T.S.

McGraw-Edison — GALN Galleon II

Performance Table, Drive Current "A" (615mA)

Number of Light Squares		1	2	3	4	5	6	7	8	9
Nominal Power (Watts)		33	63	93	121	154	182	215	244	274
Input Current @ 120V		0.283	0.529	0.778	1.058	1.310	1.556	1.839	2.089	2.335
Input Current @ 208V		0.165	0.309	0.460	0.618	0.771	0.919	1.082	1.240	1.379
Input Current @ 240V		0.143	0.270	0.398	0.540	0.671	0.796	0.944	1.078	1.194
Input Current @ 277V		0.125	0.237	0.352	0.473	0.581	0.705	0.818	0.962	1.057
Input Current @ 347V		0.098	0.181	0.272	0.362	0.454	0.544	0.636	0.738	0.816
Input Current @ 480V		0.073	0.133	0.200	0.267	0.335	0.400	0.470	0.554	0.600
Optics										
T2	4000K Lumens	4,654	9,249	13,730	18,194	23,032	27,273	32,034	37,138	41,694
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
	Lumens per Watt	141	147	148	150	150	150	149	152	152
T2R	4000K Lumens	4,716	9,372	13,913	18,437	23,340	27,637	32,462	37,634	42,251
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4
	Lumens per Watt	143	149	150	152	152	152	151	154	154
T3	4000K Lumens	4,589	9,120	13,538	17,940	22,711	26,892	31,587	36,620	41,112
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G4
	Lumens per Watt	139	145	146	148	147	148	147	150	150
T3R	4000K Lumens	4,735	9,411	13,970	18,513	23,436	27,751	32,596	37,790	42,425
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
	Lumens per Watt	143	149	150	153	152	152	152	155	155
T4FT	4000K Lumens	4,617	9,176	13,622	18,051	22,851	27,058	31,782	36,847	41,366
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	140	146	146	149	148	149	148	151	151
T4W	4000K Lumens	4,631	9,203	13,662	18,104	22,918	27,138	31,876	36,955	41,488
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4
	Lumens per Watt	140	146	147	150	149	149	148	151	151
SL2	4000K Lumens	4,619	9,180	13,627	18,058	22,860	27,069	31,795	36,861	41,383
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5
	Lumens per Watt	140	146	147	149	148	149	148	151	151
SL3	4000K Lumens	4,586	9,115	13,531	17,931	22,699	26,879	31,571	36,602	41,091
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
	Lumens per Watt	139	145	145	148	147	148	147	150	150
SL4	4000K Lumens	4,529	9,002	13,363	17,708	22,417	26,544	31,178	36,146	40,580
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B2-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
	Lumens per Watt	137	143	144	146	146	146	145	148	148
5NQ	4000K Lumens	4,829	9,598	14,247	18,880	23,901	28,301	33,242	38,539	43,266
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3
	Lumens per Watt	146	152	153	156	155	155	155	158	158
5MQ	4000K Lumens	4,853	9,645	14,318	18,974	24,020	28,442	33,407	38,731	43,482
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
	Lumens per Watt	147	153	154	157	156	156	155	159	159
5WQ	4000K Lumens	4,843	9,625	14,288	18,934	23,969	28,382	33,337	38,649	43,390
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5
	Lumens per Watt	147	153	154	156	156	156	155	158	158
SLL/SLR	4000K Lumens	3,989	7,927	11,768	15,594	19,741	23,375	27,456	31,831	35,736
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
	Lumens per Watt	121	126	127	129	128	128	128	130	130
RW	4000K Lumens	4,774	9,488	14,085	18,665	23,628	27,979	32,863	38,100	42,774
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3
	Lumens per Watt	145	151	151	154	153	154	153	156	156
AFL	4000K Lumens	4,673	9,286	13,785	18,268	23,126	27,384	32,164	37,290	41,864
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
	Lumens per Watt	142	147	148	151	150	150	150	153	153

* Nominal data for 70 CRI. ** For additional performance data, please reference the Galleon Supplemental Performance Guide.

WL-1,2 & SL-1 thru 7 LIGHT FIXTURE DETAIL-5

N.T.S.

CONSTRUCTION DETAIL NOTES

1. ALL TRAFFIC SIGNS AND PAVEMENT MARKINGS SHALL CONFORM TO THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. ALL CONSTRUCTION DETAILS SHALL BE SUPERCEDED BY APPLICABLE MUNICIPAL, COUNTY OR STATE DETAILS UNLESS OTHERWISE NOTED.
3. STRUCTURAL DETAILS ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. SHOP DRAWINGS SHALL BE PROVIDED TO THE TOWNSHIP ENGINEER FOR ALL WALLS AND STRUCTURAL ELEMENTS PRIOR TO CONSTRUCTION.
4. SHOP DRAWINGS SHALL BE PROVIDED FOR ALL PRECAST STRUCTURES PRIOR TO THE ORDERING OF MATERIALS.
5. DETAILS ASSUME APPROPRIATE LOAD BEARING CAPACITY AND COMPACTION OF SOILS. ACTUAL FIELD CONDITIONS SHALL BE CONFIRMED BY ON-SITE GEOTECHNICAL ENGINEER.
6. RESIDENTIAL DEVELOPMENTS SHALL CONFORM TO DETAILS WITHIN THE CURRENT EDITION OF THE RESIDENTIAL SITE IMPROVEMENT STANDARDS (R.S.I.S.).
7. ALL CONSTRUCTION DETAILS ARE NOT TO SCALE (N.T.S.) UNLESS OTHERWISE NOTED.

REVISIONS

1) SITE PLAN REVS.	10/04/21

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LIVINGSTON WAREHOUSE

TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY
NEW JERSEY

BLOCK 140.01
LOTS 5.02 & 7.01
TAX MAP SHEET 30
21.03 ACRES

CONSTRUCTION DETAILS (5)

DRAWN BY	LKH
DESIGNED BY	LKH
APPROVED BY	GSO

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.02	DE-5
DATE OF ISSUE	FEBRUARY 12, 2021	21
REVISION 1	OCTOBER 4, 2021	

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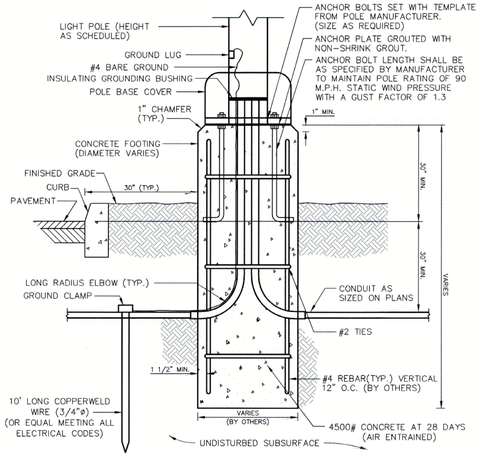
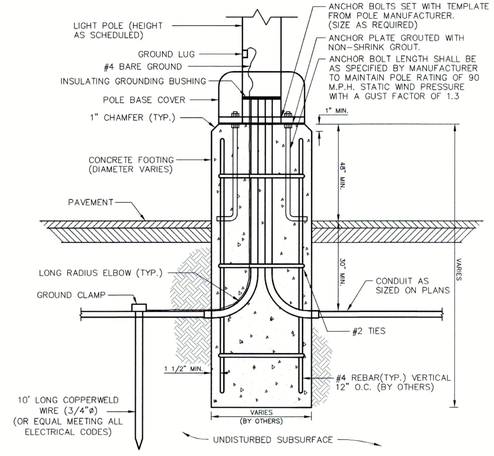


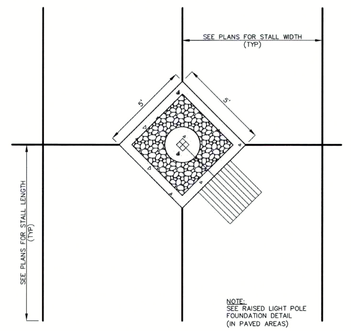
RAISED SITE LIGHT POLE FOUNDATION DETAIL (IN GRASSED AREAS)

N.T.S.



RAISED SITE LIGHT POLE FOUNDATION DETAIL (IN PAVED LOADING AREAS)

N.T.S.



DIAMOND ISLAND DETAIL

N.T.S.

CONSTRUCTION DETAIL NOTES

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6. RESIDENTIAL DEVELOPMENTS SHALL CONFORM TO DETAILS WITHIN THE CURRENT EDITION OF THE RESIDENTIAL SITE IMPROVEMENT STANDARDS (R.S.I.S.).
7. ALL CONSTRUCTION DETAILS ARE NOT TO SCALE (N.T.S.) UNLESS OTHERWISE NOTED.

REVISIONS

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LIVINGSTON WAREHOUSE

TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY
NEW JERSEY

BLOCK 140.01
LOTS 5.02 & 7.01
TAX MAP SHEET 30
21.03 ACRES

CONSTRUCTION DETAILS (6)

DRAWN BY	X
DESIGNED BY	X
APPROVED BY	X

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

GREGORY S. OMAN
PROFESSIONAL ENGINEER
N.J.P.E.# 43441

PROJECT NUMBER	2018.047.02	DE-6
DATE OF ISSUE	OCTOBER 4, 2021	22
REVISION -	-	

NEW JE
HIGHWAY
LIVINGS

PROPERTY LINE
2 STOR BUILDIN
58.2'
178.1'
1 STORY BRICK BUILDING
1 STORY METAL FRAME BUILDING
165.4'
62.4'
48.8'
110.9'
193.3'
273.3'
MATCHLINE
SIGN
SIGN
WB-67 (TYP)
PROPERTY LINE
EASEMENT
PROPERTY LINE
LOT 5.03
LANDS N/F MIDDLESEX
COUNTY DB 5874 PG 527
2 STORY MASONRY/METAL FRAME BUILDING
50.3'
60.1'
1 STORY MASONRY/METAL FRAME BUILDING
49.2'
20.0'
30.6'
273.3'
MATCHLINE
355.0'
355.0'
360.0'
I-1 ZONE
WB-67 (TYP)
PROPERTY LINE
122.0'
120.0'
WB-67 (TYP)
50.3'
60.1'
1 STORY MASONRY/METAL FRAME BUILDING
49.2'
20.0'
30.6'
LOT 5.02

HORIZONTAL DATUM : NAD 1983

GRAPHIC SCALE

0 30 60
15 45

SCALE: 1"=30'

REVISIONS

1	SITE PLAN REVS.	10/04/21

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LIVINGSTON WAREHOUSE

TOWNSHIP OF NORTH BRUNSWICK
MIDDLESEX COUNTY
NEW JERSEY

BLOCK 140.01,
LOT 5.02 & 7.01
TAX MAP SHEET 30
21.03 ACRES

TRUCK MOVEMENT PLAN (1)

DRAWN BY	RM
DESIGNED BY	RJG
APPROVED BY	GSO

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.02	TM-1
DATE OF ISSUE	MARCH 2, 2021	23
REVISION 1	OCTOBER 4, 2021	

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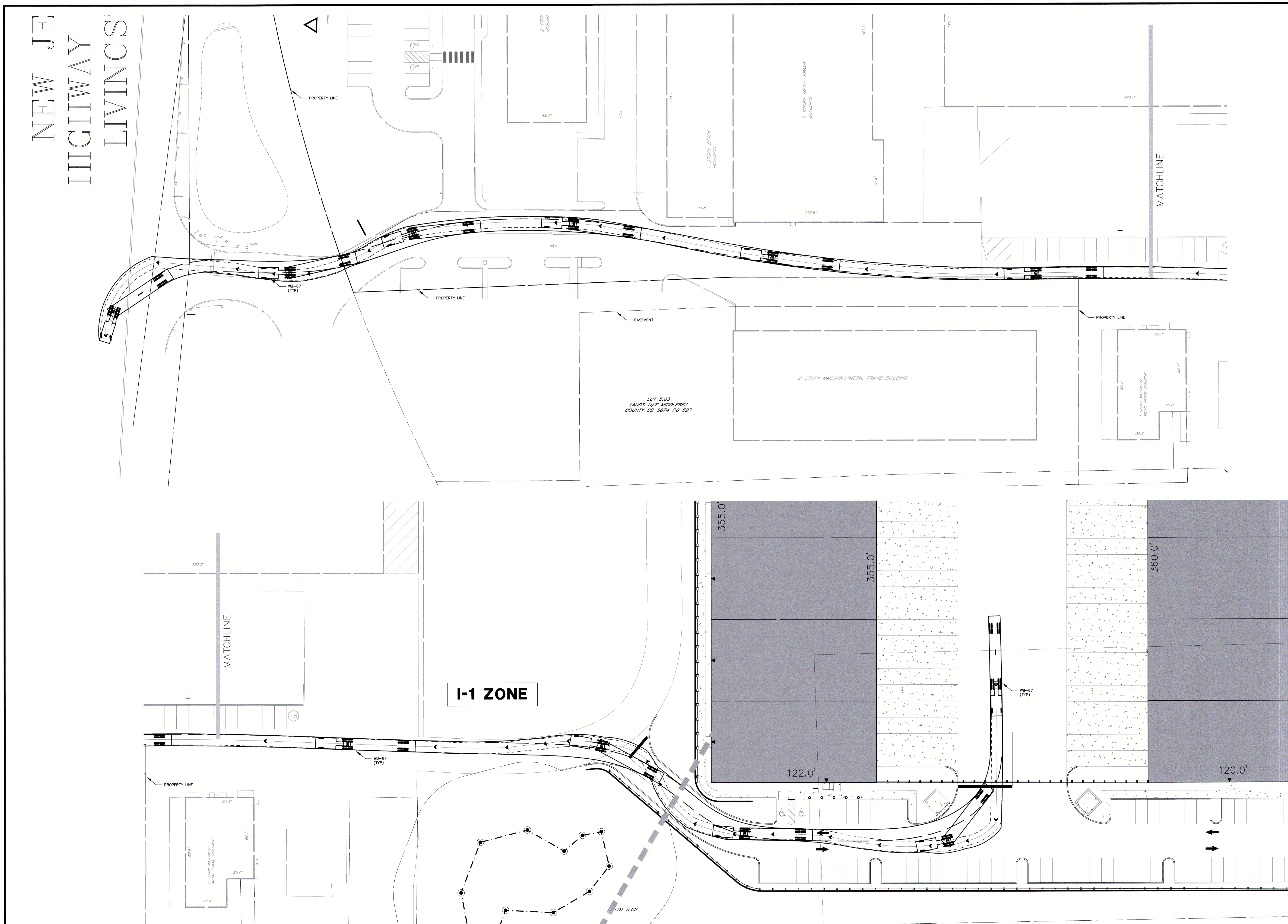

HORIZONTAL DATUM : NAD 1983

GRAPHIC SCALE

0 15 30 45 60

SCALE: 1"=30'

REVISIONS	
1) SITE PLAN REVS.	10/04/21

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LOT 5.02 & 7.01
TAX MAP SHEET 30
21.03 ACRES

TRUCK MOVEMENT PLAN (2)

DRAWN BY . . RM
DESIGNED BY . . RJG
APPROVED BY . . GSO

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.02	TM-2
DATE OF ISSUE	MARCH 2, 2021	24
REVISION 1	OCTOBER 4, 2021	

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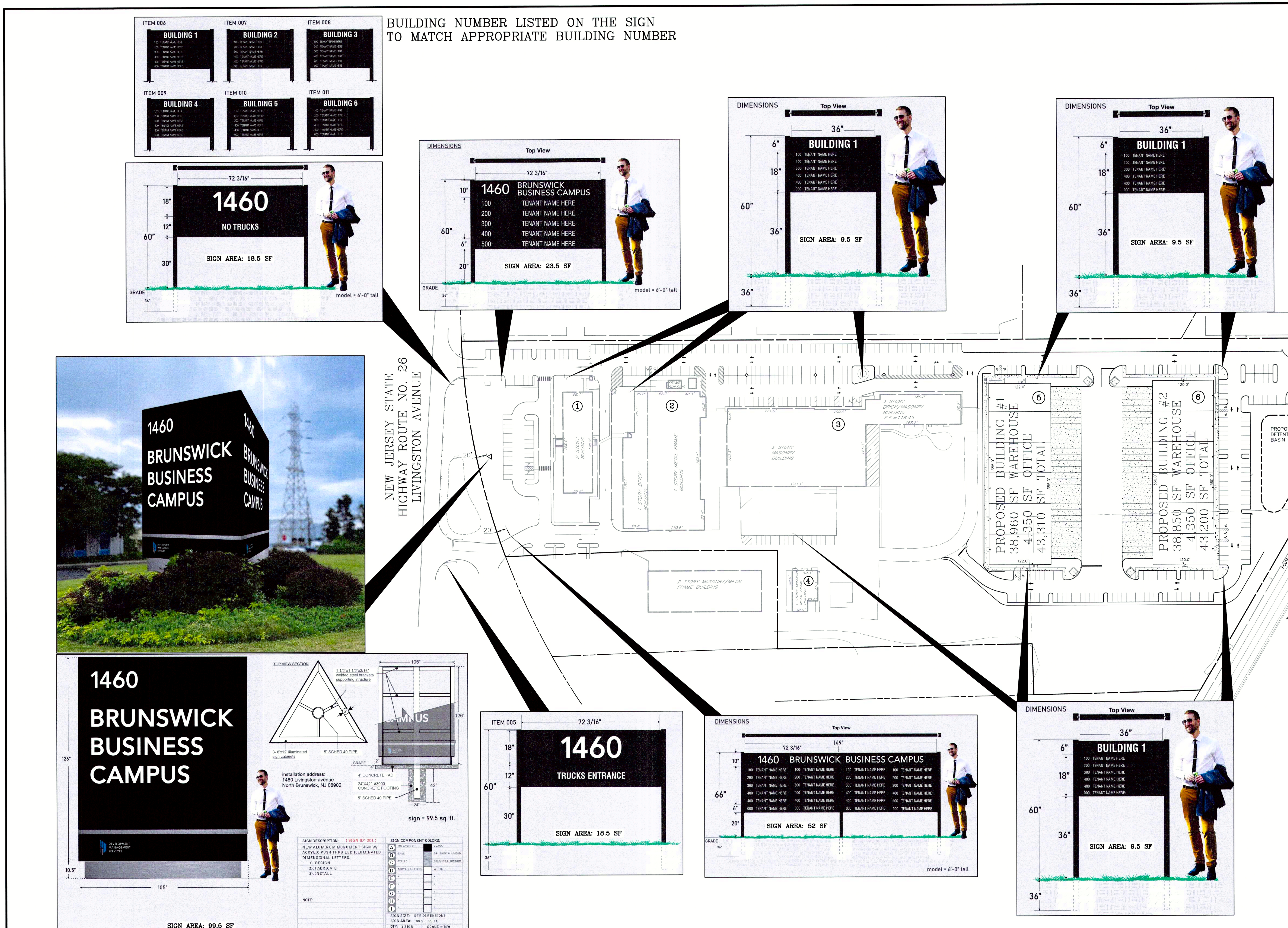

HORIZONTAL DATUM : NAD 1983

GRAPHIC SCALE

SCALE: 1"=80'

REVISIONS	
1) SITE PLAN REVS.	10/04/21

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LIVINGSTON WAREHOUSE

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LOT 5.02 & 7.01
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SIGNAGE PLAN

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DESIGNED BY . . RJG
APPROVED BY . . GSO

THIS WORK PREPARED UNDER MY IMMEDIATE SUPERVISION...

GREGORY S. OMAN
PROFESSIONAL ENGINEER
NJPE# 43441

PROJECT NUMBER	2018.047.02	SP-1
DATE OF ISSUE	JUNE 30, 2021	25
REVISION 1	OCTOBER 4, 2021	

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