

# KRISTALL LLC PRELIMINARY & FINAL MAJOR SITE PLAN

### PROPERTY OWNERS WITHIN 200' LIST

MUN	BLOCK	LOT	QUAL	Location	Owner Name	Owner Street	Owner Csz
Bradley Beach Boro	6	2.01		1200 Main St	BRADLEY BEACH PROPERTY LLC	1529 NEWPORT DRIVE	LAKEWOOD, NJ 08701
Bradley Beach Boro	7	1		1110 Main St	OCEAN GROVE CAMP MEEING ASSC OF THE	PO BOX 248	OCEAN GROVE, NJ 07756
Bradley Beach Boro	7	21		612 Newark Ave	BANKS, KASANDREA	25 ROYAL ROAD	FREEHOLD, NJ 07728
Bradley Beach Boro	7	22		614 Newark Ave	MODJESKI, ALEKSANDR C	614 NEWARK AVE	BRADLEY BEACH, NJ 07720
Bradley Beach Boro	7	23		1100 Main St	GENERATION 6, L.L.C.	1238 CORLIES AVE	NEPTUNE, NJ 07753
Bradley Beach Boro	7	24		1102-04 Main St	GENERATION 6, LLC	1238 CORLIES AVE	NEPTUNE, NJ 07753
Bradley Beach Boro	7	25		1110 Main St	OCEAN GROVE CAMP MEEING ASSC OF THE	PO BOX 248	OCEAN GROVE, NJ 07756
Bradley Beach Boro	19	1		1008 Main St	TOMCATGF14, LLC	1008 MAIN ST	BRADLEY BEACH, NJ 07720
Bradley Beach Boro	19	2		611 Newark Ave	MODJESKI, HEIDI	614 NEWARK AVE	BRADLEY BEACH, NJ 07720
Bradley Beach Boro	19	15		1004-06 Main St	BRADLEY INVESTORS, LLC	242 OLD NEW BRUNSWICK RD	PISCATAWAY, NJ 08854
Bradley Beach Boro	32	1		1006 Eleventh Ave-Rear	150 5TH AVENUE APTS, INC	1006 ELEVENTH AVE	NEPTUNE, NJ 07753
Bradley Beach Boro	32	2		1217 Main St	CMP OF BRADLEY REALTY, LLC	1217 MAIN ST	BRADLEY BEACH, NJ 07720
Bradley Beach Boro	32	3		1117 Main St	CMP OF BRADLEY REALTY, LLC	1217 MAIN STREET	BRADLEY BEACH, NJ 07720
Bradley Beach Boro	32	4		1115 Main St	KRISTALL, LLC	404 GALLYA GROVE	MORGANVILLE, NJ 07751
Bradley Beach Boro	32	5		1111 Main St & Railroad	KRISTALL LLC	404 GALLYA GROVE	MORGANVILLE, NJ 07751
Bradley Beach Boro	32	6		1107 Main St	BRADLEY BEACH BORO	701 MAIN STREET	BRADLEY BEACH, NJ 07720
Bradley Beach Boro	32	7		1015 Main St	BRADLEY BEACH BORO	701 MAIN STREET	BRADLEY BEACH, NJ 07720
Bradley Beach Boro	32	8		1011 Main St	BRADLEY BEACH BORO	701 MAIN STREET	BRADLEY BEACH, NJ 07720
Bradley Beach Boro	32	9		907 Main St	HESS RETAIL STORES LLC C/O TAX DEPT	539 SOUTH MAIN STREET	FINDLAY, OH 45840
Bradley Beach Boro	96	1		Tracks	RAILROAD PROPERTY C/O NJ TRANSIT	PENN STATION	NEWARK, NJ 07101
Bradley Beach Boro	96	2		Tracks	RAILROAD PROPERTY C/O NJ TRANSIT	PENN STATION	NEWARK, NJ 07101
Neptune Twp	309	1		Railroad	CONRAIL NY-LONG BEACH	25 NEPTUNE BLVD	NEPTUNE TWP, NJ 07753



LOCATION & 500' RADIUS MAP  
SCALE: 1 in = 200 ft  
TAX MAP SHEET 1 IN THE BOROUGH OF BRADLEY BEACH

### GENERAL NOTES

- UTILITY INFORMATION SHOWN HAS BEEN COLLECTED AND IS NOT GUARANTEED AS TO THE ACCURACY OR COMPLETENESS. THE CONTRACTOR SHALL VERIFY ALL INFORMATION TO HIS SATISFACTION PRIOR TO EXCAVATION. WHERE EXISTING UTILITIES ARE CROSSED BY PROPOSED CONSTRUCTION, TEST PITS SHALL BE DUG BY THE CONTRACTOR PRIOR TO CONSTRUCTION TO ASCERTAIN EXISTING INVERTS, MATERIALS AND SIZES. TEST PIT INFORMATION SHALL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION TO PERMIT ADJUSTMENT AS REQUIRED TO AVOID CONFLICTS.
- THE SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL OF THIS SET OF PLANS WILL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED ON THE DRAWINGS AND EACH DRAWING HAS BEEN REVISED TO INDICATE "ISSUED FOR CONSTRUCTION"
- ALL WORK WILL BE DONE IN COMPLIANCE WITH THE CURRENT CONSTRUCTION STANDARDS OF THE FOLLOWING WHERE APPLICABLE:
  - N.J.D.O.T. "STANDARDS SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" LATEST EDITION.
  - CURRENT, PREVAILING MUNICIPAL & COUNTY SPECIFICATIONS, STANDARDS AND REQUIREMENTS.
  - NEW JERSEY ADMINISTRATIVE CODE TITLE 5 CHAPTER 21, "RESIDENTIAL SITE IMPROVEMENT STANDARDS".
- ONLY ORIGINAL PAPER COPIES FOR EACH PROJECT SHEET MARKED WITH AN ORIGINAL EMBOSSED SEAL OF THE SIGNING ENGINEER'S SEAL SHALL BE CONSIDERED TO BE VALID AND/OR ONLY PDF COPIES OF THE PROJECT CONTAINING A VERIFIED AND CERTIFIED DIGITAL SEAL OF THE SIGNING ENGINEER'S SEAL SHALL BE CONSIDERED TO BE VALID COPIES.
- THIS PLAN IS PREPARED FOR SUBMISSION TO THE MUNICIPALITY FOR THE PURPOSE OF OBTAINING THE REQUIRED PERMITS FOR THE PROJECT. THE COPYING OR REFUSE OF THIS DOCUMENT, OR PORTIONS THEREOF, FOR OTHER THAN THE ORIGINAL PROJECT OR FOR THE ORIGINAL INTENTION, WITHOUT THE WRITTEN PERMISSION OF E.M.WATERBURY&ASSOCIATES, IS PROHIBITED.

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**OWNER**  
KRISTALL, LLC  
404 GAYLA GROVE  
MORGANVILLE, NEW JERSEY, 07751

**APPLICANT**  
VFR ENTERPRISE, LLC  
404 GAYLA GROVE  
MORGANVILLE, NEW JERSEY, 07751

**PROJECT DESCRIPTION**  
LOCATION: LOTS 4 & 5 BLOCK 32; 1111& 1115 MAIN ST  
BRADLEY BEACH, NJ  
AS SHOWN ON THE TAX MAP OF THE BOROUGH OF  
BRADLEY BEACH SHEET No. 1 DATED JUNE 30, 2024  
EXISTING USE: LOT 4- AUTO BODY; LOT 5- CAR WASH  
PROPOSED USE: LOT 4 VACUUM FOR CAR WASH; LOT 5 CAR WASH  
OUTBOUND AND TOPOGRAPHIC INFORMATION BASED ON  
SURVEY PREPARED BY DAVID J. VON STEENBURG  
DATED LATEST REVISED NOVEMBER 22, 2024.

LAND USE BOARD APPROVALS

SECRETARY - LAND USE BOARD

CHAIRPERSON - LAND USE BOARD

ENGINEER- LAND USE BOARD

2.	4/1/2025	UPDATE PAGE SUMMARY	TCS	EMW
1.	1/30/2025	REVISE PER BOARD ENGINEER REPORT DATED 1/30/2025- ADD PROPERTY OWNERS LIST	TCS	EMW
NO.	DATE	REVISIONS	BY	CHECKED

PROJECT NO: KRISTALL LLC DRAWING:

**KRISTALL LLC**  
PRELIMINARY AND FINAL MAJOR SITE PLAN  
1111-1115 MAIN STREET  
LOT 4&5, BLOCK 32;  
BOROUGH OF BRADLEY BEACH, MONMOUTH COUNTY, NJ

COVER SHEET

**E.M. Waterbury & Associates, P.A.**  
ENGINEERING • PLANNING • LAND USE & DEVELOPMENT  
530 Prospect Avenue, Suite 2C, Little Silver, NJ 07739 • P:732.747.6530 F:732.747.6778 Email:emwassoc@aol.com

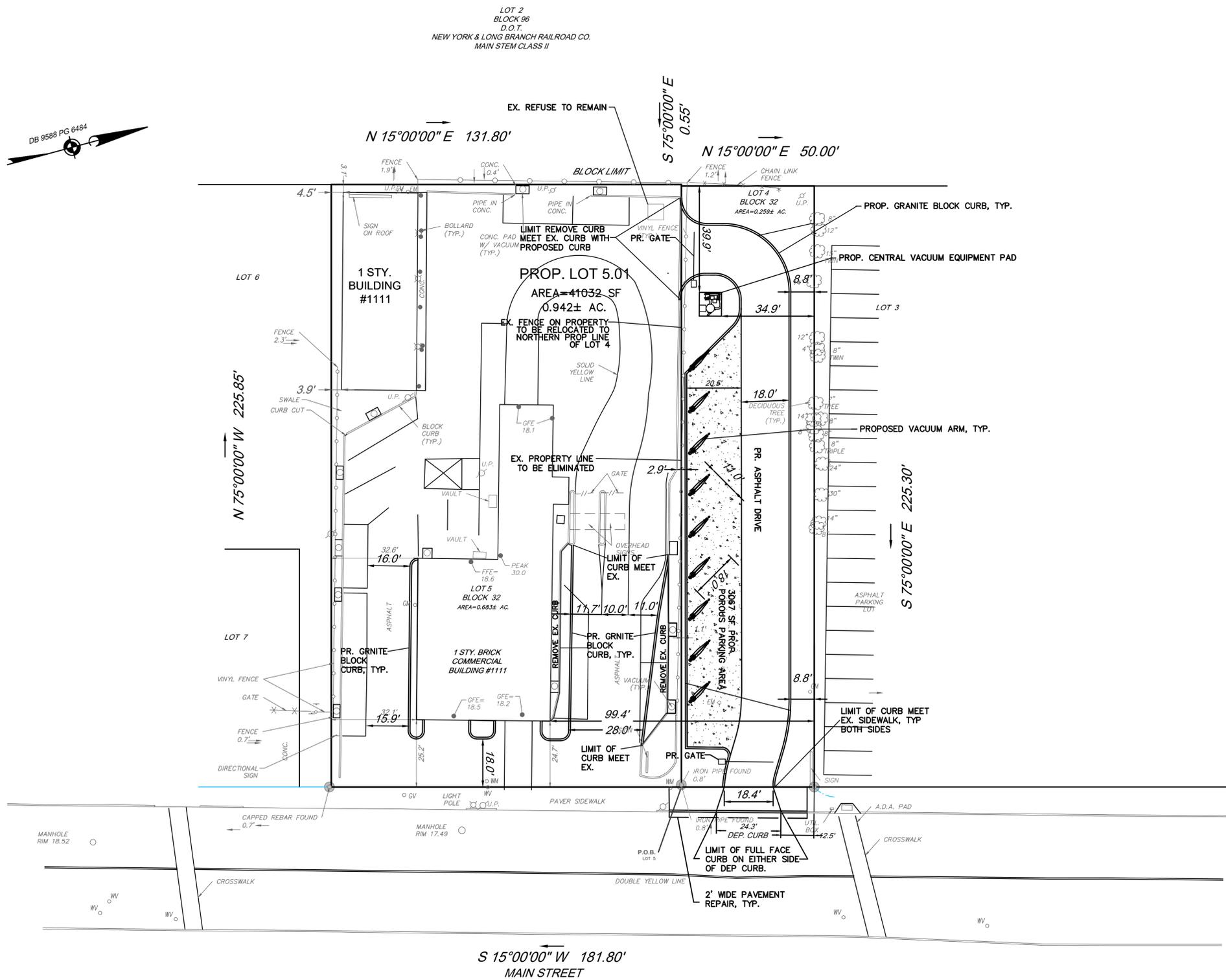
CERTIFICATION

Digitally signed by  
*Elizabeth M. Waterbury* Elizabeth Waterbury  
Date: 2025.04.01  
00:21:16 -05'00'

12/18/2024  
INITIAL RELEASE DATE

SHEET  
1  
OF 10





ZONING SCHEDULE			
REQUIREMENTS	B-O-R ZONE	EXISTING	PROPOSED
MINIMUM LOT AREA	20,000 SQ.FT.	41032 SQ.FT. OR 0.942 AC.	41032 SQ.FT. OR 0.942 AC.
LOT WIDTH	100'	181.80'	181.80'
LOT DEPTH	200'	225.30'	225.30'
<b>PRIMARY STRUCTURE</b>			
FRONT SETBACK	10	24.7'	24.7'
SIDE YARD SETBACK	10' ON SIDE 14' COMBINED	2'* 34.1'	32.1' 131.5'
REAR SETBACK LINE	10'	83.1'	83.1'
BUILDING HEIGHT	40'	< 40'	<40'
BUILDING COVERAGE	50%	8457 SF OR 20.6%	6379.5 SF OR 15.5%
LOT COVERAGE	80%	75.8%	81.8%*(ALL SURFACES) 74.4% (EXCLUDING POROUS DRIVE)
<b>ACCESSORY STRUCTURE</b>			
SIDE YARD SETBACK	5'	3.9'*	3.9'*
REAR YARD SETBACK	5'	3.1'*	3.1'*

- CONSTRUCTION NOTES**
- ANY CURB OR SIDEWALK DAMAGED AS A RESULT OF THE PROPOSED CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE BOROUGH ENGINEER.
  - PROPOSED ON-SITE DRIVE TO BE ASPHALT. SEE SHEET 4 FOR CONSTRUCTION DETAILS.
  - EXISTING WALK AND DRIVEWAY APRON TO BE REPLACED SHALL BE REPLACED IN KIND. SEE SHEET 4 FOR CONSTRUCTION DETAILS.
  - TREE REMOVAL PERMITS TO BE OBTAINED PRIOR TO DISTURBANCE OF SITE.
  - ROAD OPENING PERMIT FROM THE NJDOT TO BE OBTAINED BY CONTRACTOR PRIOR TO DISTURBANCE OF AREAS IN THE RIGHT-OF-WAY OF MAIN ST.
  - SHADE TREES TO BE PROVIDED SHALL BE IN ACCORDANCE WITH MUNICIPAL REQUIREMENTS AS IT RELATES TO SPECIES AND SIZE AT TIME OF PLANTING.

**COVERAGE CALCULATIONS**

**EXISTING COVERAGE LOT 5**  
 BUILDING = 6379.5 SF  
 PAVEMENT, PAVR AND CURB AREAS = 20634.5  
 TOTAL LOT COVERAGE = 29751.5 - 2737.5 = 27014  
 = 27014 SF / 29751.5 = SF=90.8%

**EXISTING LOT COVERAGE LOT 4**  
 BUILDING = 2077.2  
 FRONT DRIVE AREAS 1411.6  
 REAR CONCRETE = 156.0 SF  
 TOTAL 3644.8 SF / 11265 SF = 32.3%

**PROPOSED COVERAGE LOT 4**  
 IMPERVIOUS DRIVE = 4448 SF  
 POROUS DRIVE = 3067 SF  
 TOTAL = 7515 SF / 11280.04 = SF=66.6%

**TOTAL PROPOSED COVERAGE LOTS 4&5**  
 AREAS ON LOT 5 TO BE REMOVED = 321+65+220+ 324=930 SF  
 COVERAGE INCLUDING ALL STRUCTURES = 27014+7515-930=33599  
 = 33599 SF / 29751.5+11280.04=81.8%

**COVERAGE EXCLUDING POROUS DRIVE = 33599-3067=30532**  
 30532 SF / 41031.54=74.4%

1.	4/1/2025	REVISED DRIVEWAY ENTRANCE	TCS	EMW
NO.	DATE	REVISIONS	BY	CHECKED
PROJECT NO:			DRAWING:	

**KRISTALL LLC**  
 PRELIMINARY AND FINAL MAJOR SITE PLAN  
 1111-1115 MAIN STREET  
 LOT 4&5, BLOCK 32;  
 BOROUGH OF BRADLEY BEACH, MONMOUTH COUNTY, NJ

**LAYOUT AND DIMENSIONING PLAN**

**E.M. Waterbury & Associates, P.A.**  
 ENGINEERING • PLANNING • LAND USE & DEVELOPMENT  
 530 Prospect Avenue, Suite 2C, Little Silver, NJ 07739 • P:732.747.6530 F:732.747.6778 Email:emwassoc@aol.com

CERTIFICATION

Digitally signed by  
  
 Elizabeth Waterbury  
 ELIZABETH M. WATERBURY, P.E., P.P. Date: 2025.04.01  
 LICENSED PROFESSIONAL ENGINEER AND PLANNER  
 STATE OF NJ LICENSE No. 31645 (P.E.) 03591 (P.P.)

12/18/2024  
 INITIAL RELEASE DATE

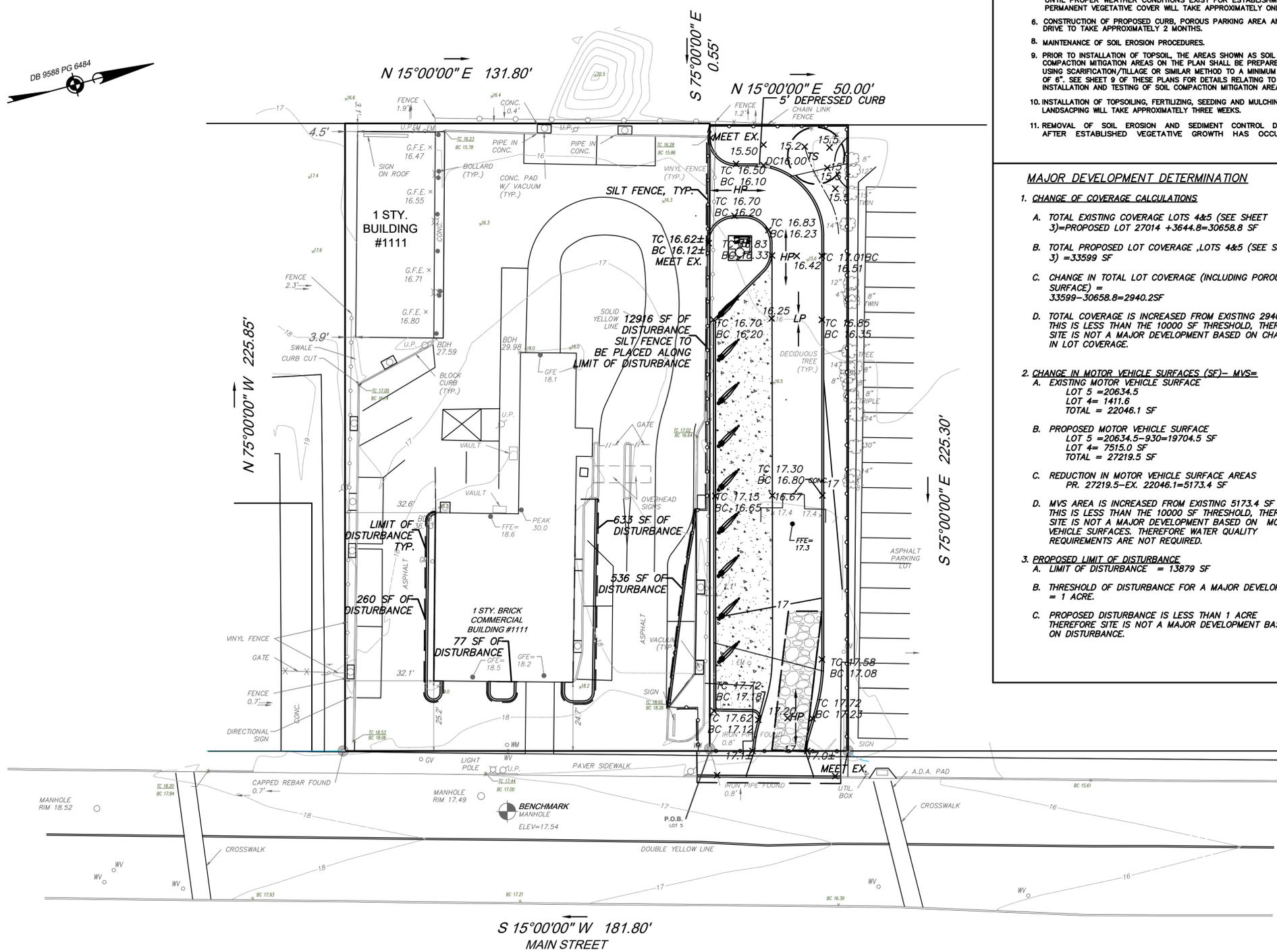
SHEET  
 3  
 OF 10

**LEGEND**

	EXISTING CURB LINE		EXISTING LOT LINES
	EXISTING WATER LINE		EXISTING BUILDINGS
	EXISTING GAS LINE		TO BE REMOVED
	EXISTING SEWER LINE		BUILDING SET BACK LINE
	EXISTING TREES TO REMAIN		
	TREES TO BE REMOVED		



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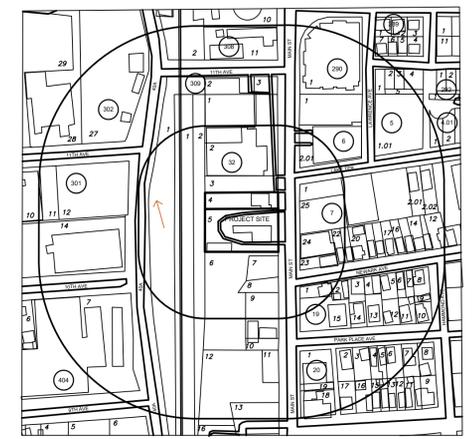


**PROPOSED CONSTRUCTION SEQUENCE**

1. FIRST WEEK OF CONSTRUCTION APPLY PROPER MEASURES FOR THE CONTROL OF SOIL EROSION AND SEDIMENT CONTROL.
2. CLEARING OF THE SITE WILL TAKE APPROXIMATELY THREE WEEKS.
4. UTILITY SERVICE CONNECTIONS AS MAY BE REQUIRED WILL TAKE APPROXIMATELY ONE MONTH.
5. TEMPORARY STABILIZATION OF DISTURBED AREAS IN A ROUGH GRADED CONDITION MAINTAINED BY SEEDING AND/OR MULCHING UNTIL PROPER WEATHER CONDITIONS EXIST FOR ESTABLISHMENT OF PERMANENT VEGETATIVE COVER WILL TAKE APPROXIMATELY ONE WEEK.
6. CONSTRUCTION OF PROPOSED CURB, POROUS PARKING AREA AND DRIVE TO TAKE APPROXIMATELY 2 MONTHS.
8. MAINTENANCE OF SOIL EROSION PROCEDURES.
9. PRIOR TO INSTALLATION OF TOPSOIL, THE AREAS SHOWN AS SOIL COMPACTION MITIGATION AREAS ON THE PLAN SHALL BE PREPARED BY USING SCARIFICATION/TILLAGE OR SIMILAR METHOD TO A MINIMUM DEPTH OF 8". SEE SHEET 9 OF THESE PLANS FOR DETAILS RELATING TO INSTALLATION AND TESTING OF SOIL COMPACTION MITIGATION AREAS.
10. INSTALLATION OF TOPSOILING, FERTILIZING, SEEDING AND MULCHING AND WILL LANDSCAPING WILL TAKE APPROXIMATELY THREE WEEKS.
11. REMOVAL OF SOIL EROSION AND SEDIMENT CONTROL DEVICES AFTER ESTABLISHED VEGETATIVE GROWTH HAS OCCURRED.

**MAJOR DEVELOPMENT DETERMINATION**

1. CHANGE OF COVERAGE CALCULATIONS
  - A. TOTAL EXISTING COVERAGE LOTS 4&5 (SEE SHEET 3)=PROPOSED LOT 27014 +3644.8=30658.8 SF
  - B. TOTAL PROPOSED LOT COVERAGE ,LOTS 4&5 (SEE SHEET 3) =33599 SF
  - C. CHANGE IN TOTAL LOT COVERAGE (INCLUDING POROUS SURFACE) = 33599-30658.8=2940.2SF
  - D. TOTAL COVERAGE IS INCREASED FROM EXISTING 2940.8 SF THIS IS LESS THAN THE 10000 SF THRESHOLD, THEREFORE SITE IS NOT A MAJOR DEVELOPMENT BASED ON CHANGE IN LOT COVERAGE.
2. CHANGE IN MOTOR VEHICLE SURFACES (SF)- MVS=
  - A. EXISTING MOTOR VEHICLE SURFACE  
LOT 5 =20634.5  
LOT 4= 1411.6  
TOTAL = 22046.1 SF
  - B. PROPOSED MOTOR VEHICLE SURFACE  
LOT 5 =20634.5-930=19704.5 SF  
LOT 4= 7515.0 SF  
TOTAL = 27219.5 SF
  - C. REDUCTION IN MOTOR VEHICLE SURFACE AREAS  
PR. 27219.5-EX. 22046.1=5173.4 SF
  - D. MVS AREA IS INCREASED FROM EXISTING 5173.4 SF THIS IS LESS THAN THE 10000 SF THRESHOLD, THEREFORE SITE IS NOT A MAJOR DEVELOPMENT BASED ON MOTOR VEHICLE SURFACES. THEREFORE WATER QUALITY REQUIREMENTS ARE NOT REQUIRED.
3. PROPOSED LIMIT OF DISTURBANCE
  - A. LIMIT OF DISTURBANCE = 13879 SF
  - B. THRESHOLD OF DISTURBANCE FOR A MAJOR DEVELOPMENT = 1 ACRE.
  - C. PROPOSED DISTURBANCE IS LESS THAN 1 ACRE THEREFORE SITE IS NOT A MAJOR DEVELOPMENT BASED ON DISTURBANCE.



KEY MAP  
SCALE: 1"=500'

**SOIL EROSION SEDIMENT CONTROL NOTES**

1. TOTAL AREA OF DISTURBANCE =13879 SF
2. ALL AREAS NOT COVERED BY STRUCTURE OR LANDSCAPE BEDS SHALL RECEIVE TOPSOIL LAYER MEASURING 5"THK. WHEN MEASURED IN A COMPACTED STATE. LAWN AREAS TO BE PERMANENTLY STABILIZED USING EITHER SEED OR SOD, AS CHOSEN BY THE OWNER. IF SEED, PERMANENT LAWN SEED MIXTURE TO BE SEED MIXTURE 13 AS NOTED IN TABLE 4-3 ON SHEET B.
3. SEEDED AREAS ARE TO BE FERTILIZED AND MULCHED IN ACCORDANCE WITH SOIL CONSERVATION DISTRICT STANDARDS.
4. SESC PROTECTION MEASURES SUCH AS SILT FENCE AND STABILIZED CONSTRUCTION ENTRANCE SHALL BE INSTALLED PRIOR TO DISTURBANCE OF SITE. SILT FENCING IS TO BE PLACED AROUND THE LIMIT OF DISTURBANCE AND LEFT IN PLACE UNTIL THE SITE IS PERMANENTLY STABILIZED.
5. TREES TO REMAIN SHALL HAVE TREE PROTECTION INSTALLED PRIOR TO DISTURBANCE OF SITE.
6. THE SITE HAS NO AREAS GREATER THAN 500SF THAT ARE LOCATED OUTSIDE OF THE CONSTRUCTION BUFFER ZONES OF THE PROPOSED IMPROVEMENTS THAT COULD RECEIVE COMPACTION MITIGATION.

**GRADING, DRAINAGE AND UTILITY NOTES**

1. THE PROPERTY OWNER IS RESPONSIBLE FOR THE MAINTENANCE AND OPERATION OF THE POROUS PARKING AREA RECHARGE SYSTEM.
2. ALL UTILITIES TO BE CONSTRUCTED UNDERGROUND PRIOR TO CONSTRUCTION OF PARKING AREA AND DRIVE SURFACE
3. ALL UTILITIES TO BE INSTALLED IN ACCORDANCE WITH THE JURISDICTIONAL AGENCY.
4. EXISTING UTILITIES TO THE EXISTING STRUCTURE ON LOT 5 TO BE DISCONNECTED PRIOR TO DISTURBANCE OF THE SITE. REQUIRED APPROVALS FROM THE JURISDICTIONAL AGENCY TO DISCONNECT THE EXISTING SERVICE IS TO BE OBTAINED PRIOR TO THE SERVICE BEING DISCONNECTED.

NO.	DATE	REVISIONS	BY	CHECKED
PROJECT NO: _____ DRAWING: _____				

KRISTALL LLC  
PRELIMINARY AND FINAL MAJOR SITE PLAN  
1111-1115 MAIN STREET  
LOT 4&5, BLOCK 32;  
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CERTIFICATION  
Digitally signed by Elizabeth Waterbury  
ELIZABETH M. WATERBURY, P.E., P.P. Date: 2025.04.01  
STATE OF NJ LICENSE No. 31645 (P.E.) 03591 (P.P.)  
00:21:16 -05'00'

12/18/2024  
INITIAL RELEASE DATE

SHEET  
4  
OF 10

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**LEGEND**

- EXISTING CURB LINE
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING SEWER LINE
- EXISTING TREES TO REMAIN
- TREES TO BE REMOVED
- EXISTING LOT LINES
- EXISTING BUILDINGS
- TBR TO BE REMOVED
- BUILDING SET BACK LINE

**SESC LEGEND**

- CONSTRUCTION ENTRANCE
- SILT FENCE
- DISTURBANCE LIMIT
- INLET PROTECTION
- TOPSOIL STOCKPILE

(66' R.O.W.)  
(46'± PAVT WIDTH)



SCALE: 1 in. = 20 ft.

PLANT LIST\*

KEY	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	SPACING	QUANTITY
SHRUBS						
BB	Morella pensylvanica	NORTHERN BAYBERRY	2'-3'	CONTAINER- 5'		24

\* PLANTINGS MAY BE SUBSTITUTED WITH AN OR EQUAL PLANTING AS APPROVED BY THE MUNICIPAL ENGINEER.

LOT 2  
BLOCK 96  
D.O.T.  
NEW YORK & LONG BRANCH RAILROAD CO.  
MAIN STEM CLASS II

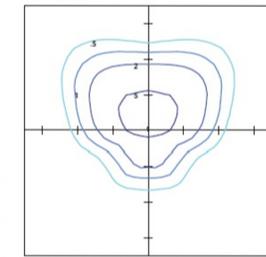
NOTE: ALL AREAS OUTSIDE OF BUILDINGS AND DRIVING AREAS WHICH ARE NOT PLANTING BEDS SHALL BE TOPSOILED 5" THICK, FERTILIZED AND SEEDED, OR SODDED WITH NJ CERTIFIED SOD.

MRS-LED-18L-SIL-FT-40-70CRI

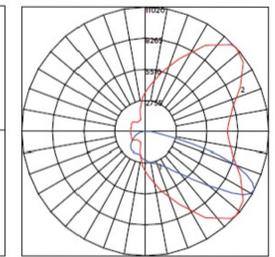
Luminaire Data	
Type FT Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	17,682
Watts	135
Efficacy	131
IES Type	Type III - Short
IES Rating	IES-10-G2

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
Low (0-30°)	2255	13%
Medium (30-40°)	9463	54%
High (40-60°)	5696	32%
Very High (60-90°)	268	2%
Uplight (90-180°)	0	0%
Total Flux	17682	100%

ISO FOOTCANDLE

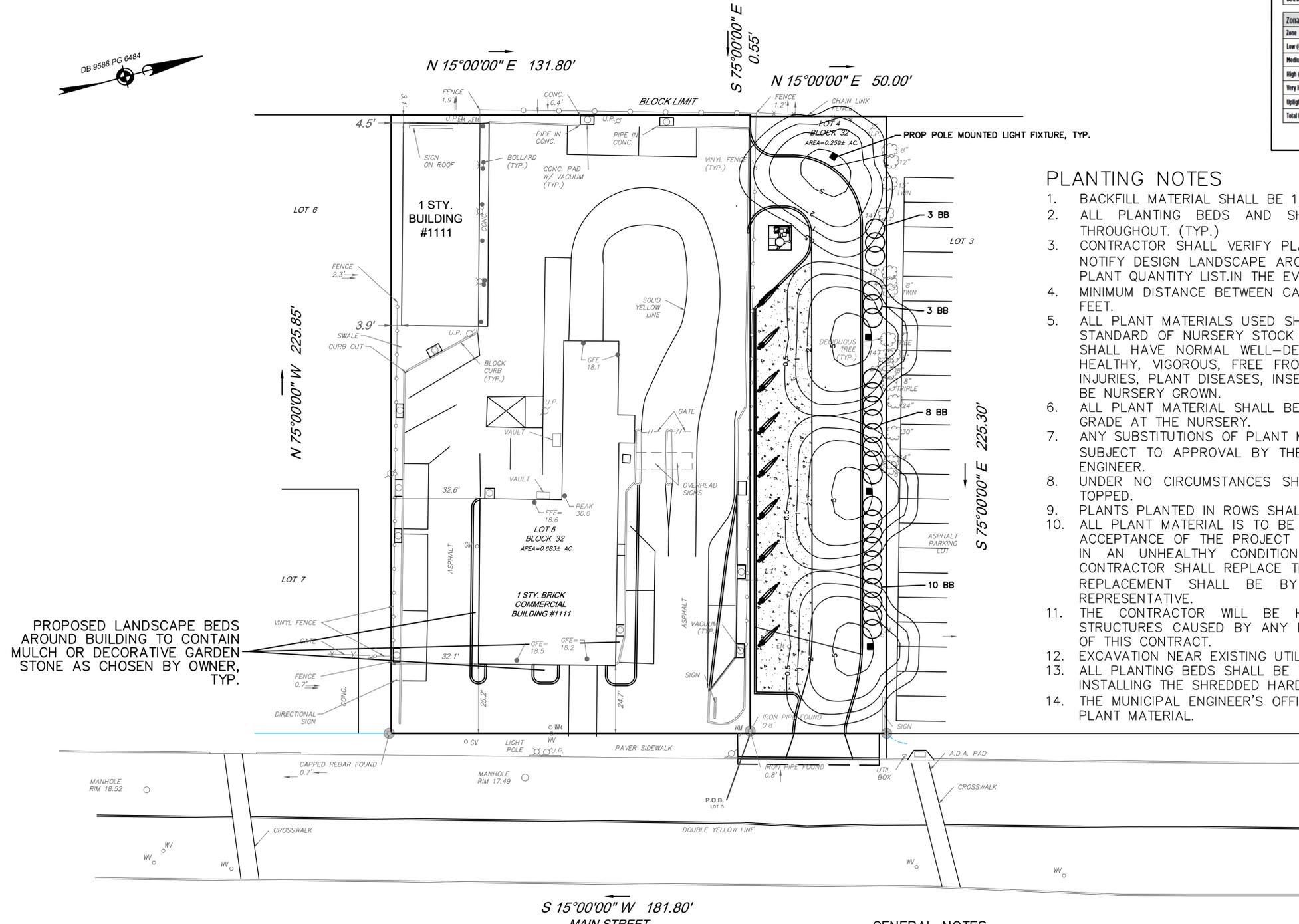


POLAR CURVE



20' Mounting Height/20' Grid Spacing  
■ 5 FC ■ 2 FC ■ 1 FC ■ 0.5 FC

LIGHT FIXTURE SPECIFICATIONS AND PHOTMETRICS



PROPOSED LANDSCAPE BEDS AROUND BUILDING TO CONTAIN MULCH OR DECORATIVE GARDEN STONE AS CHOSEN BY OWNER, TYP.

PLANTING NOTES

- BACKFILL MATERIAL SHALL BE 1/3 NATIVE MATERIAL, TOPSOIL & PEAT MOSS.
- ALL PLANTING BEDS AND SHALL BE MULCHED WITH SHREDDED HARDWOOD BARK, 4" THICK, THROUGHOUT. (TYP.)
- CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO SELECTING PLANTS AT NURSERY SOURCES. NOTIFY DESIGN LANDSCAPE ARCHITECT/ ENGINEER OF DISCREPANCIES BETWEEN PLANTING PLANS AND PLANT QUANTITY LIST. IN THE EVENT OF A DISCREPANCY, THE PLANTING PLANS SHALL PREVAIL.
- MINIMUM DISTANCE BETWEEN CANOPY TREES AND ROADWAY/PARKING LOT LIGHT POLES SHALL BE TEN FEET.
- ALL PLANT MATERIALS USED SHALL BE TRUE TO NAME AND SIZE IN CONFORMITY WITH THE AMERICAN STANDARD OF NURSERY STOCK AND SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY. ALL PLANTS SHALL HAVE NORMAL WELL-DEVELOPED BRANCHES AND VIGOROUS ROOT SYSTEMS. THEY SHALL BE HEALTHY, VIGOROUS, FREE FROM DEFECTS, DISFIGURING KNOTS, ABRASIONS OF THE BARK, SUNSCALD INJURIES, PLANT DISEASES, INSECT EGGS, BORERS AND ALL FORMS OF INFECTION. ALL PLANTS SHALL BE NURSERY GROWN.
- ALL PLANT MATERIAL SHALL BEAR THE SAME RELATION TO FINISHED GRADE AS IT BORE TO EXISTING GRADE AT THE NURSERY.
- ANY SUBSTITUTIONS OF PLANT MATERIAL WITH REGARD TO SIZE, SPECIES, VARIETY, ETC., SHALL BE SUBJECT TO APPROVAL BY THE PROJECT LANDSCAPE/ DESIGN ENGINEER ARCHITECT AND MUNICIPAL ENGINEER.
- UNDER NO CIRCUMSTANCES SHOULD THE MAIN LEADER OF A DECIDUOUS OR EVERGREEN TREE BE TOPPED.
- PLANTS PLANTED IN ROWS SHALL BE MATCHED SPECIMENS AND BE UNIFORM IN SIZE AND FORM.
- ALL PLANT MATERIAL IS TO BE GUARANTEED FOR A PERIOD OF TWELVE MONTHS FROM TIME OF FINAL ACCEPTANCE OF THE PROJECT OR AS REGULATED BY THE TOWNSHIP. IF ANY PLANTS ARE DEAD OR IN AN UNHEALTHY CONDITION BEFORE FINAL ACCEPTANCE OF THE PROJECT, THE LANDSCAPE CONTRACTOR SHALL REPLACE THEM AT HIS EXPENSE. THE DETERMINATION OF WHICH PLANTS REQUIRE REPLACEMENT SHALL BE BY THE PROJECT LANDSCAPE ARCHITECT/ ENGINEER OR OWNER'S REPRESENTATIVE.
- THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES OR STRUCTURES CAUSED BY ANY PERSON, VEHICLE, EQUIPMENT, OR TOOLS RELATED TO THE EXECUTION OF THIS CONTRACT.
- EXCAVATION NEAR EXISTING UTILITIES SHALL BE CAREFULLY PERFORMED BY HAND.
- ALL PLANTING BEDS SHALL BE TREATED WITH A PRE-EMERGENT HERBICIDE SUCH AS PREEN PRIOR TO INSTALLING THE SHREDDED HARDWOOD MULCH.
- THE MUNICIPAL ENGINEER'S OFFICE SHALL BE NOTIFIED 72 HOURS PRIOR TO THE INSTALLATION OF ANY PLANT MATERIAL.

GENERAL NOTES

- ANY TREES TO BE REMOVED SHALL REQUIRE A TREE REMOVAL PERMIT. SUCH REMOVAL SHALL BE IN ACCORDANCE WITH APPROVED TREE REMOVAL PERMIT. ALL OTHERS TO BE PROTECTED DURING CONSTRUCTION.
- VACUUM ARMS TO HAVE INSTALLED LIGHT BARS TO MATCH THOSE ON EXISTING VACUUM STATIONS IN EXISTING CAR WASH AREA.
- LIGHTING AS EXISTS FOR THE EXISTING CAR WASH FACILITY IS TO REMAIN.

**LEGEND**

	EXISTING CURB LINE		EXISTING LOT LINES
	EXISTING WATER LINE		EXISTING BUILDINGS
	EXISTING GAS LINE		TO BE REMOVED
	EXISTING SEWER LINE		BUILDING SET BACK LINE
	EXISTING TREES TO REMAIN		
	TREES TO BE REMOVED		



1.	4/1/2025	UPDATE LIGHTING TO NEW FIXTURE. UPDATE LAYOUT TO NEW ENTRANCE	TCS	EMW
NO.	DATE	REVISIONS	BY	CHECKED

PROJECT NO: KRISTALL LLC  
 PRELIMINARY AND FINAL MAJOR SITE PLAN  
 1111-1115 MAIN STREET  
 LOT 4&5, BLOCK 32;  
 BOROUGH OF BRADLEY BEACH, MONMOUTH COUNTY, NJ

LANDSCAPE AND LIGHTING PLAN

E.M. Waterbury & Associates, P.A.

ENGINEERING • PLANNING • LAND USE & DEVELOPMENT  
 530 Prospect Avenue, Suite 2C, Little Silver, NJ 07739 • P:732.747.6530 F:732.747.6778 Email:emwassoc@aol.com

CERTIFICATION

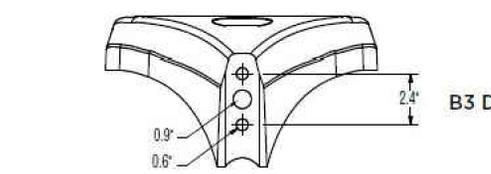
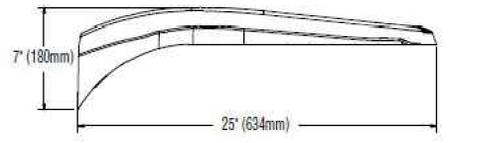
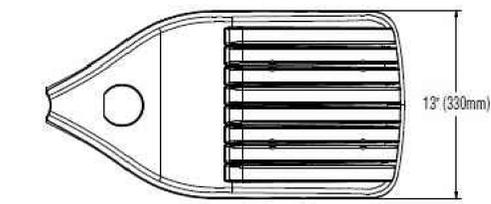
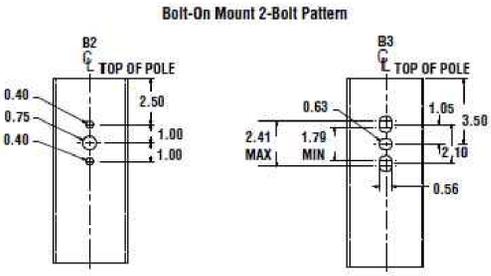
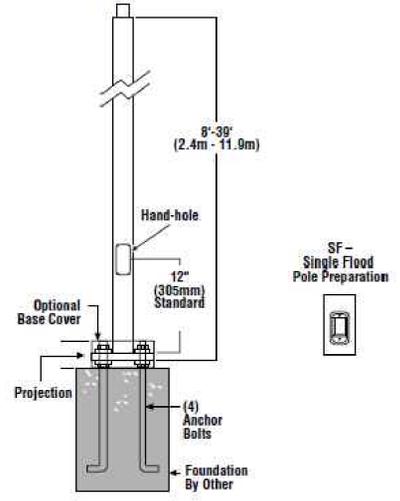
Digitally signed by Elizabeth Waterbury  
 ELIZABETH M. WATERBURY, P.E., P.P. Date: 2025.04.01  
 LICENSED PROFESSIONAL ENGINEER AND PLANNER  
 STATE OF NJ LICENSE No. 31845 (P.E.) 03591 (P.P.)

12/18/2024 INITIAL RELEASE DATE

SHEET 5 OF 10

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SQT -  
N= 2-3/8" (60mm) O.D. x 4-3/4" (121mm) Tenon



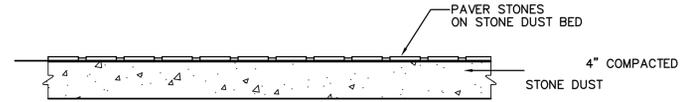
1. LIGHT FIXTURE AND POLE TO BE AS MANUFACTURED BY LSI INDUSTRIES. FIXTURE TO BE 'MIRANDA SMALL ARE (MRS)' LED FIXTURE. POLE TO BE

**LIGHT FIXTURE AND POLE DETAIL**

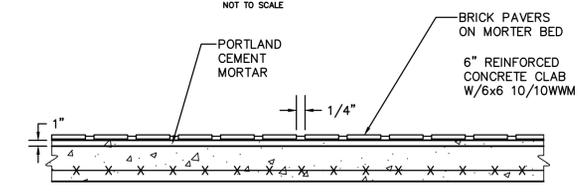
NOT TO SCALE

**CONSTRUCTION NOTES:**

1. PAVER STONES TO MATCH THOSE INSTALLED BY BOROUGH IN RIGHT-OF-WAY, OR APPROVED EQUAL
2. PAVER STONES INSTALLED FOR PRIVATE SIDEWALK TO BE INSTALLED ON COMPACTED BASE OF STONE DUST. STONE DUST TO BE SWEEPED BETWEEN INTO PAVER STONES AFTER COMPLETION OF INSTALLATION.
3. PAVER STONES WITHIN DRIVE AREAS TO BE INSTALLED ON MORTAR BED.
4. PAVER STONES OUTSIDE OF DRIVE AREAS BUT WITHIN BOROUGH RIGHT-OF-WAY TO BE INSTALLED IN FASHION TO MATCH EXISTING PAVERS WITHIN RIGHT-OF-WAY, WHETHER ON STONE DUST FOR MORTAR BED.



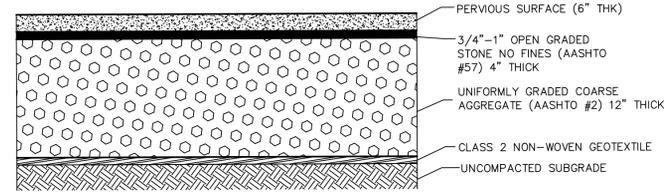
**SIDEWALK PAVER DETAIL ON STONE BED**



**PAVER DETAIL ON MORTAR BED**

**PAVER SIDEWALK AND PAVER DRIVEWAY DETAILS**

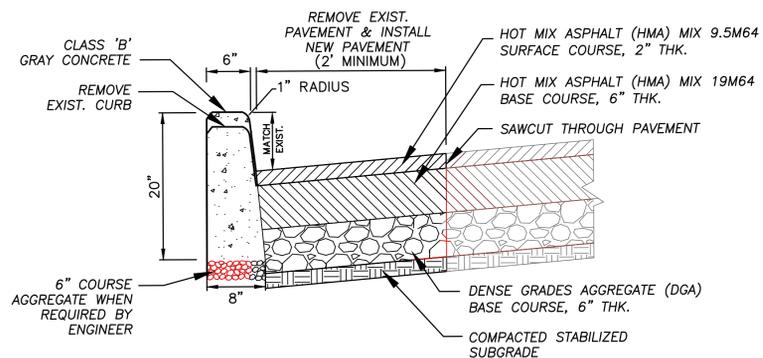
NOT TO SCALE



- NOTES:**
1. DRIVE TO BE PERVIOUS CONCRETE, OR PERMEABLE PAVERS ONLY AS CHOSEN BY OWNER. POROUS SURFACE AND SUBGRADE TO BE PREPARED AND INSTALLED PER MANUFACTURES RECOMMENDATIONS.
  2. CONTRACTOR IS TO TAKE CARE DURING CONSTRUCTION TO NOT COMPACT THE SUBGRADE.
  3. PERVIOUS CONCRETE TO BE LAST ITEM GRADED AND CONSTRUCTED TO LIMIT COMPACTION OF EX. SUBGRADE.
  4. SIDES AND EDGES OF STONE AND SAND EXCAVATION TO BE WRAPPED IN CLASS 1 GEOTEXTILE.
  5. NON-WOVEN FILTER FABRIC TO BE PROVIDED AT ALL AGGREGATE-SOIL INTERFACES.

**POROUS DRIVEWAY DETAIL**

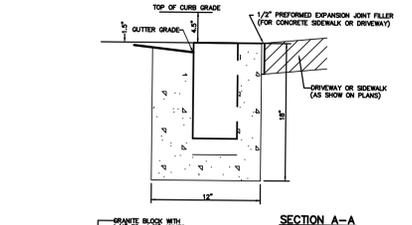
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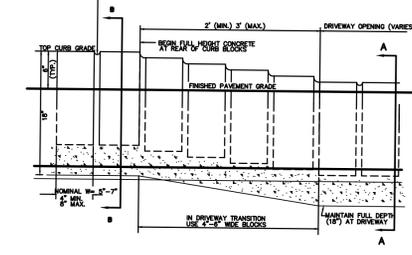
1. TRANSVERSE JOINTS 1/2" WIDE SHALL BE INSTALLED IN THE CURB 20'-0" APART AND SHALL BE FILLED WITH PREFORMED BITUMINOUS-IMPREGNATED FIBER JOINT FILLER RECESSED 1/4" IN FROM FACE AND TOP OF CURB.
2. EXISTING CURB SHALL BE MET AT CONSTRUCTION JOINTS UNLESS OTHERWISE INDICATED ON THE PLANS. PROPOSED CURB SHALL MATCH SURROUNDING CURB REVEAL AND GRADE.

**CONCRETE VERTICAL CURB AND PAVEMENT REPAIR STRIP**

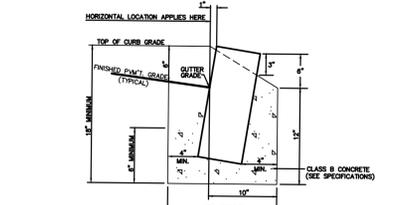
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**SECTION A-A**



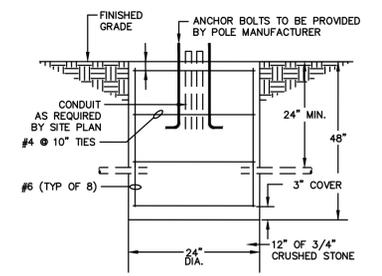
**ELEVATION**



**SECTION B-B**

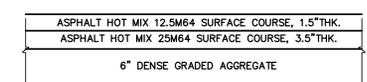
- CONSTRUCTION NOTES:**
1. ALL MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE SPECIFIED, TO BE IN ACCORDANCE WITH AND NAC TITLE 5 CHAPTER 21 RESIDENTIAL SITE IMPROVEMENT STANDARDS
  2. PROVIDE 1/2" PREFORMED EXPANSION JOINT FILLER TRIMMED TO CONFORM TO CURB SECTION, AT P.C & P.T. OF CURB RETURNS AT 50' INTERVALS ELSEWHERE.
  3. BLOCK TO BE 10"-12" HIGH WITH 1/4" TO 1/2" JOINTS

**GRANITE BLOCK CURB**



**LIGHT POLE FOUNDATION**

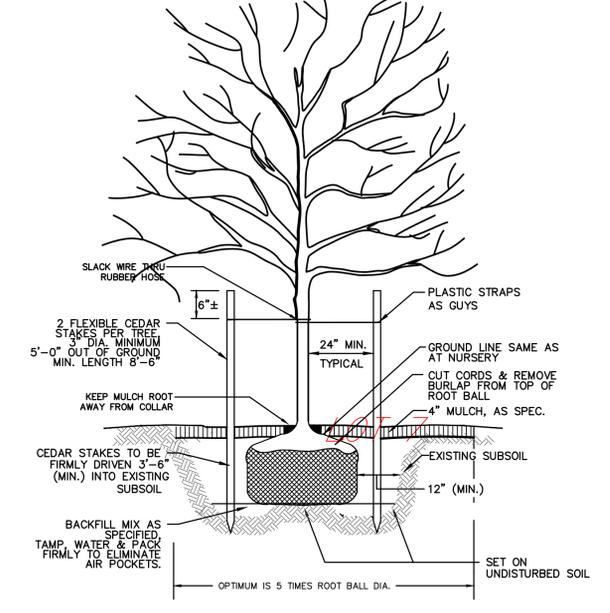
NOT TO SCALE



- NOTE:**
- EDGE OF AREA TO BE REPAIRED SHALL BE SAW CUT TO PROVIDE A STRAIGHT CLEAN EDGE.
- TACK COAT TO BE PROVIDED OVER EXISTING SURFACE PRIOR TO OVERLAY INSTALLATION.
- EXISTING PAVEMENT ALONG THE LIMIT OF OVERLAY AND SEAL COAT TO BE MILLED TO A DEPTH OF 1 1/2" PRIOR TO OVERLAY.

**ASPHALT DRIVEWAY AND PARKING AREA DETAIL**

NOT TO SCALE

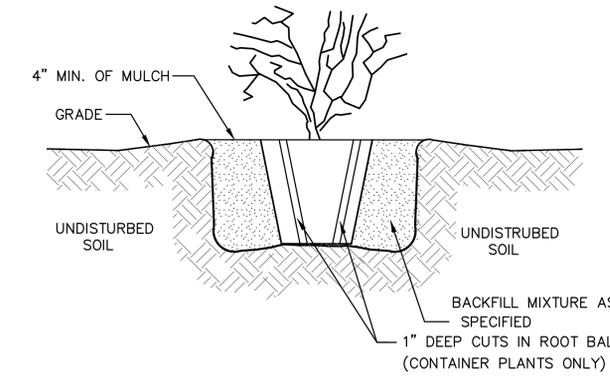


**NOTE:** A ROOT BARRIER PRODUCT SHALL BE PROVIDED ON ALL SIDES OF THE PLANTING PIT FOR ALL TREES LOCATED ADJACENT TO NEW PAVEMENT, CURB AND SIDEWALK. (TYP.)

**DECIDUOUS AND EVERGREEN**

**TREE PLANTING DETAIL**

NOT TO SCALE



**PLANTING DETAIL FOR CONTAINER & B&B PLANTS**

NO SCALE

1.	4/1/2025	UPDATE DETAILS FOR LATEST PLAN	TCS	EMW
NO.	DATE	REVISIONS	BY	CHECKED
PROJECT NO:			DRAWING:	

**KRISTALL LLC**  
**PRELIMINARY AND FINAL MAJOR SITE PLAN**  
 1111-1115 MAIN STREET  
 LOT 4&5, BLOCK 32;  
 BOROUGH OF BRADLEY BEACH, MONMOUTH COUNTY, NJ

**CONSTRUCTION DETAILS**

**E.M. Waterbury & Associates, P.A.**  
 ENGINEERING • PLANNING • LAND USE & DEVELOPMENT  
 530 Prospect Avenue, Suite 2C, Little Silver, NJ 07739 • P:732.747.6530 F:732.747.6778 Email:emwassoc@aol.com

CERTIFICATION  
 Digitally signed by Elizabeth Waterbury  
 ELIZABETH M. WATERBURY, P.E., P.P. Date: 2025.04.01  
 LICENSED PROFESSIONAL ENGINEER AND PLANNER  
 STATE OF NJ LICENSE No. 31645 (P.E.) 03591 (P.P.)  
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12/18/2024  
 INITIAL RELEASE  
 SHEET 6 OF 10

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**SOIL EROSION AND SEDIMENT CONTROL NOTES**

- The Freehold Soil Conservation District shall be notified forty-eight (48) hours in advance of any soil disturbing activity.
- 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.
- 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.
- 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.
- Any disturbed areas that will be left exposed more than sixty (60) days, and not subject to construction traffic, will immediately receive a temporary seeding. If the season prevents the establishment of temporary cover, the disturbed areas will be mulched with straw, or equivalent material, at a rate of 2 to 2 1/2 tons per acre, according to the Standard for Stabilization with Mulch Only.
- 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.
- 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.
- 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.
- All soil washed, dropped, spilled, or tracked outside the limit of disturbance or onto public right-of-ways will be removed immediately.
- Permanent vegetation is to be seeded or sodded on all exposed areas within ten (10) days after final grading.
- 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.
- 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.
- Conduit Outlet Protection must be installed at all required outfalls prior to the drainage system becoming operational.
- Unfiltered dewatering is not permitted. Necessary precautions must be taken during all dewatering operations to minimize sediment transfer. Any dewatering methods used must be in accordance with the Standard for Dewatering.
- Should the control of dust at the site be necessary, the site will be sprinkled until the surface is wet, temporary vegetative cover shall be established or mulch shall be applied as required by the Standard for Dust Control.
- 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.
- All soil stockpiles are to be temporarily stabilized in accordance with Soil Erosion and Sediment Control note #6.
- The property owner shall be responsible for any erosion or sedimentation that may occur below stormwater outfalls or offsite as a result of construction of the project.

Freehold Soil Conservation District

4000 Kozloski Road, Freehold, NJ 07728-5033, (732) 683-8500, fax (732) 683-9140, Email: info@freeholdscd.org

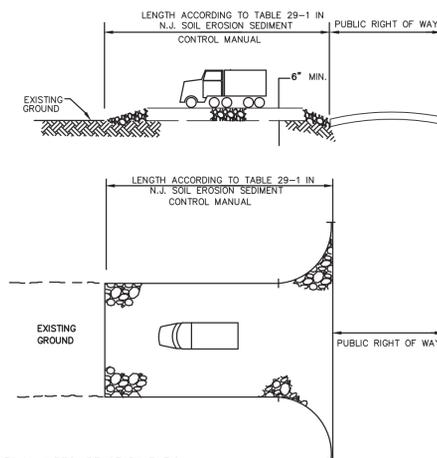
Table 27-1: Lengths of Construction Exits on Sloping Roadbeds

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

- As prescribed by local ordinance or other governing authority.

**NOTES**

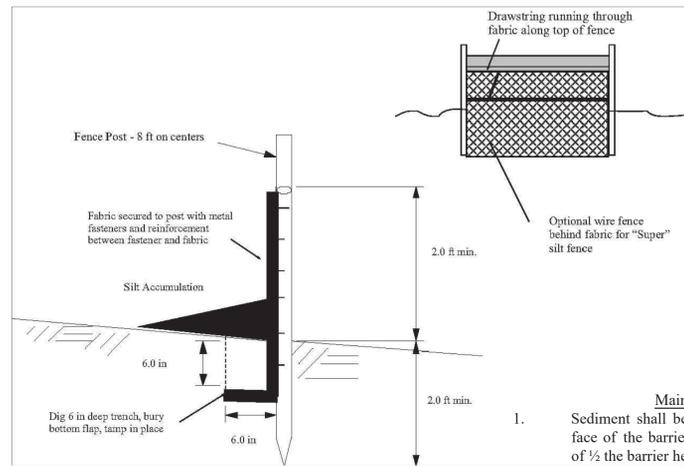
- INDIVIDUAL LOT ACCESS POINTS MAY REQUIRE STABILIZATION
- THICKNESS SHOWN IS FOR STONE CONSTRUCTION ENTRANCE ONLY (TYP.)
- STONE SIZE USED FOR CONSTRUCTION ACCESS SHALL BE 1.5" TO 2.5" IN SIZE.



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

**STABILIZED CONSTRUCTION ENTRANCE**

N.T.S.

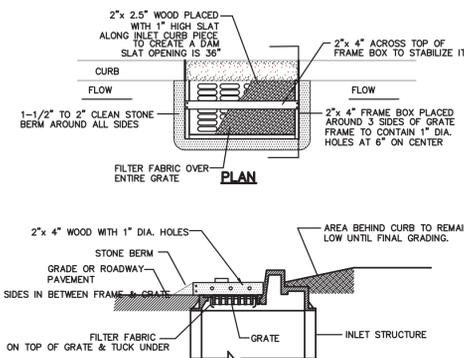


**SILT FENCE SEDIMENT BARRIER**

N.T.S.

**Maintenance**

- Sediment shall be removed from the upstream face of the barrier when it has reached a depth of 1/2 the barrier height.
- Repair or replace barrier (fabric, posts, bales etc.) when damaged.
- Barriers shall be inspected daily for signs of deterioration and sediment removal.



**SECTIONAL VIEW AT DOWNSTREAM END**

**CONSTRUCTION NOTES:**

- THE FILTER BARRIER SHALL BE REMOVED WHEN THE AREA DRAINING TO THE INLET HAS BEEN STABILIZED. INSPECTIONS SHALL BE MADE FOLLOWING EACH RAINFALL. MAINTENANCE, REPAIR AND REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED AND SEDIMENT SHALL BE REMOVED AFTER EACH RAINFALL.
- FILTER FABRIC SHALL BE MIRAFI 140N OR APPROVED EQUIVALENT.

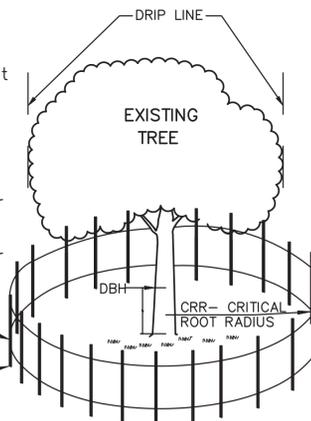
**STORM SEWER INLET PROTECTION**

N.T.S.

**DETERMINATION OF CRITICAL ROOT RADIUS (CRR)**

- Measure the DBH (diameter of tree at breast height, 4.5 feet above ground on the uphill side of tree) in inches.
- Multiply measured DBH by 1.5 or 1.0 per below. 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

PROTECTED AREA  
FENCE PLACED AT TREE CRR



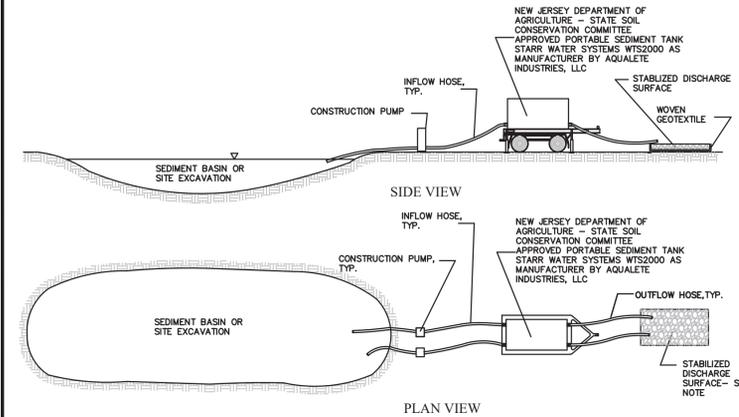
**TREE PROTECTION DURING CONSTRUCTION DETAIL**

NOT TO SCALE

**TREE PROTECTION NOTES:**

TREES NOT SHOWN ON THE PLAN TO BE REMOVED SHALL BE PROTECTED. SEE DETAIL FOR THE MINIMUM AREA TO BE FENCED. PROTECTING A TREE FROM COMPACTION FROM HEAVY EQUIPMENT, THE WEIGHT OF STOCKPILED MATERIALS, AND FROM GRADE CHANGES THAT DISTURB THE ROOT AREA IS ESSENTIAL FOR TREE SURVIVAL.

TREES TO REMAIN MUST BE PROTECTED FROM MECHANICAL INJURY FROM EQUIPMENT OR OPERATIONS DURING CONSTRUCTION BECAUSE WOUNDS ADMIT DECAY AND DISEASE, ORGANISMS AND MAY ALTER GROWTH PATTERNS.



**DEWATERING DETAIL USING WTS 2000 PORTABLE SEDIMENT TANK SEDIMENT BASIN OR SITE EXCAVATION CONTAINMENT**

NOT TO SCALE

**Construction Specifications**

- Location.** Containers (tanks or 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.
- Tank size.** The following formula should be used in determining the storage volume of the tank: 1 cubic foot of storage for each gallon per minute of pump discharge capacity. Typical tank configuration is shown on Detail 14-3. Tanks may be connected in series to increase effectiveness.
- Tanks consist of two concentric circular pipes (CMP), attached to a watertight baseplate. The inner CMP is perforated with 1" holes on 6" centers and is wrapped with geotextile and hardware cloth. Pumped water is discharged into the inner CMP where it flows through the geotextile into the space between the two CMP's. A discharge line is attached to the outer CMP and draws filtered water from the annulus between the two concentric CMP's. The discharge line may be connected to another tank where it drains to the inner CMP of the second tank. This series connection may be continued indefinitely.
- Sediment Control Bags must be located away from receiving waters and disposed of according to manufacturer's instructions. See detail for Sediment Control Bag (Filter Bag)

**DEWATERING NOTES**

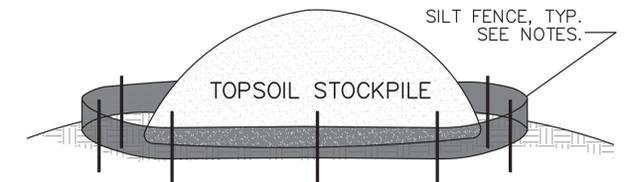
NOT TO SCALE

**NOTES**

- STOCKPILE TO IMMEDIATELY RECEIVE VEGETATIVE COVER IN ACCORDANCE WITH MINIMUM STABILIZATION REQUIREMENTS.
- SILT FENCE SEDIMENT BARRIER TO BE PROVIDED, IMMEDIATELY UPON CREATION OF STOCKPILE. AT THE BASE OF STOCKPILE ON ALL SIDES WHERE THE GROUND GRADES AWAY FROM THE STOCKPILE. SILT FENCE SEDIMENT BARRIER TO BE INSTALLED IN ACCORDANCE WITH DETAIL.

**TOPSOIL STOCKPILE PROTECTION DETAIL**

N.T.S.



**NOTES:**

- PRIOR TO OPERATION, THE WTS2000 IS TO BE LEVELED USING THE ATTACHED LEVELING JACKS.
- WTS2000 TO BE OPERATED PER MANUFACTURER RECOMMENDATION FOR THE SOIL TYPE ON THE SITE.
- OUTFLOW TO BE DISCHARGED ONTO A STABILIZED SURFACE. THE STABILIZED DISCHARGE SURFACE IS TO BE A NON-ERODIBLE SURFACE LOCATED IN A STABILIZED AREA, WITH A WOVEN GEOTEXTILE LINER. NO OUTFLOW IS TO BE DISCHARGED ONTO BARE SOIL.

DETAIL DATE 9/18/13

NO.	DATE	REVISIONS	BY	CHECKED
PROJECT NO: KRISTALL LLC				
PRELIMINARY AND FINAL MAJOR SITE PLAN 1111-1115 MAIN STREET LOT 4&5, BLOCK 32; BOROUGH OF BRADLEY BEACH, MONMOUTH COUNTY, NJ				
SOIL EROSION AND SEDIMENT CONTROL NOTES & DETAILS				
E.M. Waterbury & Associates, P.A. ENGINEERING • PLANNING • LAND USE & DEVELOPMENT 530 Prospect Avenue, Suite 2C, Little Silver, NJ 07739 • P:732.747.6530 F:732.747.6778 Email:emwassoc@aol.com				
CERTIFICATION				
Digitally signed by Elizabeth Waterbury				12/18/2024
Date: 2024.12.19				SHEET 7
00:34:55 -05'00'				OF 10

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**STANDARD FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION**

**DEFINITION**

ESTABLISHMENT OF PERMANENT VEGETATIVE COVER ON EXPOSED SOILS WHERE PERENNIAL VEGETATION IS NEEDED FOR LONG TERM PROTECTION.

**PURPOSE**

TO PERMANENTLY STABILIZE THE SOIL, ASSURING CONSERVATION OF SOIL AND WATER, AND TO ENHANCE THE ENVIRONMENT.

**WATER QUALITY ENHANCEMENT**

SLOWS THE OVERLAND MOVEMENT OF STORMWATER RUNOFF, INCREASES INFILTRATION AND RETAINS SOIL AND NUTRIENTS ON SITE, PROTECTING STREAMS OR OTHER STORMWATER CONVEYANCES.

**WHERE APPLICABLE**

ON EXPOSED SOILS THAT HAVE A POTENTIAL FOR CAUSING OFF-SITE ENVIRONMENTAL DAMAGE.

**METHODS AND MATERIALS**

**I. SITE PREPARATION**

- 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.
- IMMEDIATELY PRIOR TO SEEDING AND TOPSOIL APPLICATION, THE SUBSOIL SHALL BE EVALUATED FOR COMPACTION IN ACCORDANCE WITH THE STANDARD FOR LAND GRADING.
- TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE. A UNIFORM APPLICATION OF 2 TO 3 INCHES (UNSETTLED) IS REQUIRED ON ALL SITES.
- TOPSOIL SHALL BE AMENDED WITH ORGANIC MATTER, AS NEEDED, IN ACCORDANCE WITH THE STANDARD FOR TOPSOILING.
- INSTALL NEEDED EROSION CONTROL PRACTICES OR FACILITIES SUCH AS DIVERSIONS, GRADE-STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS.

**II. SEEDBED PREPARATION**

- 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 SERVICE MATERIALS AVAILABLE FROM LOCAL RUTGERS CO-OPERATIVE 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. APPLY LIME AND FERTILIZER TO 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.
- 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 HARROWING OR DISKING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLE UNIFORM SEEDBED IS PREPARED.
- HIGH ACID PRODUCING SOILS HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDE SHALL BE COVERED WITH A MINIMUM OF 12 INCHES OF SOIL HAVING A PH OF 5 OR MORE BEFORE INITIATING SEEDBED PREPARATION. SEE STANDARD FOR MANAGEMENT OF HIGH ACID-PRODUCING SOILS FOR SPECIFIC REQUIREMENTS.

**III. SEEDING**

- SELECT A MIXTURE FROM TABLE 4-3 OR USE A MIXTURE RECOMMENDED BY RUTGERS CO-OPERATIVE 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.
  - 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.
  - WARM-SEASON MIXTURES ARE GRASSES AND LEGUMES WHICH MAXIMIZE GROWTH AT HIGH TEMPERATURES, GENERALLY 85° F AND ABOVE. SEE TABLE 4-3 MIXTURES 1 TO 7. PLANTING RATES FOR WARM-SEASON GRASSES SHALL BE THE AMOUNT OF PURE LIVE SEED (PLS) AS DETERMINED BY GERMINATION TESTING RESULTS.
  - COOL-SEASON MIXTURES ARE GRASSES AND LEGUMES WHICH MAXIMIZE GROWTH AT TEMPERATURES BELOW 85° F. MANY GRASSES BECOME ACTIVE AT 65° F. SEE TABLE 4-3, MIXTURES 8-20. ADJUSTMENT OF PLANTING RATES TO COMPENSATE FOR THE AMOUNT OF PLS IS NOT REQUIRED FOR COOL SEASON GRASSES.
- CONVENTIONAL SEEDING IS PERFORMED BY APPLYING SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL OR CULTPACKER SEEDER. EXCEPT FOR DRILLED, HYDROSEEDER OR CULTPACKER SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL WITHIN 24 HOURS OF SEEDBED PREPARATION TO A DEPTH OF 1 TO 2 INCH. BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/2 INCH DEEPER ON COARSE-TEXTURED SOIL.
- AFTER SEEDING, FIRING 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.
- 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 ON TO 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) HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL. WHEN POOR SEED TO SOIL CONTACT OCCURS, THERE IS A REDUCED SEED GERMINATION AND GROWTH.

**IV. 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.

- 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.

  - 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 CRIS-CROSS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.
  - MULCH NETTINGS - STAPLE PAPER, JUTE, COTTON, OR PLASTIC NETTINGS TO THE SOIL SURFACE. USE A DEGRADABLE NETTING IN AREAS TO BE MOWED.
  - 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.
  - LIQUID MULCH-BINDERS - MAY BE USED TO ANCHOR SALT HAY, HAY OR STRAW MULCH.
    - 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.
    - USE ONE OF THE FOLLOWING:
      - 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 PHYTO-TOXIC EFFECT OR IMPEDE GROWTH OF TURF GRASSES. 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.
      - 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 PHYTO-TOXIC EFFECT OR IMPEDE GROWTH OF TURF GRASSES. 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.

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

- 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.
- 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. SEEDING AREAS WHERE WEEP-SEED FREE MULCH IS DESIRED, OR ON SITES WHERE STRAW MULCH AND TACKIFIER AGENT ARE NOT PRACTICAL, 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.

**V. 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.

**VI. 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 TOPDRESSING IS MANDATORY. AN EXCEPTION MAY BE MADE WHERE GROSS NITROGEN DEFICIENCY EXISTS IN THE SOIL TO THE EXTENT THAT TURF MULLING AND TOPDRESSING 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.

**VII. 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 4-3 ARE REQUIRED WHEN A REPORT OF COMPLIANCE IS REQUESTED PRIOR TO ACTUAL ESTABLISHMENT OF PERMANENT VEGETATION. UP TO 50% REDUCTION IN APPLICATION RATES MAY BE USED WHEN PERMANENT VEGETATION IS ESTABLISHED PRIOR TO REQUESTING A REPORT OF COMPLIANCE FROM THE DISTRICT. THESE RATES APPLY TO ALL METHODS OF SEEDING. ESTABLISHING PERMANENT VEGETATION MEANS 80% VEGETATIVE COVER (OF THE SEEDED SPECIES) AND MOWED ONCE. NOTE: THIS DESIGNATION OF MOWED ONCE DOES NOT GUARANTEE THE PERMANENCY OF THE TURF SHOULD OTHER MAINTENANCE FACTORS BE NEGLECTED OR OTHERWISE MISMANAGED.

TABLE 4-3 SEED MIXTURES

SEED MIXTURE	PLANTING RATE (POUNDS)	PLANTING DATES										REMARKS	
		O <sub>m</sub> = Optimal planting period A <sub>m</sub> = Acceptable Planting Period											
		ZONE 5b, 6a		ZONE 6b		ZONE 7a, b		ZONE 7a, b		ZONE 7a, b			
	LBS PER ACRE	LBS/1,000 SQ. FEET	3/15-5/31	6/1-7/31	8/1-10/1	3/1-4/30	5/1-6/15	6/1-7/15	7/1-8/15	8/1-9/15	9/1-10/31	MATURE VEGETATIVE COVER	
WARM SEASON SEED MIXTURE													
1. SWITCHGRASS AND/OR COASTAL PANICGRASS OR FLATPEA	15	.35										C-D	
2. DEERTONGUE OR SWITCHGRASS REDTOP	15	.35										C-D	USE DEERTONGUE IF PH <4.0. SWITCHGRASS IS SUPERIOR WILDLIFE TURF FOR WATERWAYS. REDTOP PROVIDES QUICK COVER.
3. SWITCHGRASS BIG BLUESTEM LITTLE BLUESTEM SANITARIUM SHEEP FESCUE PLUS PARTRIDGE PEA	15	.35										C-D	PINELANDS MIXTURE
4. SWITCHGRASS LITTLE BLUESTEM SANITARIUM SHEEP FESCUE COASTAL PANICGRASS	10	.25										C-D	NATIVE WARM-SEASON MIXTURE.
5. BERMUDAGRASS (SEED) ZOYSIAGRASS (SPRIGS)	15	.35										C-D	BERMUDAGRASS HAS SUPERIOR SALT TOLERANCE. ZOYSIA HAS GREATER WEAR TOLERANCE.
COOL SEASON SEED MIXTURE													
6. FINE FESCUE (BLEND) HARD FESCUE CHEWING FESCUE STRONG CREEPING RED FESCUE KENTUCKY BLUEGRASS PERENNIAL RYEGRASS PLUS WHITE CLOVER (SEE NOTE AT RIGHT)	45	.1										B-D	WHITE CLOVER CAN BE REMOVED WHEN USED TO ESTABLISH LAWNS
7. STRONG CREEPING RED FESCUE KENTUCKY BLUEGRASS PERENNIAL RYEGRASS OR REDTOP PLUS WHITE CLOVER	130	.3										B-D	SUITABLE WATERWAY MIX. CANADA BLUEGRASS MORE DROUGHT TOLERANT. USE REDTOP FOR INCREASED DROUGHT TOLERANCE.
8. TALL FESCUE (TURF-TYPE) OR STRONG CREEPING RED FESCUE OR PERENNIAL RYEGRASS FLATPEA	30	.7										B-D	TALL FESCUE BEST SELECTED FOR DROUGHTY CONDITIONS. USE CREEPING RED FESCUE IN HEAVY SHADE. USE FLATPEA TO SUPPRESS WOODY VEGETATION.
9. DEERTONGUE OR WILD RYE (ELMUS) SWITCHGRASS	20	.45										C-D	NATIVE WET MIX.
10. TALL FESCUE (TURF-TYPE) PERENNIAL RYEGRASS OR WHITE CLOVER	265	.6										C-D	WHITE CLOVER CAN BE EXCLUDED ON LAWN SITES.
11. KENTUCKY BLUEGRASS TURF-TYPE TALL FESCUE	22	.5										C-D	FILTER STRIPS USE FOR NUTRIENT UPTAKE.
12. TURF-TYPE TALL FESCUE (BLEND OF 3 CULTIVARS)	350	.8										C-D	USE IN A MANAGED FILTER STRIP FOR NUTRIENT UPTAKE.
13. HARD FESCUE AND/OR CHEWING FESCUE AND/OR STRONG CREEPING RED FESCUE PERENNIAL RYEGRASS KY. BLUEGRASS (BLEND)	175	.4										A-C	GENERAL LAWN/ RECREATION.

**DUST CONTROL STANDARDS:**

- THE CONTRACTOR SHALL EMPLOY DUST CONTROL MEASURES IN ACCORDANCE WITH THE STANDARDS OF SOIL EROSION AND SEDIMENT CONTROL IN NJ LATEST EDITION. THE FOLLOWING METHODS SHOULD BE CONSIDERED FOR CONTROLLING DUST:
  - MULCHES - PER SSC STANDARDS OF STABILIZATION WITH MULCHES CHAPTER 5
  - VEGETATIVE COVER - PER SSC STANDARDS FOR TEMPORARY VEGETATIVE COVER SEE TABLE 7-2 SHEET 7 PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION PERMANENT STABILIZATION WITH SOIL, SSC STANDARDS CHAPTER 6
  - SPRAY-ON ADHESIVES - ON MINERAL SOILS (NOT EFFECTIVE ON MUCK SOILS). KEEP TRAFFIC OFF THESE AREAS.

TABLE 16-1 DUST CONTROL MATERIALS

MATERIAL	WATER DILUTION	TYPE OF NOZZLE	APPLY GALLONS/ACRE
Anionic asphalt emulsion	7:1	COURSE SPRAY	1200
Lotex emulsion	12.5:1	FINE SPRAY	235
Lotex emulsion	4:1	FINE SPRAY	300
Polyacrylamide (PAM) - spray on			Apply according to manufacturer's instructions. May also be used as an additive to sediment basins to flocculate and precipitate suspended solids. See Sediment Basin standard, p. 28-1
Polyacrylamide (PAM) - dry spread			
Alcaldated Soy Bean Soap Stick	NONE	COURSESPRAY	1200

- TILLAGE** - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS A TEMPORARY EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING 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 SOIL SURFACE IS WET.
- BARRIERS** - SOIL BOARD FENCES, SNOW FENCES, BURLAP FENCES, GRATE 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.

**TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION**

**DEFINITION**

ESTABLISHMENT OF TEMPORARY VEGETATIVE COVER ON SOILS EXPOSED FOR PERIODS OF TWO TO 6 MONTHS WHICH ARE NOT BEING GRADED, NOT UNDER ACTIVE CONSTRUCTION OR NOT SCHEDULED FOR PERMANENT SEEDING WITHIN 60 DAYS.

**PURPOSE**

TO TEMPORARILY STABILIZE THE SOIL AND REDUCE DAMAGE FROM WIND AND WATER EROSION UNTIL PERMANENT STABILIZATION IS ACCOMPLISHED.

**WATER QUALITY ENHANCEMENT**

PROVIDES TEMPORARY PROTECTION AGAINST THE IMPACTS OF WIND AND RAIN, SLOWS THE OVER LAND MOVEMENT OF STORMWATER RUNOFF, INCREASES INFILTRATION AND RETAINS SOIL AND NUTRIENTS ON SITE, PROTECTING STREAMS OR OTHER STORMWATER CONVEYANCES.

**WHERE APPLICABLE**

ON EXPOSED SOILS THAT HAVE THE POTENTIAL FOR CAUSING OFF-SITE ENVIRONMENTAL DAMAGE.

**METHODS AND MATERIALS**

**I. SITE PREPARATION**

- 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.
- 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.
- 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.).

**II. SEEDBED PREPARATION**

- APPLY GROUND LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS OFFERED BY RUTGERS CO-OPERATIVE EXTENSION. SOIL SAMPLE MALERS ARE AVAILABLE FROM THE LOCAL RUTGERS CO-OPERATIVE 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. APPLY LIME AND FERTILIZER TO 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.
- WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING-TOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISKING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLE UNIFORM SEEDBED IS PREPARED.
- INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED IN ACCORDANCE WITH THE ABOVE.
- 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 OF THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL OF NEW JERSEY LATEST EDITION.

**III. SEEDING**

- SELECT SEED FROM RECOMMENDATIONS IN TABLE 7-2.

TABLE 7-2 TEMPORARY VEGETATIVE STABILIZATION GRASSES, SEEDING RATES, DATES AND DEPTH

SEED SELECTIONS	SEEDING RATES <sup>1</sup> (POUNDS) PER 1,000 SQ. FEET	OPTIMUM SEEDING DATE <sup>2</sup> BASED ON PLANT HARDNESS ZONE <sup>3</sup>			OPTIMUM SEED DEPTH <sup>4</sup> (INCHES)	
		ZONE 5b, 6a	ZONE 6b	ZONE 7a, b		
<b>COOL SEASON GRASSES</b>						
PERENNIAL RYEGRASS	100	1.0	3/15 to 6/1 8/1 to 9/15	3/1 to 5/15 8/15 to 10/1	2/15 to 5/1 8/15 to 10/15	0.5
SPRING OATS	86	2.0	3/15 to 6/1 8/1 to 9/15	3/15 to 5/15 8/15 to 10/1	2/15 to 5/1 8/15 to 10/15	1.0
WINTER BARLEY	96	2.2	8/1 to 9/15	8/15 to 10/1	8/15 to 10/15	1.0
ANNUAL RYEGRASS	100	1.0	3/15 to 6/1 8/1 to 9/15	3/15 to 6/1 8/15 to 10/1	2/15 to 5/1 8/15 to 10/15	0.5
WINTER CEREAL RYE	112	2.8	8/1 to 11/1	8/1 to 11/15	8/1 to 12/15	1.0
<b>WARM SEASON GRASSES</b>						
PEARL MILLET	20	0.5	6/1 to 8/1	5/15 to 8/15	5/1 to 9/1	1.0
MILLET (GERMAN OR HUNGARIAN)	30	0.7	6/1 to 8/1	5/15 to 8/15	5/1 to 9/1	1.0

- SEEDING RATE FOR WARM SEASON GRASS, SELECTIONS 5-7 SHALL BE ADJUSTED TO REFLECT THE AMOUNT OF PURE LIVE SEED (PLS) AS DETERMINED BY A GERMINATION TEST RESULT. NO ADJUSTMENT IS REQUIRED FOR COOL SEASON GRASSES.
  - MAY BE PLANTED THROUGHOUT SUMMER IF SOIL MOISTURE IS ADEQUATE OR SEEDED AREA CAN BE IRRIGATED
  - PLANT HARDNESS ZONE (SEE FIGURE 7-1, P. 7-4) THIS PROJECT IS IN ZONE 7A.
  - TWICE THE DEPTH FOR SANDY SOILS
- CONVENTIONAL SEEDING, APPLY SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL OR CULTPACKER SEEDER. EXCEPT FOR DRILLED, HYDROSEEDER OR CULTPACKER SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL, TO A DEPTH OF 1 TO 2 INCH, BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/2 INCH DEEPER ON COARSE TEXTURED SOIL.
  - HYDROSEEDING IS A BROADCAST SEEDING METHOD USUALLY INVOLVING A TRUCK OR TRAILER MOUNTED TANK, WITH AN AGITATION SYSTEM AND HYDRAULIC PUMP FOR MIXING SEED, WATER AND FERTILIZER AND SPRAYING THE MIX ON TO THE PREPARED SEEDBED. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH SEED. SHORT FIBERED MULCH MAY BE APPLIED WITH A HYDROSEEDER FOLLOWING SEEDING. (ALSO SEE SECTION IV MULCHING) HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL. POOR SEED TO SOIL CONTACT OCCURS REDUCING SEED GERMINATION AND GROWTH. HYDROSEEDING MAY BE USED FOR AREAS TOO STEEP FOR CONVENTIONAL EQUIPMENT TO TRAVERSE OR TOO OBSTRUCTED WITH ROCKS, STUMPS, ETC.
  - AFTER SEEDING, FIRING 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.

**IV. 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.

- 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.

  - 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 CRIS-CROSS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.
  - MULCH NETTINGS - STAPLE PAPER

**TOPSOILING STANDARDS:**

1. **MATERIALS**
  - A. TOPSOIL SHOULD BE FRIABLE1, LOAMY2, 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. 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.

**MANAGEMENT OF HIGH ACID-PRODUCING SOILS**

- MATERIALS**
1. LIMIT THE EXCAVATION AREA AND EXPOSURE TIME WHEN HIGH ACID-PRODUCING SOILS ARE ENCOUNTERED.
  2. TOPSOIL STRIPPED FROM THE SITE SHALL BE STORED SEPARATELY FROM TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOILS.
  3. STOCKPILES OF HIGH ACID-PRODUCING SOIL SHOULD BE LOCATED ON LEVEL LAND TO MINIMIZE ITS MOVEMENT, ESPECIALLY WHEN THIS MATERIAL HAS A HIGH CLAY CONTENT.
  4. TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOIL MATERIAL TO BE STORED MORE THAN 48 HOURS SHOULD BE COVERED WITH PROPERLY ANCHORED, HEAVY GRADE SHEETS OF POLYETHYLENE WHERE POSSIBLE. IF NOT POSSIBLE, STOCKPILES SHALL BE COVERED WITH A MINIMUM OF 3 TO 6 INCHES OF WOOD CHIPS TO MINIMIZE EROSION OF THE STOCKPILE. SILT FENCE SHALL BE INSTALLED AT THE TOE OF THE SLOPE TO CONTAIN MOVEMENT OF THE STOCKPILED MATERIAL. TOPSOIL SHALL NOT BE APPLIED TO THE STOCKPILES TO PREVENT TOPSOIL CONTAMINATION WITH HIGH ACID-PRODUCING SOIL.
  5. HIGH ACID-PRODUCING SOILS WITH A PH OF 4.0 OR LESS OR CONTAINING IRON SULFIDE (INCLUDING BORROW FROM CUTS OR DREDGED SEDIMENT) SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT THE RATE OF 10 TONS PER ACRE (OR 450 POUNDS PER 1,000 SQUARE FEET OF SURFACE AREA) AND COVERED WITH A MINIMUM OF 12 INCHES OF SETTLED SOIL WITH A PH OF 5.0 OR MORE EXCEPT AS FOLLOWS:
    - a. AREAS WHERE TREES OR SHRUBS ARE TO BE PLANTED SHALL BE COVERED WITH A MINIMUM OF 24 INCHES OF SOIL WITH A PH OR 5 OR MORE.
    - b. DISPOSAL AREAS SHALL NOT BE LOCATED WITHIN 24 INCHES OF ANY SURFACE OF A SLOPE OR BANK, SUCH AS BERMS, STREAM BANKS, DITCHES, AND OTHERS, TO PREVENT POTENTIAL LATERAL LEACHING DAMAGES.
  6. EQUIPMENT USED FOR MOVEMENT OF HIGH ACID-PRODUCING SOILS SHOULD BE CLEANED AT THE END OF EACH DAY TO PREVENT SPREADING OF HIGH ACID-PRODUCING SOIL MATERIALS TO OTHER PARTS OF THE SITE, INTO STREAMS OR STORMWATER CONVEYANCES, AND TO PROTECT MACHINERY FROM ACCELERATED RUSTING.
  7. NON-VEGETATIVE EROSION CONTROL PRACTICES (STONE TRACKING PADS, STRATEGICALLY PLACED LIMESTONE CHECK DAM, SEDIMENT BARRIER, WOOD CHIPS) SHOULD BE INSTALLED TO LIMIT THE MOVEMENT OF HIGH ACID-PRODUCING SOILS FROM, AROUND, OR OFF THE SITE.
  8. FOLLOWING BURIAL OR REMOVAL OF HIGH ACID-PRODUCING SOIL, TOPSOILING AND SEEDING OF THE SITE (SEE TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION, PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION, AND TOPSOILING), MONITORING MUST CONTINUE FOR A MINIMUM OF 6 MONTHS TO ENSURE THERE IS ADEQUATE STABILIZATION AND THAT NO HIGH ACID-PRODUCING SOIL PROBLEMS EMERGE. IF PROBLEMS STILL EXIST THE AFFECTED AREA MUST BE TREATED AS INDICATED ABOVE TO CORRECT THE PROBLEM.

**DUST CONTROL STANDARDS:**

1. THE CONTRACTOR SHALL EMPLOY DUST CONTROL MEASURES IN ACCORDANCE WITH THE STANDARDS OF SOIL EROSION AND SEDIMENT CONTROL IN NJ LATEST EDITION. THE FOLLOWING METHODS SHOULD BE CONSIDERED FOR CONTROLLING DUST:
  - MULCHES** - PER SESC STANDARDS OF STABILIZATION WITH MULCHES CHAPTER 5
  - VEGETATIVE COVER** - PER SESC STANDARDS FOR:
    - TEMPORARY VEGETATIVE COVER SEE TABLE 7-2 SHEET 7
    - PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION PERMANENT STABILIZATION WITH SOO, SESC STANDARDS TABLE 4-2 SHEET 7 CHAPTER 6
  - SPRAY-ON ADHESIVES** - ON MINERAL SOILS (NOT EFFECTIVE ON MUCK SOILS). KEEP TRAFFIC OFF THESE AREAS.
 

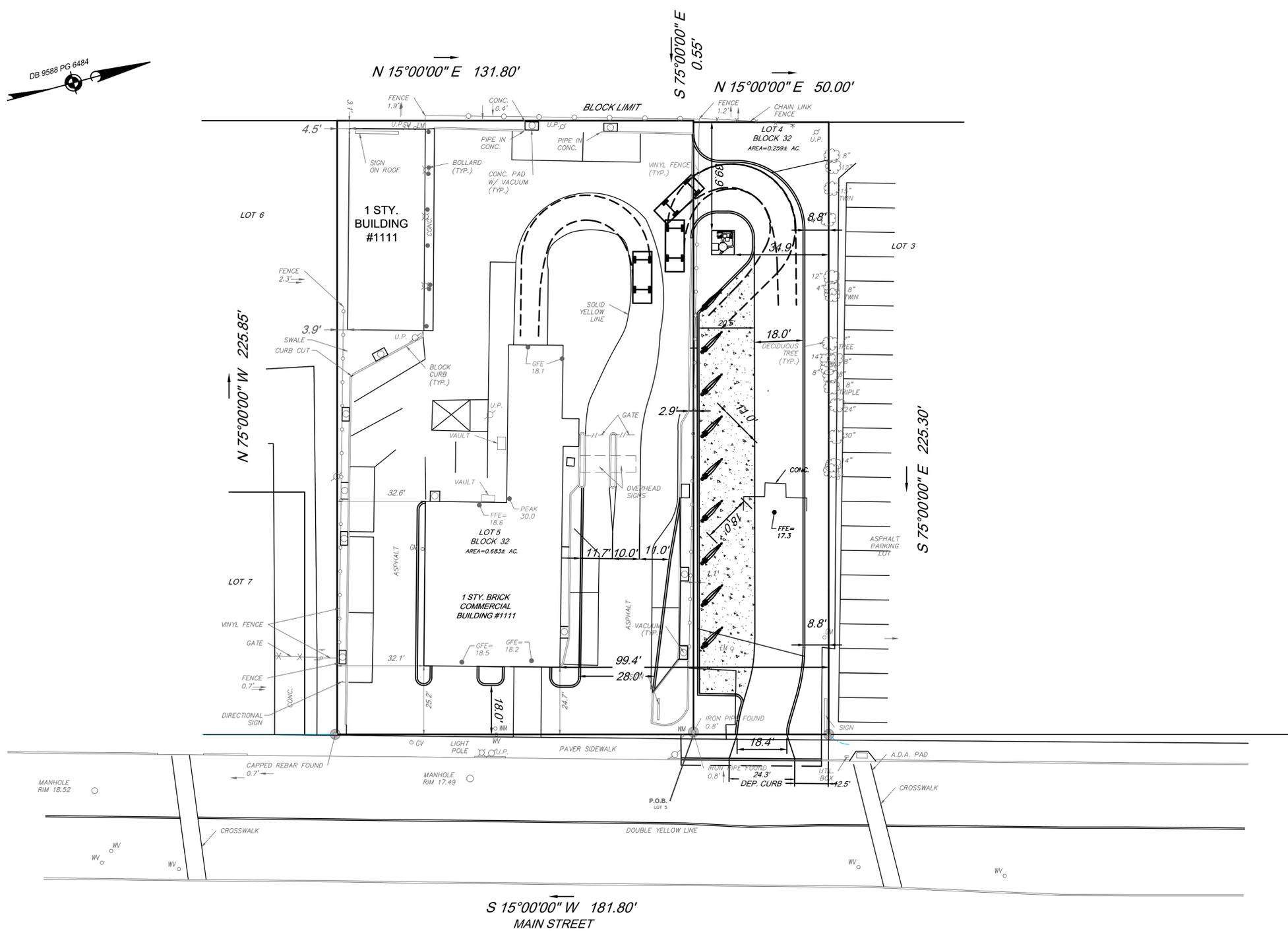
MATERIAL	WATER DILUTION	TYPE OF NOZZLE	APPLY GALLONS/ACRE
Anionic asphalt emulsion	7:1	COURSE SPRAY	1200
Latex emulsion	12:5:1	FINE SPRAY	235
Latex emulsion	4:1	FINE SPRAY	300
Polyacrylamide (PAM) - spray apply according to manufacturer's instructions. May also be used as an additive to sediment			
Polyacrylamide (PAM) - dry sprinkles to flocculate and precipitate suspended colloids. See Sediment Basin standard, p. 26-1			
Acidulated Soy Bean Soap Slick	NONE	COURSES PRAY	1200
- TILLAGE** - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS A TEMPORARY EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING 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.

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	NO.	DATE	REVISIONS	BY	CHECKED
PROJECT NO:			DRAWING:		
<b>KRISTALL LLC</b> <b>PRELIMINARY AND FINAL MAJOR SITE PLAN</b> 1111-1115 MAIN STREET LOT 4&5, BLOCK 32 BOROUGH OF BRADLEY BEACH, MONMOUTH COUNTY, NJ					
SOIL EROSION AND SEDIMENT CONTROL NOTES SOIL COMPACTION MITIGATION NOTES AND DETAILS					
<b>E.M. Waterbury &amp; Associates, P.A.</b> ENGINEERING • PLANNING • LAND USE & DEVELOPMENT 630 Prospect Avenue, Suite 2C, Little Silver, NJ 07739 • P:732.747.6530 F:732.747.6778 Email:emwassoc@aol.com					
CERTIFICATION					
 Digitally signed by Elizabeth Waterbury					12/18/2024
ELIZABETH M. WATERBURY, P.E., P.F. LICENSED PROFESSIONAL ENGINEER AND PLANNER STATE OF NJ LICENSE No. 31645 (P.E.) 03591 (P.F.)					Date: 2024.12.19 00:37:20 -05'00' SHEET 9 OF 10



LOT 2  
BLOCK 96  
D.O.T.  
NEW YORK & LONG BRANCH RAILROAD CO.  
MAIN STEM CLASS II



LEGEND	
	EXISTING CURB LINE
	EXISTING WATER LINE
	EXISTING GAS LINE
	EXISTING SEWER LINE
	EXISTING TREES TO REMAIN
	TREES TO BE REMOVED
	EXISTING LOT LINES
	EXISTING BUILDINGS
	TO BE REMOVED
	BUILDING SET BACK LINE



NO.	DATE	REVISIONS	TCS	EMW
1.	4/1/2025	REVISE DRIVEWAY EGRESS	TCS	EMW
		REVISIONS	BY	CHECKED

PROJECT NO: KRISTALL LLC  
 PRELIMINARY AND FINAL MAJOR SITE PLAN  
 1111-1115 MAIN STREET  
 LOT 4&5, BLOCK 32;  
 BOROUGH OF BRADLEY BEACH, MONMOUTH COUNTY, NJ

CIRCULATION PLAN

**E.M. Waterbury & Associates, P.A.**  
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CERTIFICATION  
 Digitally signed by Elizabeth Waterbury  
 ELIZABETH M. WATERBURY, P.E., P.P. Date: 2025.04.01  
 LICENSED PROFESSIONAL ENGINEER AND PLANNER  
 STATE OF NJ LICENSE No. 31645 (P.E.) 03591 (P.P.) 00:21:16 -05'00'

12/18/2024  
 INITIAL RELEASE DATE

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 OF 10

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