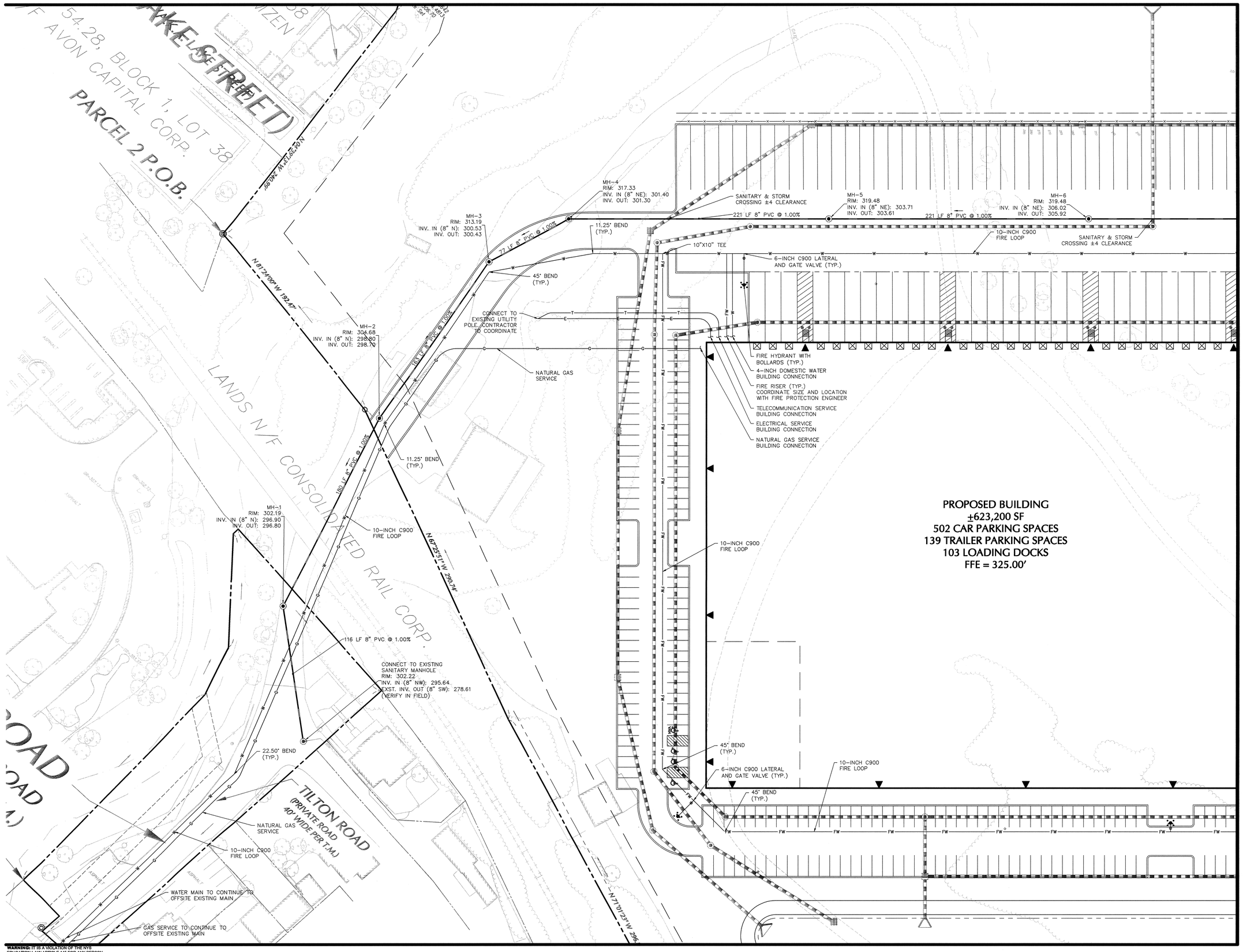


SCALE: 1 INCH = 30 FEET

Date	Description	No.
Revisions		

STATE OF NEW YORK
LEONARD D. SAVINO
LICENSED PROFESSIONAL ENGINEER

Signature 8/30/2022 Date

LEONARD D. SAVINO, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project

SUFFERN QUARRY LOGISTICS CENTER

SECTION No. 55.21. BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

Drawing Title

UTILITY PLAN I

Project No. 100992901	Drawing No. CU101
Date 08/30/2022	
Drawn By	
Checked By	Sheet of 1

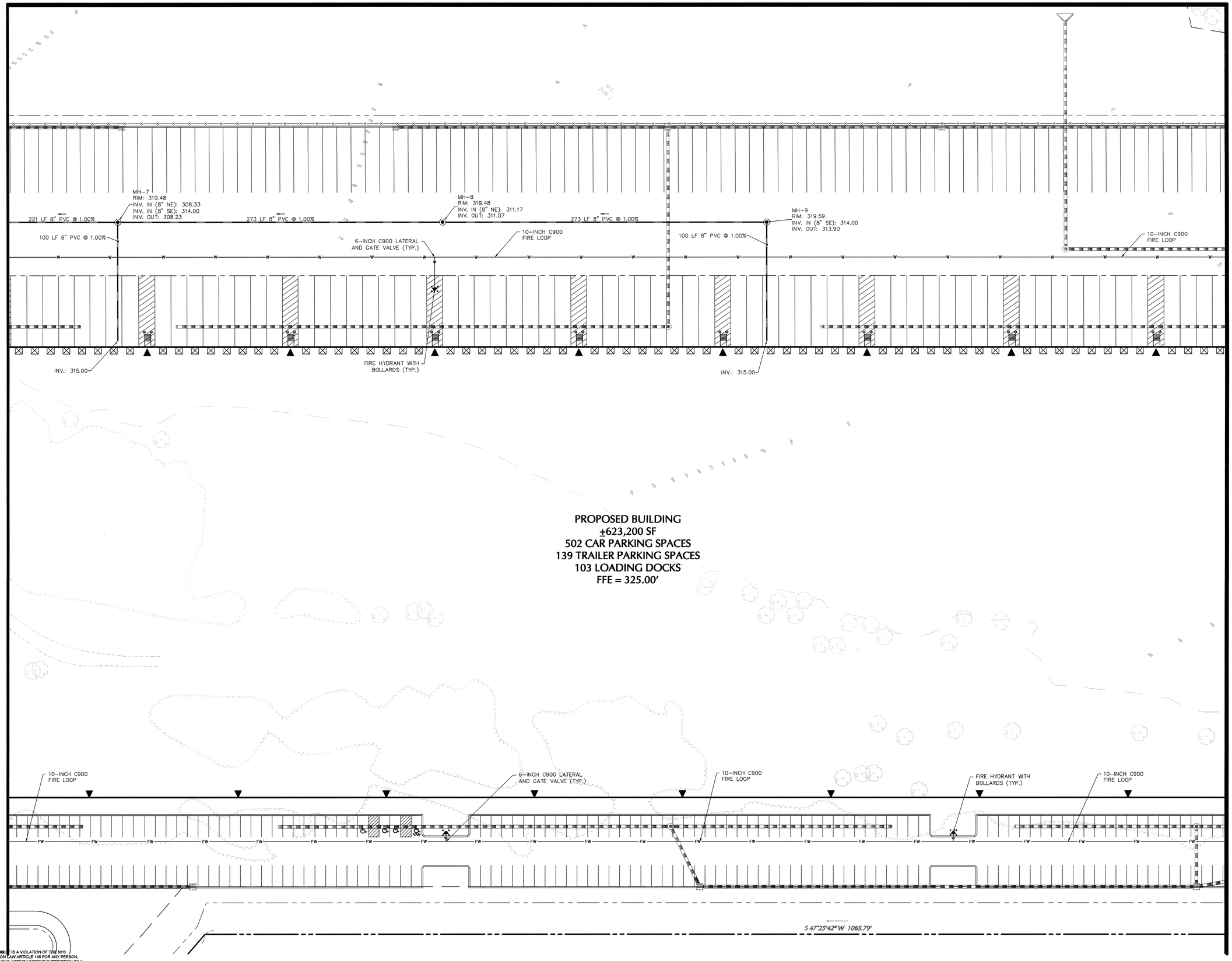
WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

© 2022 Langan

Date: 8/30/2022 Time: 18:57 User: smusa Style Table: Langan.stb Layout: CU101 Document Code: 100992901-0501-CU101-0102

MATCH LINE - REFER TO CU101

MATCH LINE - REFER TO CU103



30 0 15 30
SCALE: 1 INCH = 30 FEET

No.	Description	Date
	Revisions	

LEONARD D. SAVINO, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013
SIGNATURE 8/30/2022 DATE

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project
SUFFERN QUARRY LOGISTICS CENTER
SECTION No. 55.21. BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

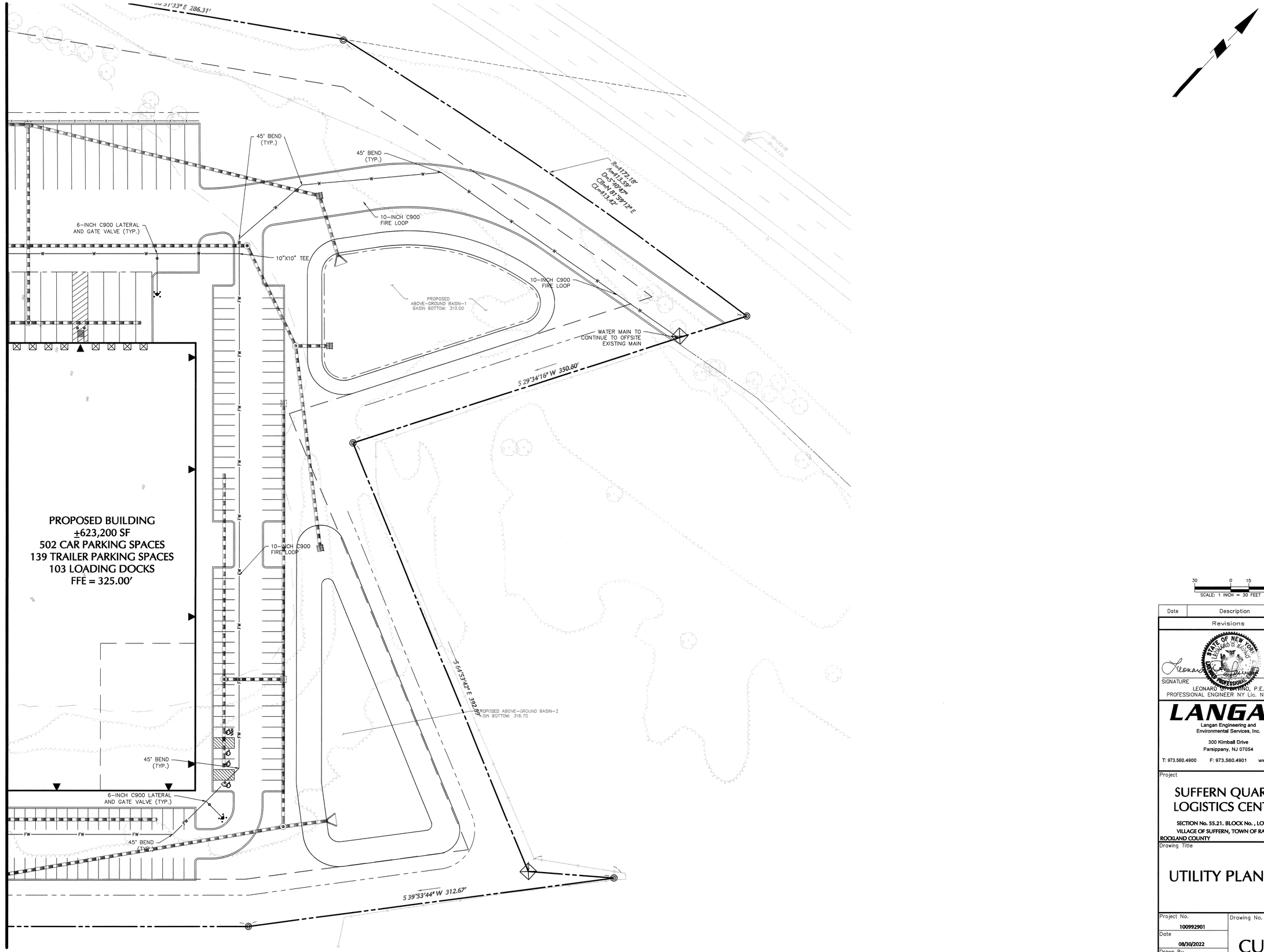
Drawing Title
UTILITY PLAN II

Project No. 100992901	Drawing No. CU102
Date 08/30/2022	
Drawn By	
Checked By	
	Sheet of 1

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

© 2022 Langan

Date: 8/30/2022 Time: 18:58 User: smusa Style Table: Langan.stb Layout: CU102 Document Code: 100992901-0501-CU101-0102



30 0 15 30
SCALE: 1 INCH = 30 FEET

Date	Description	No.
Revisions		

LEONARD D. SARNO — STATE OF NEW YORK — LICENSED PROFESSIONAL ENGINEER

SIGNATURE 8/30/2022 DATE

LEONARD D. SARNO, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project

SUFFERN QUARRY LOGISTICS CENTER

SECTION No. 55.21. BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

Drawing Title

UTILITY PLAN III

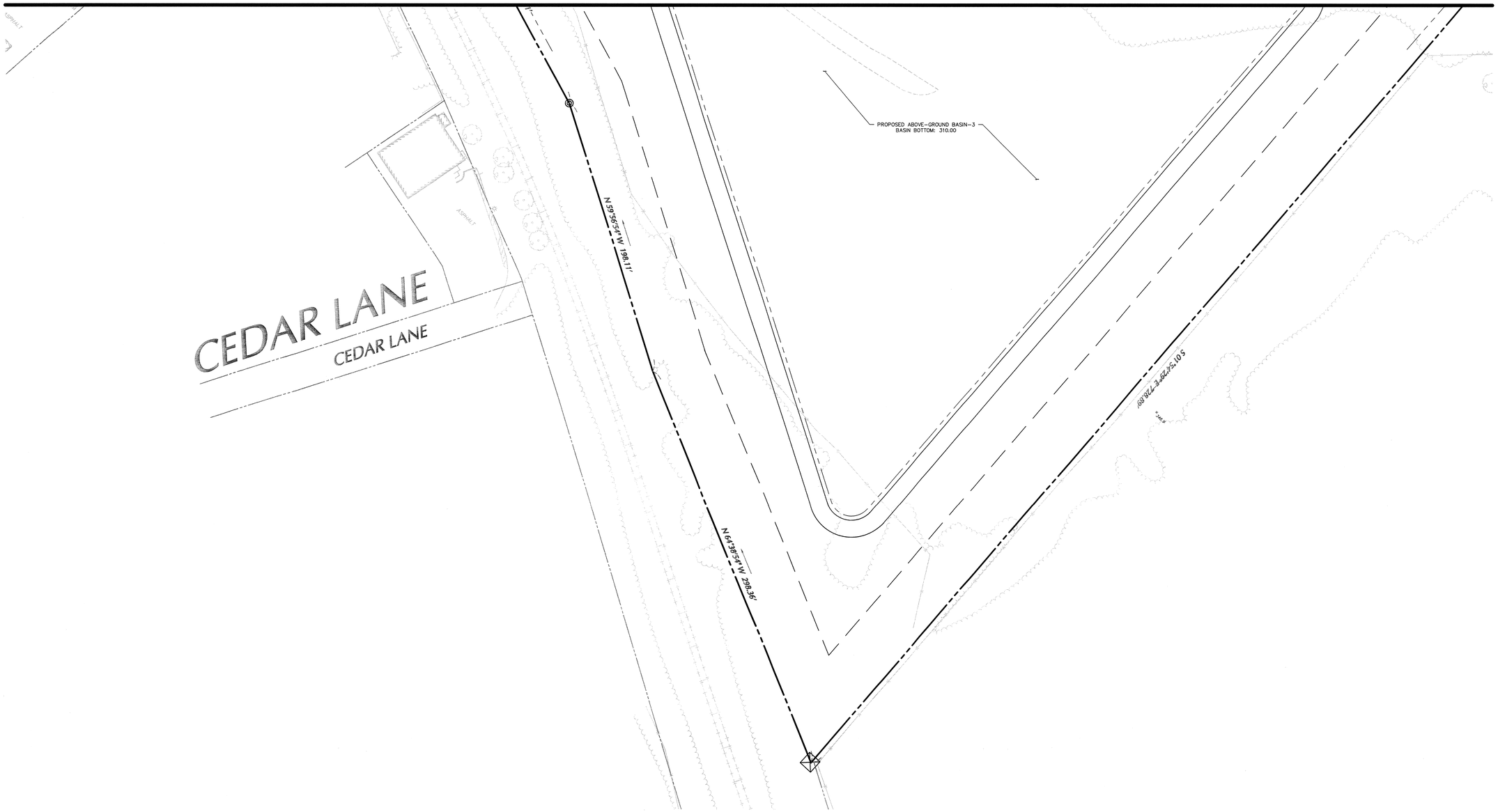
Project No.	Drawing No.
100992901	CU103
Date: 08/30/2022	
Drawn By	
Checked By	
	Sheet of 1

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

© 2022 Langan

Date: 8/30/2022 Time: 18:58 User: smusa Style Table: Langan.stb Layout: CU103 Document Code: 100992901-0501-CU101-0102

MATCH LINE - REFER TO CU101



30 0 15 30
SCALE: 1 INCH = 30 FEET

Date	Description	No.
Revisions		

STATE OF NEW YORK
LEONARD D. SILVIO
LICENSED PROFESSIONAL ENGINEER

SIGNATURE 8/30/2022 DATE

LEONARD D. SILVIO, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project

SUFFERN QUARRY LOGISTICS CENTER

SECTION No. 55.21. BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

Drawing Title

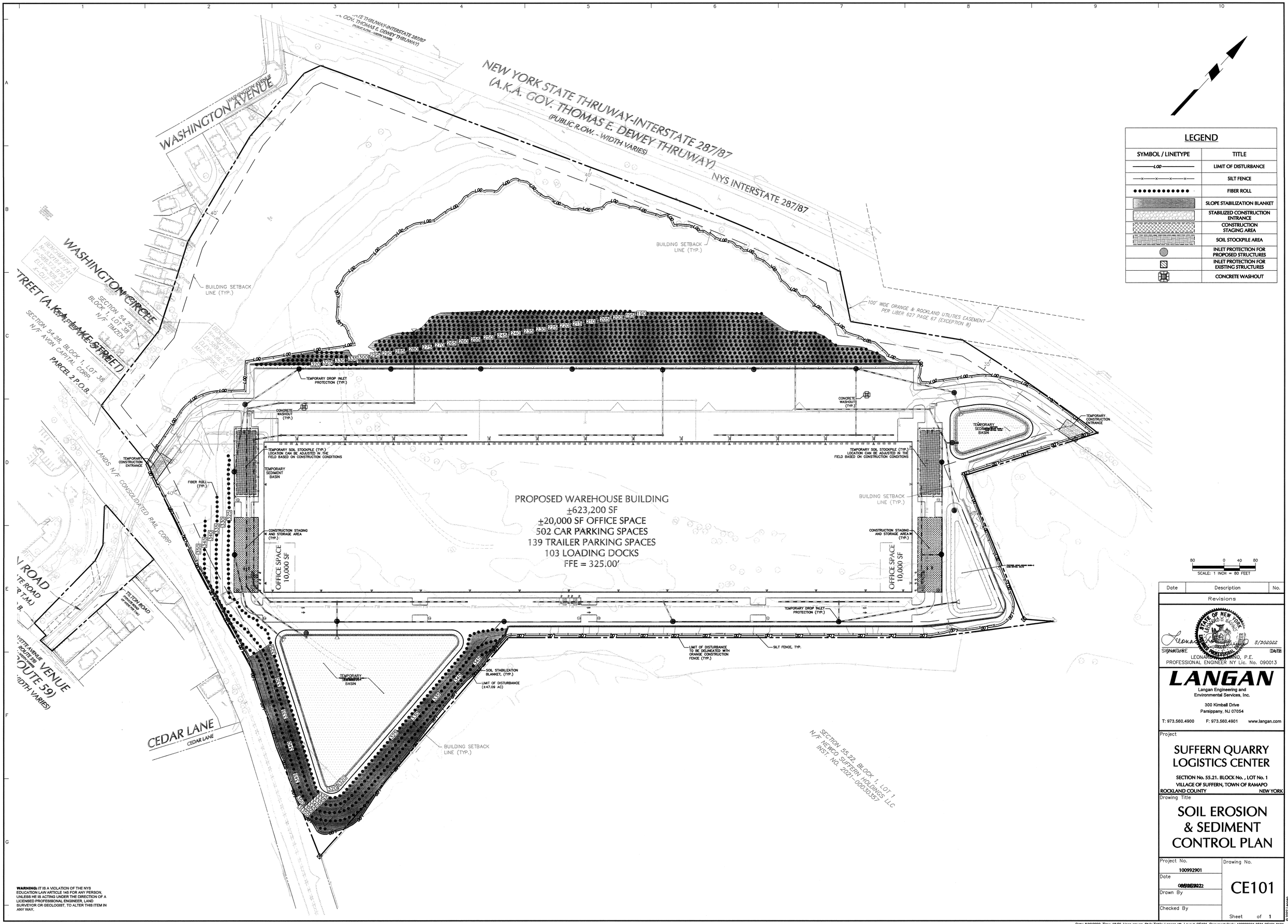
UTILITY PLAN IV

Project No.	Drawing No.
100992901	CU104
Date: 08/30/2022	
Drawn By	
Checked By	
	Sheet of 1

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

© 2022 Langan

Date: 8/30/2022 Time: 18:59 User: smusa Style Table: Langan.stb Layout: CU104 Document Code: 100992901-0501-CU101-0102



LEGEND

SYMBOL / LINETYPE	TITLE
LOD	LIMIT OF DISTURBANCE
SF	SILT FENCE
FR	FIBER ROLL
	SLOPE STABILIZATION BLANKET
	STABILIZED CONSTRUCTION ENTRANCE
	CONSTRUCTION STAGING AREA
	SOIL STOCKPILE AREA
	INLET PROTECTION FOR PROPOSED STRUCTURES
	INLET PROTECTION FOR EXISTING STRUCTURES
CW	CONCRETE WASHOUT

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

Date	Description	No.

Revisions

STATE OF NEW YORK — LEONARD D'ANNO — 090013 — PROFESSIONAL ENGINEER

SIGNATURE 8/30/2022 DATE

LEONARD D'ANNO, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project

SUFFERN QUARRY LOGISTICS CENTER

SECTION No. 55.21. BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

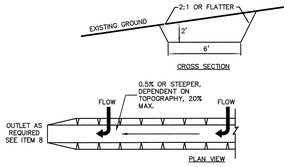
Drawing Title

SOIL EROSION & SEDIMENT CONTROL PLAN

Project No. 100992901	Drawing No. CE101
Date 08/30/2022	
Drawn By	
Checked By	Sheet of 1

© 2022 Langan

Date: 8/30/2022 Time: 18:59 User: smusa Style Table: Langan.stb Layout: CE101 Document Code: 100992901-0501-CE101-0101



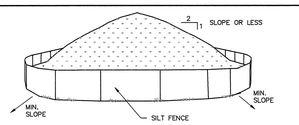
CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED ON CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.
9. STABILIZATION SHALL BE AS PER THE CHART BELOW:

FLOW CHANNEL STABILIZATION

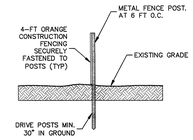
TYPE OF TREATMENT	CHANNEL GRADE	A (5 AC OR LESS)	B (5–10 AC.)
1	0.5–3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1–5.0%	SEED AND STRAW MULCH	SEED USING JUTE OR EXCELSIOR
3	5.1–8.0%	SEED WITH JUTE OR EXCELSIOR; SOD	LINED RIP–RAP 4–8" RECYCLED CONCRETE EQUIVALENT
4	8.1–20%	LINED 4–8" RIP–RAP	ENGINEERED DESIGN

TEMPORARY DIVERSION SWALE
SCALE: NTS



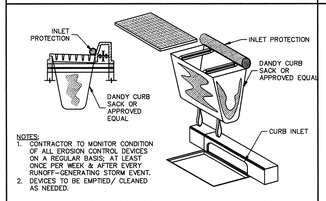
NOTES:
1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 1V:2H.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH SILT FENCING, THEN STABILIZED WITH VEGETATION OR COVERED.
4. SEE SPECIFICATIONS FOR INSTALLATION OF SILT FENCE.
5. HAY BALES TO BE USED WHERE STOCKPILES ARE LOCATED ON PAVED AREAS.

TEMPORARY STOCKPILE
SCALE: NTS



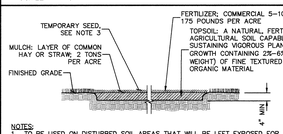
SECTION VIEW

ORANGE CONSTRUCTION FENCE
SCALE: NTS



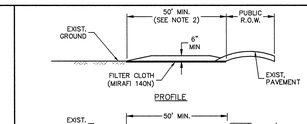
NOTES:
1. CONTRACTOR TO MONITOR CONDITION OF ALL EROSION CONTROL DEVICES ON A REGULAR BASIS, AT LEAST ONCE PER WEEK & AFTER EVERY RUNOFF–GENERATING STORM EVENT.
2. DEVICES TO BE EMPTIED/ CLEANED AS NEEDED.

INLET PROTECTION - DANDY SACK
SCALE: NTS



NOTES:
1. TO BE USED ON DISTURBED SOIL AREAS THAT WILL BE LEFT EXPOSED FOR 7 DAYS OR MORE AND WILL BE RE–DISTURBED DURING CONSTRUCTION.
2. FERTILIZER OR LIME ARE NOT TYPICALLY USED FOR TEMPORARY SEEDINGS.
3. SEED MIX:
   A. IF SPRING, SUMMER OR EARLY FALL: SEED WITH ANNUAL OR PERENNIAL RYEGRASS AT A RATE OF 1 LB PER 1000 SF.
   B. IF LATE FALL OR WINTER: SEED WITH CERTIFIED "AROOSTOOK" WINTER (CEREAL RYE) AT A RATE OF 2.5 LBS PER 1000 SF.

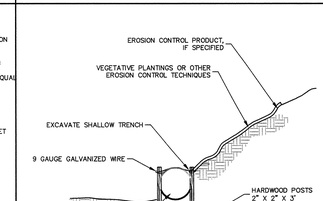
TEMPORARY VEGETATIVE COVER
SCALE: NTS



NOTE:
PROVIDE APPROPRIATE TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND PUBLIC R.O.W.

CONSTRUCTION SPECIFICATIONS:
1. STONE SIZE — USE 3" STONE (NYSDOT ITEM #623.11 SIZE DESIGNATION #2, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH — NOT LESS THAN 50–FEET (EXCEPT ON SINGLE FAMILY LOT, 30–FEET MINIMUM LENGTH WOULD APPLY.)
3. THICKNESS — NOT LESS THAN SIX (6) INCHES.
4. WIDTH — TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY–FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH — WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER — ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE, IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED
7. MAINTENANCE — THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

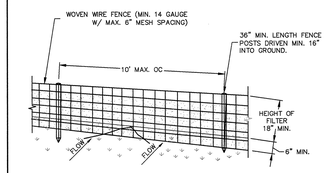
STABILIZED CONSTR. ENTRANCE
SCALE: NTS



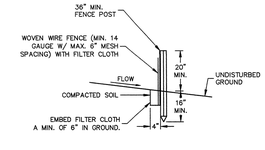
CROSS SECTION

CONSTRUCTION SPECIFICATIONS:
1. EXCAVATE A SHALLOW TRENCH SLIGHTLY BELOW BASEFLOW OR A 4" TRENCH ON SLOPE CONTOURS.
2. PLACE THE ROLL IN THE TRENCH AND ANCHOR WITH 2" X 2" POSTS PLACED ON BOTH SIDES OF THE ROLL AND SPACED LATERALLY ON 2' TO 4' CENTERS. TRIM THE TOP OF THE POSTS EVEN WITH THE EDGE OF THE ROLL IN NECESSARY.
3. NOTCH THE POSTS AND TIE TOGETHER, ACROSS THE ROLL, WITH 9 GAUGE GALVANIZED WIRE OR 1" DIAMETER BRAIDED NYLON ROPE.
4. PLACE SOIL EXCAVATED FROM THE TRENCH BEHIND THE ROLL AND HAND TAMP. PLANT WITH SUITABLE HERBACEOUS OR WOODY VEGETATION AS SPECIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS. VEGETATION SHALL BE PLACED IMMEDIATELY ADJACENT TO THE ROLL TO PROMOTE ROOT GROWTH INTO THE FIBER. HERBACEOUS VEGETATION, IF SPECIFIED, SHALL BE PLANTED INTO THE FIBER ROLL.

FIBER ROLL
SCALE: NTS



PERSPECTIVE VIEW



SECTION VIEW

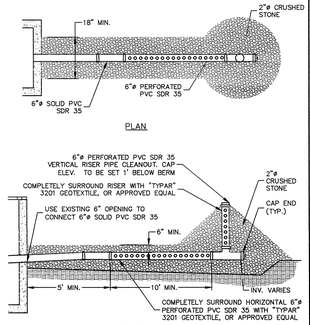
CONSTRUCTION SPECIFICATIONS
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL, EITHER "T" OR "U" TYPE, OR HARDWOOD.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 14 GAUGE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER–LAPPED BY SIX INCHES AND FOLDED.
4. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
5. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT THAT MEETS THE MINIMUM REQUIREMENTS SHOWN.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

DETAIL NOTES
1. INSTALLATION SHALL BE DONE IN ACCORDANCE WITH THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL ("THE BLUE BOOK")
2. ALL SILT FENCE SHALL BE PLACED AS CLOSE TO THE DISTURBED AREA AS POSSIBLE, BUT AT LEAST 10 FEET FROM THE TOE OF A SLOPE STEEPER THAN 3H:1V, TO ALLOW FOR MAINTENANCE AND ROLL DOWN. THE AREA BEYOND THE FENCE MUST BE UNDISTURBED OR STABILIZED.
3. THE TYPE OF SILT FENCE SPECIFIED FOR EACH LOCATION ON THE PLAN SHALL NOT EXCEED THE MAXIMUM SLOPE LENGTH AND MAXIMUM FENCE LENGTH REQUIREMENTS SHOWN IN THE TABLE BELOW. IF A TYPE SILT FENCE IS NOT SPECIFIED ON THE PLANS, THE CRITERIA FOR STANDARD SILT FENCE CAN BE APPLIED.
4. SILT FENCE SHALL BE REMOVED AS SOON AS THE DISTURBED AREA HAS ACHIEVED FINAL STABILIZATION.

SLOPE	STEEPNESS	SLOPE LENGTH/FENCE LENGTH (FT.) STANDARD	REINFORCED	SUPER
<2%	<50:1	300/1500	N/A	N/A
2–10%	50:1 TO 10:1	125/1000	250/2000	300/2500
10–20%	10:1 TO 5:1	100/750	150/1000	200/1000
20–33%	5:1 TO 3:1	60/500	80/750	100/1000
33–50%	3:1 TO 2:1	40/250	70/350	100/500
>50%	>2:1	20/125	30/175	50/250

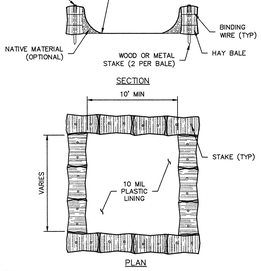
SILT FENCE
SCALE: NTS

NOTES:
1. CONTRACTOR TO USE THE 6" UNDERDRAIN OPENING IN THE OUTLET CONTROL STRUCTURE TO CONNECT TO TEMPORARY DEWATERING DEVICE. WHERE UNDERDRAINS ARE NOT REQUIRED, THE TEMPORARY 6" OPENING IN THE OUTLET CONTROL STRUCTURE SHALL BE PATCHED.



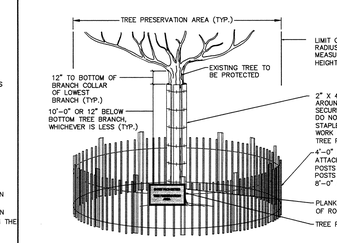
SECTION

TEMPORARY SEDIMENT BASIN DEWATERING DEVICE
SCALE: NTS



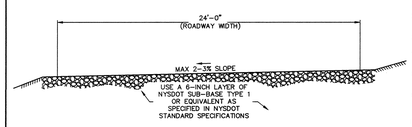
NOTES:
1. CONCRETE WASHOUT SIGN TO BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
2. REMOVE HARDEN CONCRETE WHEN WITHIN 4" FROM TOP OF STRUCTURE.
3. CONSTRUCT NEW FACILITIES ONCE CURRENT FACILITIES ARE TWO–THIRDS FULL.
4. LINERS, HAY BALES, ETC. SHALL BE INSPECTED FOR DAMAGE. ANY DAMAGE SHALL BE REPAIR PROMPTLY.

ABOVE GROUND TEMPORARY CONCRETE WASHOUT FACILITY
SCALE: NTS



TREE PROTECTION NOTES:
1. ALL EXISTING TREES WITHIN THE LIMITS OF TREE PROTECTION FENCING SHALL BE PROTECTED THROUGHOUT THE DURATION OF WORK. THE LIMIT OF TREE PROTECTION FENCE RADIUS SHALL BE 18 TIMES THE MEASURED DIAMETER–AT–BREAST–HEIGHT (DBH), UNLESS CONDITIONS WARRANT THE FENCE TO BE LOCATED CLOSER TO THE TREE. THE PROJECT LANDSCAPE ARCHITECT TO APPROVE THE LOCATION OF ALL FENCING PRIOR TO EXCAVATION.
2. TREE PROTECTION PLANKING SHALL BE INSTALLED ON ALL EXISTING TREES ONLY WHEN WORK IS TO BE DONE WITHIN THE LIMIT OF TREE PROTECTION FENCING. REFER TO DETAIL ON THIS SHEET.
3. IF TREE PROTECTION FENCING NEEDS TO BE MOVED OR BREACHED DUE TO TEMPORARY CONSTRUCTION ACTIVITY WITHIN THE TREE PROTECTION ZONE, THE FENCING WILL BE RESET TO ITS ORIGINAL LOCATION IMMEDIATELY AFTER CONSTRUCTION WITHIN THE TREE PROTECTION ZONE IS COMPLETE.
4. TREE PROTECTION FENCING SHALL BE MAINTAINED TO PROTECT TREES AT ALL TIMES. ANY DAMAGED FENCING SHALL BE IMMEDIATELY REPLACED WHEN DAMAGED.
5. DEMOLITION WORK WITHIN THE TREE PROTECTION FENCE OF PROTECTED TREES SHALL BE PERFORMED BY NON–MECHANICAL METHODS. CONTRACTOR TO PROTECT ROOT MASS AGAINST DAMAGE DURING EXCAVATION. ANY TREE ROOTS THAT ARE DISTURBED, BROKEN, OR CUT SHALL BE PRUNED BACK WITH CLEAN SHARP TOOLS.
6. ALL TEMPORARILY EXPOSED TREE ROOTS SHALL BE COVERED WITH 2 INCHES OF SHREDDED HARDWOOD MULCH AND THOROUGHLY IRRIGATED ON A DAILY BASIS AS DIRECTED BY THE PROJECT LANDSCAPE ARCHITECT.
7. ALL WORK TO BE PERFORMED UNDER THE DIRECT SUPERVISION OF EITHER THE OWNER'S REPRESENTATIVE OR THE PROJECT LANDSCAPE ARCHITECT.

TREE PROTECTION FENCING AND TREE PLANTING
SCALE: NTS

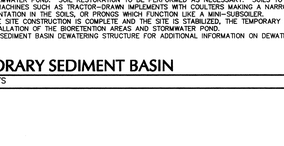


CONSTRUCTION SPECIFICATIONS:
1. CLEAR AND STRIP ROADBED AND PARKING AREAS OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIALS.
2. LOCATE PARKING AREAS ON NATURALLY FLAT AREAS AS AVAILABLE. KEEP GRADES SUFFICIENT FOR DRAINAGE, BUT NOT MORE THAN 2 TO 3 PERCENT.
3. PROVIDE SURFACE DRAINAGE AND DIVERT EXCESS RUNOFF TO STABILIZED AREAS.
4. MAINTAIN CUT AND FILL SLOPES TO 2:1 OR FLATTER AND STABILIZED WITH VEGETATION AS SOON AS GRADING IS ACCOMPLISHED.
5. SPREAD 6–INCH LAYER OF SUB–BASE MATERIAL EVENLY OVER THE FULL WIDTH OF THE ROAD AND SMOOTH TO AVOID DEPRESSIONS.
6. PROVIDE APPROPRIATE SEDIMENT CONTROL MEASURES TO PREVENT OFFSITE SEDIMENTATION.

MAINTENANCE:

INSPECT CONSTRUCTION ROADS AND PARKING AREAS PERIODICALLY FOR CONDITION OF SURFACE. TOP DRESS WITH NEW GRAVEL AS NEEDED. CHECK DITCHES FOR EROSION AND SEDIMENTATION. AFTER RAINFALL EVENTS, MAINTAIN VEGETATION IN HEALTHY, VIGOROUS CONDITION. AREAS PRODUCING SEDIMENT SHOULD BE TREATED IMMEDIATELY.

TEMPORARY ACCESS ROAD
SCALE: NTS



PRINCIPAL SPILLWAY PROFILE
TEMPORARY SEDIMENT BASIN (WITH OUTLET CONTROL STRUCTURE)

CROSS SECTION AT SPILLWAY

PRINCIPAL SPILLWAY PROFILE
TEMPORARY SEDIMENT BASIN (WITH DEWATERING DEVICE)

NOTES:
1. INSTALL OUTLET CONTROL STRUCTURE, BOARD UP ORIFICES, SLOTS, AND TOP OF STRUCTURE.
2. TEMPORARY SEDIMENT BASIN TO BE EXCAVATED TO THE TOP OF THE GRAVEL LAYER OF THE BIORETENTION AREA AND AQUATIC BENCH OF THE STORMWATER POND. SOIL RESTORATION TO BE PERFORMED AS NECESSARY. SOILS TO BE RESTORED SHALL BE AERATED. AERATION INCLUDES THE USE OF MACHINES SUCH AS TRACTOR–DRAWN IMPLEMENTS WITH COULTERS MAKING A NARROW SLIT IN THE SOILS, A ROLLER WITH MAHY SPIKES MAKING INDENTATION IN THE SOILS, OR PRONGS WHICH FUNCTION LIKE A MINI–SUBSOILER.
3. ONCE SITE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED, THE TEMPORARY SEDIMENT BASIN SHALL BE CLEANED AND EXCAVATED FOR THE INSTALLATION OF THE BIORETENTION AREAS AND STORMWATER POND.
4. SEE SEDIMENT BASIN DEWATERING STRUCTURE FOR ADDITIONAL INFORMATION ON DEWATERING THE TEMPORARY SEDIMENT BASIN.

TEMPORARY SEDIMENT BASIN
SCALE: NTS

No.	Description	Date
	Revisions	

STATE OF NEW YORK LEONARD D. SAUNDERS 090013 PROFESSIONAL ENGINEER

Signature 8/30/2022 Date

LEONARD D. SAUNDERS, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project
SUFFERN QUARRY LOGISTICS CENTER
SECTION No. 55.21. BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

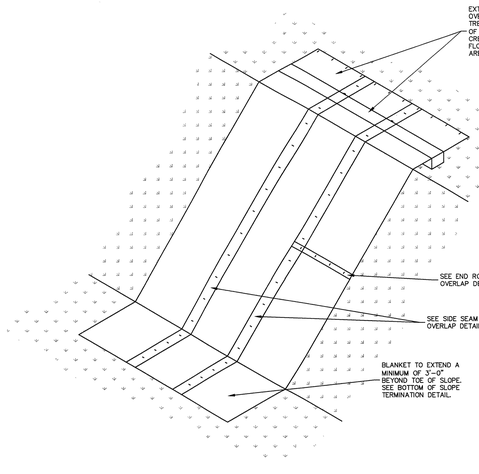
Drawing Title
SOIL EROSION & SEDIMENT CONTROL DETAILS I

Project No.	Drawing No.
100992901	CE501
Date: 08/30/2022	
Drawn By	
Checked By	Sheet of 1

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

© 2022 Langan.

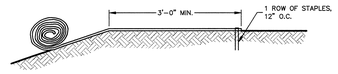
Date: 8/30/2022 Time: 19:00 User: smusa Style Table: Langan.stb Layout: CE501 Document Code: 100992901-0501-CE501-0101



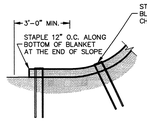
ROLLED EROSION CONTROL PRODUCT

NOTES:

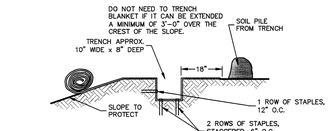
1. ROLLED EROSION CONTROL BLANKET (RECB) TO BE AEC PREMIER COCONUT FIBERENET BY AMERICAN EXCELSIOR COMPANY OR APPROVED EQUAL.
2. STAPLE PATTERNS ARE DEPENDENT ON SITE CONDITIONS. REFER TO MANUFACTURER INSTALLATION REQUIREMENTS.
3. E-STAPLE MAY BE USED IN PLACE OF WIRE STAPLES.

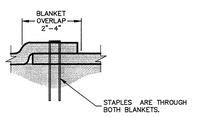


SLOPE TRENCH METHOD "A" (NO TRENCH)



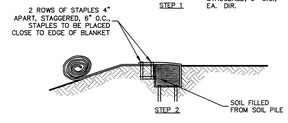
BOTTOM OF SLOPE TERMINATION





SIDE SEAM OVERLAP STAPLE DETAIL

END SEAM OF BLANKETS OVERLAP 2"-4". PLACE STAPLES, ONE ON EACH CORNER OF BLANKET, 12" O.C. ALONG BLANKET END THROUGH BOTH BLANKETS. UPSLOPE BLANKET LAPS OVER DOWNSLOPE BLANKETS IN A SHINGLE AFFECT.

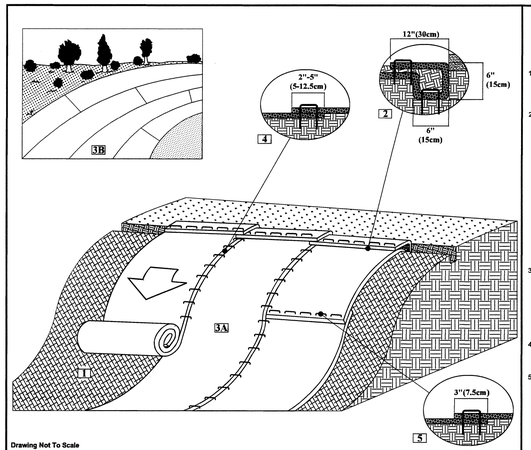


SLOPE TRENCH METHOD "B"

END ROLL OVERLAP

ROLLED EROSION CONTROL PRODUCT - SLOPE INSTALLATION

SCALE: NTS



SLOPE INSTALLATION DETAIL

1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed.
2. Begin at the top of the slope by anchoring the RECPs in a 6"(15cm) deep X 6"(15cm) wide trench with approximately 12" (30cm) of RECPs extended beyond the up-slope portion of the trench. Anchor the RECPs with a row of staples/stakes approximately 12" (30cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12"(30cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12"(30cm) apart across the width of the RECPs.
3. Roll the RECPs (A) down or (B) horizontally across the slope. RECPs will contact with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
4. The edges of parallel RECPs must be stapled with approximately 2" - 5" (5-12.5cm) overlap depending on the RECP's type.
5. Consecutive RECPs spliced down the slope must be end over end (Shingle style) with an approximate 3"(7.5cm) overlap. Staple through overlapped area, approximately 12"(30cm) apart across entire RECPs width.

*NOTE: In loose soil conditions, the use of staple or stake lengths greater than 6"(15cm) may be necessary to properly secure the RECP's.

MAXIMUM ALLOWABLE VELOCITY (UNVEGETATED): 9.5 FT/S
MAXIMUM ALLOWABLE VELOCITY (VEGETATED): 15 FT/S

Drawing Not To Scale

NORTH AMERICAN GREEN
5401 St. Wendel - Cynthiana Rd. PH: 800-772-2040
Poseyville, IN 47633 www.nagreen.com

Disclaimer:
The information presented herein is general design information only. For specific applications, consult an independent professional for further design guidance.

Drawn on: 5-4-17

NORTH AMERICAN GREEN VMAX SC250 PERMANENT TURF REINFORCEMENT MATS

SCALE: NTS

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

EROSION & SEDIMENT CONTROL NOTES

1. REFER TO THE SPDES GENERAL PERMIT COMPLIANCE NOTES FOR ADDITIONAL REQUIREMENTS.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE IN STRICT COMPLIANCE WITH "NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL", LATEST REVISIONS.
3. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, ALL EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED IN ACCORDANCE WITH THE PLANS. SITE PREPARATION ACTIVITIES SHALL BE PLANNED TO MINIMIZE THE SCOPE AND DURATION OF SOIL DISRUPTION. EXISTING VEGETATION SHALL BE PRESERVED AS MUCH AS IS PRACTICAL.
4. THE CONTRACTOR AND HIS/HER SUBCONTRACTOR(S) SHALL IDENTIFY THE TRAINED INDIVIDUAL THAT WILL BE RESPONSIBLE FOR THE IMPLEMENTATION AND MAINTENANCE OF THE EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
5. PERMANENT TRAFFIC CORRIDORS SHALL BE ESTABLISHED AND "ROUTES OF CONVENIENCE" SHALL BE AVOIDED. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT ALL POINTS OF ENTRY ONTO THE PROJECT SITE.
6. DAMAGE TO SURFACE WATERS RESULTING FROM EROSION AND SEDIMENTATION SHALL BE MINIMIZED BY STABILIZING DISTURBED AREAS AND BY REMOVING SEDIMENT FROM CONSTRUCTION SITE DISCHARGES.
7. STOCKPILED TOPSOIL SHALL BE TEMPORARILY SEEDED, MULCHED, AND ENCLOSED WITH SILT FENCING. ALL GRASS SEED WILL CONTAIN AT LEAST 25 PERCENT RAPID GERMINATING PERENNIAL RYE GRASS.
8. EROSION AND SEDIMENT CONTROL INSPECTIONS:
   A. THE TRAINED INDIVIDUAL SHALL INSPECT ALL EROSION AND SEDIMENT CONTROL MEASURES ON A DAILY BASIS TO ENSURE PROPER PERFORMANCE. ANY SEDIMENT BUILD-UP SHALL BE CLEANED. ALL DAMAGES TO EROSION AND SEDIMENT CONTROLS SHALL BE REPAIRED EITHER AT THE BEGINNING OR AT THE END OF EACH WORKING DAY.

   THE QUALIFIED INSPECTOR SHALL CONDUCT SITE INSPECTIONS EVERY 7 DAYS DURING CONSTRUCTION. ANY DEFICIENCIES NOTED IN THE REPORTS SHALL BE CORRECTED IMMEDIATELY BY THE CONTRACTOR.

   B. IF SOIL DISTURBANCE ACTIVITIES ARE SUSPENDED FOR WINTER SHUTDOWN, TEMPORARY STABILIZATION MEASURES WILL BE APPLIED TO ALL DISTURBED AREAS. IN THIS CASE AND SUBJECT TO THE APPROVAL OF THE NYSDEC AND THE TOWN, THE FREQUENCY OF INSPECTIONS BY THE QUALIFIED PROFESSIONAL MAY BE REDUCED TO AT LEAST ONE INSPECTION EVERY 30 CALENDAR DAYS.
   C. IF NYSDEC OR THE TOWN AUTHORIZES SOIL DISTURBANCES GREATER THAN 5-ACRES, THE QUALIFIED PROFESSIONAL WILL CONDUCT AT LEAST 2 SITE INSPECTIONS, SEPARATED BY AT LEAST 2 CALENDAR DAYS, EVERY 7 CALENDAR DAYS TO ENSURE THE STABILITY AND EFFECTIVENESS OF ALL PROTECTIVE MEASURES AND PRACTICES UNTIL SUCH TIME THAT LESS THAN 5-ACRES OF SOIL REMAIN DISTURBED.
9. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST BY SPRINKLING EXPOSED SOIL AREAS PERIODICALLY WITH WATER AS REQUIRED. THE CONTRACTOR IS TO SUPPLY ALL EQUIPMENT AND WATER.
10. EARTHWORK ACTIVITIES SHALL BE CONSISTENT WITH THE PLANS. THE EARTHWORK OPERATION AREAS SHALL BE STABILIZED ON AN ONGOING BASIS WITHIN 10 AREAS, WHICH ARE NOT CURRENTLY UNDER CONSTRUCTION, LEFT WITHOUT AT LEAST TEMPORARY COVER FOR MORE THAN 48 HOURS.
11. EROSIVE MATERIAL TEMPORARILY STOCKPILED ON THE SITE DURING THE CONSTRUCTION PROCESS SHALL BE LOCATED IN AN AREA AWAY FROM STORM DRAINAGE AND SHALL BE PROPERLY PROTECTED BY A SURROUNDING SILT FENCE BARRIER.
12. FOLLOWING THE COMPLETION OF CONSTRUCTION ACTIVITIES IN ANY PORTION OF THE SITE, PERMANENT VEGETATION SHALL BE ESTABLISHED ON ALL EXPOSED SOILS.
13. IF CONSTRUCTION TAKES PLACE IN "WET SOILS", CURTAIN DRAINS OR SUBSURFACE DRAINAGE SHALL BE INSTALLED TO DEWATER THE SOILS. DEWATERING DISCHARGES WILL NOT BE DIRECTED INTO WETLANDS, WATER COURSES, WATER-BODIES, OR STORM SEWER SYSTEMS.
14. TEMPORARY DRAINAGE SWALES WITH A MINIMUM GRADE OF ONE PERCENT SHALL BE INSTALLED TO DIRECT RUNOFF AWAY FROM EXCAVATED AREAS. SWALES SHALL BE INSTALLED WITH STAKED AND SECURED HAY BALE BERMS TO PREVENT DOWNSTREAM SILTATION. LOCATION OF THE DRAINAGE SWALES AND HAY BALES WILL BE AT THE DIRECTION OF THE TOWN ENGINEER. SILT FENCE SHALL BE PROPERLY INSTALLED DOWN GRADE OF ALL DISTURBED AREAS. SILT FENCE SHALL BE INSTALLED ALONG CONTOURS TO FILTER SEDIMENT FROM RUNOFF. INSPECTION SHOULD BE FREQUENT AND REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED. SILT FENCE SHOULD BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
15. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WHEN ALL DISTURBED AREAS HAVE UNDERGONE FINAL STABILIZATION, UPGRADIENT SURFACES HAVE BEEN PROPERLY STABILIZED, AND ALL STORMWATER MANAGEMENT SYSTEMS ARE IN PLACE AND OPERABLE. ALL AREAS DISTURBED BY THE REMOVAL OF THE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE FILLED IN, TOPSOILED, SEEDED, AND MULCHED. FINAL STABILIZATION IS ACHIEVED WHEN ALL SOIL DISTURBING ACTIVITIES ARE COMPLETED AND A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 80 PERCENT COVERAGE IS ESTABLISHED, OR EQUIVALENT STABILIZATION MEASURES, SUCH AS PLACEMENT OF MULCH OR GEOTEXTILE, IS COMPLETED ON ALL AREAS NOT PAVED OR COVERED BY PERMANENT STRUCTURES.
15. CHEMICAL STORAGE AND WASTE RECEPTACLES SHOULD BE ADEQUATELY COVERED FROM RAIN FALL SO IT DOES NOT MIX WITH AND BECOME A CONSTRAINT OF STORMWATER RUNOFF.
16. FOR CONSTRUCTION SITES AUTHORIZED TO DISTURB MORE THAN 5 ACRES OF SOIL AT ANY ONE TIME, THE APPLICATION OF SOIL STABILIZATION MEASURES SHALL BE INITIATED BY THE END OF THE NEXT BUSINESS DAY AND COMPLETED WITHIN 7 DAYS FROM THE DATE THAT CURRENT SOIL DISTURBANCE CEASED.
17. SUPPLEMENTAL PHASING AND/OR ADDITIONAL SEDIMENT AND EROSION CONTROL MEASURES MAY BE REQUIRED BASED ON ACTUAL FIELD CONDITIONS ENCOUNTERED DURING CONSTRUCTION

SPDES GENERAL PERMIT COMPLIANCE NOTES

1. THE NOTICE OF INTENT (NOI) AND SIGNED MS4 SWPPP ACCEPTANCE FORM (IF APPLICABLE) SHALL BE FILED WITH THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC). A COPY OF THE NOI, SIGNED MS4 SWPPP ACCEPTANCE FORM (IF APPLICABLE), AND THE NOI ACKNOWLEDGEMENT SHALL BE MAINTAINED AT THE SITE IN THE LOG BOOK.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH THE FOLLOWING:
   A. THE CONTRACTOR AND HIS/HER SUBCONTRACTORS SHALL READ AND UNDERSTAND THE CONDITIONS OF THE "NYSDEC SPDES GENERAL PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES" (NYSDEC SPDES GENERAL PERMIT) IN EFFECT.
   B. THE CONTRACTOR AND HIS/HER SUBCONTRACTORS SHALL READ AND SIGN THE CERTIFICATION STATEMENT PROVIDED IN THE APPENDICES OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
   C. THE CONTRACTOR AND HIS/HER SUBCONTRACTORS SHALL IDENTIFY THE TRAINED INDIVIDUAL(S) THAT WILL BE RESPONSIBLE FOR THE IMPLEMENTATION AND MAINTENANCE OF THE SWPPP. THE TRAINED INDIVIDUAL(S) SHALL READ AND SIGN THE CERTIFICATION STATEMENT PROVIDED IN THE SWPPP. A COPY OF THE SIGNED CERTIFICATION STATEMENT SHALL BE PLACED IN THE SITE LOG BOOK AND GIVEN TO THE TOWN FOR THEIR RECORDS.
   D. THE TRAINED INDIVIDUAL(S) SHALL PROVIDE DOCUMENTATION THAT HE/SHE HAS RECEIVED TRAINING IN PROPER EROSION AND SEDIMENT CONTROL PRINCIPLES FROM A SOIL AND WATER CONSERVATION DISTRICT, OR OTHER NYSDEC ENDORSED ENTITY TO THE TOWN FOR THEIR RECORDS.
   E. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS NECESSARY FOR THE WORK OUTLINED HEREIN.
   F. THE TRAINED CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF ALL STORMWATER POLLUTION PREVENTION MEASURES OUTLINED IN THE SWPPP AND PROJECT PLANS.
   G. THE CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION CONFERENCE WITH THE OWNER (AND/OR OWNER'S REPRESENTATIVES), TRAINED INDIVIDUAL(S), AND THE QUALIFIED PROFESSIONAL AT LEAST ONE WEEK PRIOR TO COMMENCEMENT OF CONSTRUCTION.
   H. THE CONTRACTOR OR OWNER SHALL HAVE THE QUALIFIED PROFESSIONAL, AS DEFINED WITHIN THE NYSDEC SPDES GENERAL PERMIT, CONDUCT AN INITIAL SITE ASSESSMENT AND CERTIFY THAT THE APPROPRIATE EROSION AND SEDIMENT CONTROL STRUCTURES AS DEPICTED ON THE PLANS HAVE BEEN ADEQUATELY INSTALLED AND IMPLEMENTED PRIOR TO COMMENCEMENT OF CONSTRUCTION. REFER TO SWPPP FOR THE INITIAL SITE ASSESSMENT GUIDELINES.
   I. THE CONTRACTOR SHALL MAINTAIN A RECORD OF ALL EROSION AND SEDIMENT CONTROL INSPECTION REPORTS AT THE SITE IN A LOG BOOK. THE SITE LOG BOOK SHALL BE MAINTAINED ON-SITE AND BE MADE AVAILABLE TO THE PERMITTING AUTHORITY.
3. ONCE CONSTRUCTION ACTIVITIES ARE COMPLETE, THE OWNER/OPERATOR SHALL HAVE A QUALIFIED PROFESSIONAL CONDUCT A FINAL SITE ASSESSMENT TO DETERMINE IF THE SITE MEETS THE FINAL STABILIZATION CRITERIA AS DEFINED WITHIN THE NYSDEC SPDES GENERAL PERMIT. IF THE SITE IS DETERMINED TO MET THE FINAL STABILIZATION CRITERIA, A NOTICE OF TERMINATION (NOT) SHALL BE COMPLETED AND SUBMITTED TO THE NYSDEC TO TERMINATE COVERAGE UNDER THE SPDES GENERAL PERMIT.

POLLUTION PREVENTION CONTROL NOTES

GOOD HOUSEKEEPING PRACTICES ARE DESIGNED TO MAINTAIN A CLEAN AND ORDERLY WORK ENVIRONMENT. GOOD HOUSEKEEPING MEASURES SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROCESS BY THOSE PARTIES INVOLVED WITH THE DIRECT CARE AND DEVELOPMENT OF THE SITE. THE FOLLOWING MEASURES SHOULD BE IMPLEMENTED TO CONTROL THE POSSIBLE EXPOSURE OF HARMFUL SUBSTANCES AND MATERIALS TO STORMWATER RUNOFF:

1. MATERIAL RESULTING FROM THE CLEARING AND GRUBBING OPERATION SHALL BE STOCKPILED AWAY FROM STORM DRAINAGE, WATER BODIES AND/OR WATERCOURSES AND SURROUNDED WITH ADEQUATE EROSION AND SEDIMENT CONTROL MEASURES. SOIL STOCKPILE LOCATIONS SHALL BE EXPOSED NO LONGER THAN 7 DAYS BEFORE SEEDING.
2. EQUIPMENT MAINTENANCE AREAS SHALL BE PROTECTED FROM STORMWATER FLOWS AND SHALL BE SUPPLIED WITH APPROPRIATE WASTE RECEPTACLES FOR SPENT CHEMICALS, SOLVENTS, OILS, GREASES, GASOLINE, AND ANY POLLUTANTS THAT MIGHT CONTAMINATE THE SURROUNDING HABITAT AND/OR WATER SUPPLY. EQUIPMENT WASH-DOWN ZONES SHALL BE LOCATED WITHIN AREAS DRAINING TO SEDIMENT CONTROL DEVICES.
3. THE USE OF DETERGENTS FOR LARGE-SCALE (I.E., VEHICLES, BUILDINGS, PAVEMENT SURFACES, ETC.) WASHING IS PROHIBITED.
4. MATERIAL STORAGE LOCATIONS AND FACILITIES (I.E., COVERED STORAGE AREAS, STORAGE SHEDS, ETC.) SHALL BE LOCATED ON-SITE AND SHALL BE STORED ACCORDING TO THE MANUFACTURER'S STANDARDS IN A DEDICATED STAGING AREA. CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER TOXIC MATERIAL MUST BE STORED IN WATERPROOF CONTAINERS. RUNOFF CONTAINING SUCH MATERIALS MUST BE COLLECTED, REMOVED FROM THE SITE, TREATED AND DISPOSED AT AN APPROVED SOLID WASTE OR CHEMICAL DISPOSAL FACILITY.
5. HAZARDOUS SPILLS SHALL BE IMMEDIATELY CONTAINED TO PREVENT SUCH POLLUTANTS FROM ENTERING THE SURROUNDING HABITAT AND/OR WATER SUPPLY. SPILL KITS SHALL BE PROVIDED ON-SITE AND SHALL BE DISPLAYED IN A PROMINENT LOCATION FOR EASE OF ACCESS AND USE. SPILLS GREATER THAN FIVE (5) GALLONS SHALL BE REPORTED TO THE NYSDEC RESPONSE UNIT AT 1-800-457-7362. IN ADDITION, A RECORD OF THE INCIDENT(S) AND/OR NOTIFICATIONS SHALL BE DOCUMENTED AND ATTACHED TO THE SWPPP.
6. PORTABLE SANITARY WASTE FACILITIES SHALL BE PROVIDED ON-SITE FOR WORKERS AND SHALL BE PROPERLY MAINTAINED.
7. DUMPSTERS AND/OR DEBRIS CONTAINERS SHALL BE LOCATED ON-SITE AND SHALL BE OF ADEQUATE SIZE TO MANAGE RESPECTIVE MATERIALS. REGULAR COLLECTION AND DISPOSAL OF WASTES SHALL OCCUR AS REQUIRED.
8. TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE LOCATED A MINIMUM OF 50 FEET FROM STORM DRAIN INLETS, OPEN DRAINAGE FACILITIES, AND WATERCOURSES. EACH FACILITY SHOULD BE LOCATED AWAY FROM CONSTRUCTION TRAFFIC OR ACCESS AREAS TO PREVENT DISTURBANCE OR TRACKING. A SIGN SHOULD BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE PROPER FACILITIES. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHALL BE REMOVED AND DISPOSED OF. MATERIALS USED TO CONSTRUCT THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED AND DISPOSED OF. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED AND/OR REPAIRED, SEEDED, AND MULCHED FOR FINAL STABILIZATION.
9. NON-STORMWATER COMPONENTS OF SITE DISCHARGE MUST BE CLEAN WATER. WATER USED FOR CONSTRUCTION, WHICH DISCHARGES FROM THE SITE, MUST ORIGINATE FROM A PUBLIC WATER SUPPLY OR PRIVATE WELL APPROVED BY THE HEALTH DEPARTMENT. WATER USED FOR CONSTRUCTION THAT DOES NOT ORIGINATE FROM AN APPROVED PUBLIC SUPPLY MUST NOT DISCHARGE FROM THE SITE. IT CAN BE RETAINED IN THE TEMPORARY SEDIMENT BASINS UNTIL IT EVAPORATES.
10. DISCHARGES FROM DEWATERING ACTIVITIES, INCLUDING DISCHARGES FROM DEWATERING TRENCHES AND EXCAVATIONS, MUST BE MANAGED BY APPROPRIATE CONTROL MEASURES.
11. WASTEWATER DISCHARGES FROM WASHOUT AND CLEANOUT OF STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS, AND OTHER CONSTRUCTION MATERIALS IS PROHIBITED.

STABILIZATION OF DISTURBED SURFACES

1. MULCH (INCLUDING GRAVEL MULCH) – MULCH OFFERS A FAST EFFECTIVE MEANS OF STABILIZATION. THIS CAN ALSO INCLUDE ROLLED EROSION CONTROL BLANKETS.
2. SPRAY ADHESIVES – THESE ARE PROCUCTS GENERALLY COMPOSED OF POLYMERS IN A LIQUID OR SOLID FORM THAT ARE MIXED WITH WATER TO FORM AN EMULSION THAT IS SPRAYED ON THE SOIL SURFACE WITH TYPICAL HYDROSEEDING EQUIPMENT. THE MIXING RATIOS AND APPLICATION RATES WILL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR THE SPECIFIC SOILS ON THE SITE. IN NO CASE SHOULD THE APPLICATION OF THESE ADHESIVES BE MADE ON WET SOILS OR IF THERE IS A PROBABILITY OF PRECIPITATION WITHIN 48 HOURS OF ITS PROPOSED USE. MATERIAL SAFETY DATA SHEETS WILL BE PROVIDED TO ALL APPLICATORS AND OTHERS WORKING WITH THE MATERIAL.
3. POLYMER ADDITIVES – THESE POLYMERS ARE MIXED WITH WATER AND APPLIED TO THE DRIVING SURFACE BY A WATER TRUCK WITH A GRAVITY FEED DRIP BAR, SPRAY BAR OR AUTOMATED DISTRIBUTOR TRUCK. THE MIXING RATIOS AND APPLICATION RATES WILL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. INCORPORATION OF THE EMULSION INTO THE SOIL WILL BE DONE TO THE APPROPRIATE DEPTH BASED ON EXPECTED TRAFFIC. COMPACTION AFTER INCORPORATION WILL BE BY VIBRATORY ROLLER TO A MINIMUM OF 95%. THE PREPARED SURFACE SHALL BE MOIST AND NO APPLICATION OF THE POLYMER WILL BE MADE IF THERE IS A PROBABILITY OF PRECIPITATION WITHIN 48 HOURS OF ITS PROPOSED USE. MATERIAL SAFETY DATA SHEETS WILL BE PROVIDED TO ALL APPLICATORS WORKING WITH THE MATERIAL.
4. BARRIERS – WOVEN GEOTEXTILES CAN BE PLACED ON THE DRIVING SURFACE TO EFFECTIVELY REDUCE DUST THROW AND PARTICLE MIGRATION ON HAUL ROADS. STONE CAN ALSO BE USED FOR CONSTRUCTION ROADS FOR EFFECTIVE DUST CONTROL.
5. SEEDING – REFER TO LANDSCAPE PLANS AND DETAILS.

STANDARDS AND SPECIFICATIONS FOR DUST CONTROL

1. DEFINITION AND SCOPE – THE CONTROL OF DUST RESULTING FROM LAND-DISTURBING ACTIVITIES, TO PREVENT SURFACE AND AIR MOVEMENT OF DUST FROM DISTURBED SOIL SURFACES THAT MAY CAUSE OFF-SITE DAMAGE, HEALTH HAZARDS, AND TRAFFIC SAFETY PROBLEMS.
2. CONDITIONS WHERE PRACTICE APPLIES – ON CONSTRUCTION ROADS, ACCESS POINTS, AND OTHER DISTURBED AREAS SUBJECT TO SURFACE DUST MOVEMENT AND DUST BLOWING WHERE OFF-SITE DAMAGE MAY OCCUR IF DUST IS NOT CONTROLLED.
3. DESIGN CRITERIA – CONSTRUCTION OPERATIONS SHOULD BE SCHEDULED TO MINIMIZE THE AMOUNT OF AREA DISTURBED AT ONE TIME. BUFFER AREAS OF VEGETATION SHOULD BE LEFT WHERE PRACTICAL. TEMPORARY OR PERMANENT STABILIZATION MEASURES SHALL BE INSTALLED. NO SPECIFIC DESIGN CRITERIA IS GIVEN. SEE CONSTRUCTION SPECIFICATIONS BELOW FOR COMMON METHODS OF DUST CONTROL. WATER QUALITY MUST BE CONSIDERED WHEN MATERIALS ARE SELECTED FOR DUST CONTROL. WHERE THERE IS A POTENTIAL FOR THE MATERIAL TO WASH OFF TO A STREAM, INGREDIENT INFORMATION MUST BE PROVIDED TO THE NYSDEC. NO POLYMER APPLICATION SHALL TAKE PLACE WITHOUT WRITTEN APPROVAL FROM THE NYSDEC.
4. CONSTRUCTION SPECIFICATIONS
   4.1. NON-DRIVING AREAS – THESE AREAS USE PRODUCTS AND MATERIALS APPLIED OR PLACED ON SOIL SURFACES TO PREVENT AIRBORNE MIGRATION OF SOIL PARTICLES.
   4.1.a. VEGETATIVE COVER – FOR DISTURBED AREAS NOT SUBJECT TO TRAFFIC, VEGETATION PROVIDES THE MOST PRACTICAL METHOD OF DUST CONTROL.
   4.1.b. MULCH – (INCLUDING GRAVEL MULCH) – MULCH OFFERS A FAST EFFECTIVE MEANS OF CONTROLLING DUST. THIS CAN ALSO INCLUDE ROLLED EROSION CONTROL BLANKETS.
   4.1.c. SPRAY ADHESIVES – THESE ARE PROCUCTS GENERALLY COMPOSED OF POLYMERS IN A LIQUID OR SOLID FORM THAT ARE MIXED WITH WATER TO FORM AN EMULSION THAT IS SPRAYED ON THE SOIL SURFACE WITH TYPICAL HYDROSEEDING EQUIPMENT. THE MIXING RATIOS AND APPLICATION RATES WILL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR THE SPECIFIC SOILS ON THE SITE. IN NO CASE SHOULD THE APPLICATION OF THESE ADHESIVES BE MADE ON WET SOILS OR IF THERE IS A PROBABILITY OF PRECIPITATION WITHIN 48 HOURS OF ITS PROPOSED USE. MATERIAL SAFETY DATA SHEETS WILL BE PROVIDED TO ALL APPLICATORS AND OTHERS WORKING WITH THE MATERIAL.
   4.2. DRIVING AREAS – THESE AREAS UTILIZE WATER, POLYMER EMULSIONS, AND BARRIERS TO PREVENT DUST MOVEMENT FROM THE TRAFFIC SURFACE INTO THE AIR.
   4.2.a. SPRINKLING – THE SITE MAY BE SPRAYED WITH WATER UNTIL THE SURFACE IS WET. THIS IS ESPECIALLY EFFECTIVE ON HAUL ROADS AND ACCESS ROUTE TO PROVIDE SHORT TERM LIMITED DUST CONTROL.
   4.2.b. POLYMER ADDITIVES – THESE POLYMERS ARE MIXED WITH WATER AND APPLIED TO THE DRIVING SURFACE BY A WATER TRUCK WITH A GRAVITY FEED DRIP BAR, SPRAY BAR OR AUTOMATED DISTRIBUTOR TRUCK. THE MIXING RATIOS AND APPLICATION RATES WILL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. INCORPORATION OF THE EMULSION INTO THE SOIL WILL BE DONE TO THE APPROPRIATE DEPTH BASED ON EXPECTED TRAFFIC. COMPACTION AFTER INCORPORATION WILL BE BY VIBRATORY ROLLER TO A MINIMUM OF 95%. THE PREPARED SURFACE SHALL BE MOIST AND NO APPLICATION OF THE POLYMER WILL BE MADE IF THERE IS A PROBABILITY OF PRECIPITATION WITHIN 48 HOURS OF ITS PROPOSED USE. MATERIAL SAFETY DATA SHEETS WILL BE PROVIDED TO ALL APPLICATORS WORKING WITH THE MATERIAL.
   4.2.c. BARRIERS – WOVEN GEO-TEXTILES CAN BE PLACED ON THE DRIVING SURFACE TO EFFECTIVELY REDUCE DUST THROW AND PARTICLE MIGRATION ON HAUL ROADS. STONE CAN ALSO BE USED FOR CONSTRUCTION ROADS FOR EFFECTIVE DUST CONTROL.
   4.2.d. WINDBREAK – A SILT FENCE OR SIMILAR BARRIER CAN CONTROL AIR CURRENTS AT INTERVALS EQUAL TO TEN TIMES THE BARRIER HEIGHT. PRESERVE EXISTING WIND BARRIER VEGETATION AS MUCH AS PRACTICAL.
5. MAINTENANCE – MAINTAIN DUST CONTROL MEASURES THROUGH DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS ARE STABILIZED.
6. DUST SUPPRESSION FOR BUILDING DEMOLITION AND MATERIAL PROCESSING – DURING ALL PHASES OF THE DEMOLITION ACTIVITIES, AIRBORNE DUST EMISSIONS WILL BE CONTROLLED. DUST SUPPRESSION SYSTEMS WILL BE INSTALLED THROUGHOUT THE INTERIOR AND/OR EXTERIOR WORK AREAS TO MINIMIZE OR REDUCE THE GENERATION OF VISIBLE DUST EMISSIONS. ENGINEERING CONTROLS FOR DUST SUPPRESSION WILL GENERALLY CONSIST OF THE USE OF WATER MISTING AND SPRAYING DEVICES. IF CONDITIONS WARRANT, A LARGE AREA MISTER SUCH AS A DUST BOSS OR EQUIVALENT WILL BE EMPLOYED TO ENSURE FUGITIVE EMISSIONS ARE MITIGATED. THE DUST BOSS RESEMBLES A SNOW MAKING MACHINE AND CAN COVER A LARGE AREA WITH A FINE MIST OF WATER, EFFECTIVELY CONTROLLING DUST. THIS UNIT OSCILLATES AND HYDRAULICALLY ADJUSTS UP AND DOWN TO SPRAY THE NECESSARY WORK AREAS. SECONDARY DUST CONTROL MEASURES SUCH AS A 6000 GALLON WATER TANKER EQUIPPED WITH A PUMP, 1.5" FIREHOUSE AND SPRAY NOZZLE WOULD ALSO BE DEPLOYED IF NECESSARY. DUST SUPPRESSION VIA WATER MISTING AND SPRAYING WILL USE A QUANTITY OF WATER THAT WILL BE SUFFICIENT ENOUGH TO CONTROL DUST, BUT NOT ENOUGH TO LEAVE RESIDUAL WATER ACCUMULATIONS ON THE GROUND SURFACE. WATER MISTING AND SPRAYING DEVICES WILL BE UTILIZED AS NECESSARY IN VARIOUS PORTIONS OF THE WORK ZONE AND WILL ASSIST IN REDUCING VISIBLE DUST EMISSIONS IN WORK AREAS. WORK PROCEDURES AND/OR DUST CONTROLS WILL BE ADJUSTED AS NEEDED TO ENSURE THAT VISIBLE DUST IS CONTROLLED AT THE SITE BOUNDARY.

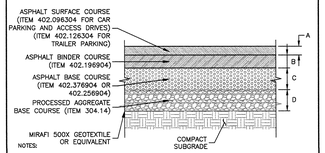
SOIL RESTORATION NOTES

ALL AREAS NOT COVERED BY IMPERVIOUS SURFACES WITHIN THE LIMITS OF DISTURBANCE WILL REQUIRE SOIL RESTORATION. THE SOILS SHALL BE RESTORED IN ACCORDANCE WITH THE TABLE BELOW

TYPE OF SOIL DISTURBANCE	SOIL RESTORATION REQUIREMENT	
NO SOIL DISTURBANCE	RESTORATION NOT PERMITTED	
MINIMAL SOIL DISTURBANCE (E.G., CLEARING AND GRUBBING ACTIVITIES)	RESTORATION NOT REQUIRED	
AREAS WHERE TOPSOIL IS STRIPPED ONLY (NO CHANGE IN GRADE)	APPLY 6" OF TOPSOIL I

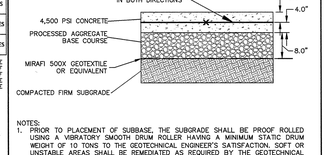
ASPHALT SECTION	SURFACE COURSE "A" (ITEM 402.096304)	SURFACE COURSE "A" (ITEM 402.126304)	BINDER COURSE "B"	BASE "C"	BASE "D"
CAR PARKING (LIGHT DUTY ASPHALT)	1.5 INCHES	-	2.5 INCHES	-	6 INCHES
TRAILER PARKING (MEDIUM DUTY ASPHALT)	-	2 INCHES	-	4 INCHES	10 INCHES
ACCESS DRIVES & TRUCK COURTS (HEAVY DUTY ASPHALT)	1.5 INCHES	-	2.5 INCHES	4 INCHES	10 INCHES

CONTRACTOR TO CONSTRUCT SOUTH DRIVE NORTH WITH 10 INCHES OF PROCESS AGGREGATE BASE COURSE AND 4 INCHES OF ASPHALT MILLINGS. THE BALANCE OF THE PAVING IMPROVEMENTS OF SOUTH DRIVE NORTH, AS SHOWN IN THE ABOVE TABLE, SHALL BE THE RESPONSIBILITY OF TOWN OF EAST FISHKILL, TO BE CONSTRUCTED IF AN OFFER OF CESSION AND DEDICATION OF SOUTH DRIVE NORTH IS ACCEPTED BY THE TOWN AS PART OF AN ACTION INITIATED BY OWNER, OR IF THE NEIGHBORING SPORTSDOME FACILITY IS APPROVED AND CONSTRUCTED.



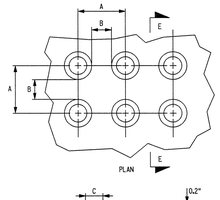
NOTES:
1. PRIOR TO PLACEMENT OF SUBBASE, THE SUBGRADE SHALL BE PROOF ROLLED TO THE GEOTECHNICAL ENGINEER'S SATISFACTION. SOFT OR UNSTABLE AREAS SHALL BE REMEDIATED AS REQUIRED BY THE GEOTECHNICAL ENGINEER.
2. PRIOR TO ANY PAVING ACTIVITIES, THE SUBBASE SHALL BE PROOF ROLLED TO THE GEOTECHNICAL ENGINEER'S SATISFACTION. SOFT OR UNSTABLE AREAS SHALL BE REMEDIATED AS REQUIRED BY THE GEOTECHNICAL ENGINEER.
3. PAVING BASE COURSE SHALL BE CONSTRUCTED IN LAYERS NOT LESS THAN 2 INCHES AND NOT MORE THAN 4 INCHES THICK PER LIFT.
4. ASPHALT BASE COURSE SHALL BE PROOFROLLED TO THE GEOTECHNICAL ENGINEER'S SATISFACTION, WITH AT LEAST 4 PASSES OF EITHER A SMOOTH ROLLER HAVING A MINIMUM STATIC DRUM WEIGHT OF 10-TONS OR A FULLY LOADED TANDEM DUMP TRUCK. ANY SOFT AREAS SHALL BE REMOVED AND REPLACED WITH CLEAN, GRANULAR, FREE-DRAINING SOIL. FILL SHALL BE PLACED IN LOOSE LIFTS NOT TO EXCEED 12-INCHES AND SHALL BE COMPACTED TO AT LEAST 95% OF ITS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557.
5. WHERE NOT OTHERWISE SPECIFIED, ALL WORK TO BE PERFORMED IN ACCORDANCE WITH NYSDOT SPECIFICATIONS. FOR CONSTRUCTION GUIDELINES FOR FULL DEPTH RECLAMATION OF EXISTING ASPHALT PAVEMENT REFER TO THE FOLLOWING NYSDOT REFERENCES: "GEOTECHNICAL ENGINEERING MANUAL, GEM-27, REVISION #1, DATED AUGUST 15" AND "SPECIAL SPECIFICATION FOR FULL DEPTH RECLAMATION OF ASPHALT PAVEMENT, ID 08-041, DATED NOVEMBER 5TH, 2008".

ASPHALT PAVEMENT SECTION
SCALE: NTS



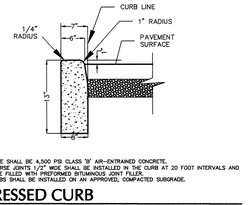
NOTES:
1. PRIOR TO PLACEMENT OF SUBBASE, THE SUBGRADE SHALL BE PROOF ROLLED USING A VIBRATORY SMOOTH DRUM ROLLER HAVING A MINIMUM STATIC DRUM WEIGHT OF 10 TONS TO THE GEOTECHNICAL ENGINEER'S SATISFACTION. SOFT OR UNSTABLE AREAS SHALL BE REMEDIATED AS REQUIRED BY THE GEOTECHNICAL ENGINEER.
2. PRIOR TO SLAB PLACEMENT, THE SUBBASE SHALL BE COMPACTED AND THEN PROOF ROLLED USING A FULLY LOADED TRI-AXLE DUMP TRUCK TO THE GEOTECHNICAL ENGINEER'S SATISFACTION. AREAS EXHIBITING EXCESSIVE SOIL PUMPING AND ROTTING SHALL BE REMEDIATED AS REQUIRED BY THE GEOTECHNICAL ENGINEER.
3. BACKFILL TO REPLACE OVER-EXCAVATED SOFT AREAS SHALL CONSIST OF APPROVED GRANULAR FILL AND PLACED IN LOOSE LIFTS NOT TO EXCEED 12-INCHES AND SHALL BE COMPACTED TO AT LEAST 95% OF ITS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557.
4. TRANSVERSE AND LONGITUDINAL CONTROL JOINTS SHALL BE SAW CUT AT 12 FT MAXIMUM SPACING.
5. CONSTRUCTION JOINTS SHALL BE INSTALLED AT 135 FT MAXIMUM SPACING.
6. SAW CUT DEPTH SHALL BE 1 1/2 INCHES.
7. JOINTS IN CONCRETE PAVING SHALL BE SEALED WITH SILICONE SEALANT EQUAL TO DOW CORNING 890-SL, SELF-LEVELING.
8. CONCRETE SHALL HAVE A WATER-CEMENT RATIO OF 0.45 AND 6% AIR ENTRAINMENT.
9. CONCRETE SHALL BE WET CURED OR CURED WITH PIGMENTED ASTM C309 CURING COMPOUND AND PROTECTED MINIMUM 7 DAYS.
10. PROVIDE 1-INCH DIAMETER X 18-INCH LONG SMOOTH DOWELS SPACED 12 INCH ON CENTER AT ALL CONSTRUCTION JOINTS.
11. BROOM FINISH SHALL BE LIGHT TO MEDIUM TEXTURE.
12. WHERE NOT OTHERWISE SPECIFIED, ALL WORK TO BE PERFORMED IN ACCORDANCE WITH NYSDOT SPECIFICATIONS.

HEAVY DUTY CONCRETE PAVEMENT SECTION
SCALE: NTS



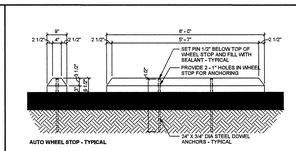
TRUNCATED DOME DIMENSIONS		
DIM.	MIN. (IN)	MAX. (IN)
A	1.6"	2.4"
B	0.65"	1.5"
C	50% = 65% OF D DIM.	
D	0.9"	1.4"

DETECTABLE WARNING SURFACE DETAIL
SCALE: NTS



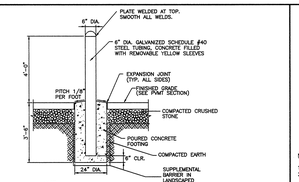
NOTES:
1. CONCRETE SHALL BE 4,500 PSI CLASS 'B' AIR-ENTRAINED CONCRETE.
2. TRANSVERSE JOINTS 1/2" WIDE SHALL BE INSTALLED IN THE CURB AT 20 FOOT INTERVALS AND SHALL BE FILLED WITH PREFORMED BITUMINOUS JOINT FILLER.
3. ALL CURBS SHALL BE INSTALLED ON AN APPROVED, COMPACTED SUBGRADE.

DEPRESSED CURB
SCALE: NTS



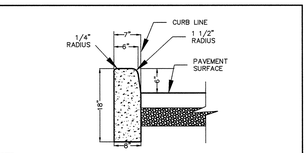
NOTES:
1) CONCRETE WHEEL STOPS TO BE PAINTED SAFETY YELLOW.

CONCRETE CAR WHEEL STOP
SCALE: NTS



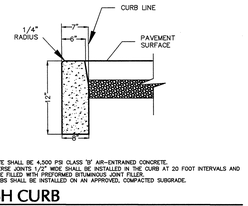
NOTE:
BOLLARDS TO BE PAINTED SAFETY YELLOW

STEEL BOLLARD
SCALE: NTS



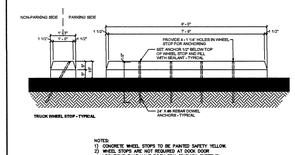
NOTES:
1. CONCRETE SHALL BE 4,500 PSI CLASS 'B' AIR-ENTRAINED CONCRETE.
2. TRANSVERSE JOINTS 1/2" WIDE SHALL BE INSTALLED IN THE CURB AT 20 FOOT INTERVALS AND SHALL BE FILLED WITH PREFORMED BITUMINOUS JOINT FILLER.
3. ALL CURBS SHALL BE INSTALLED ON AN APPROVED, COMPACTED SUBGRADE.

6-INCH CONCRETE CURB
SCALE: NTS



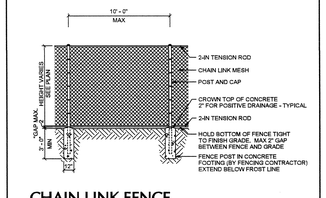
NOTES:
1. CONCRETE SHALL BE 4,500 PSI CLASS 'B' AIR-ENTRAINED CONCRETE.
2. TRANSVERSE JOINTS 1/2" WIDE SHALL BE INSTALLED IN THE CURB AT 20 FOOT INTERVALS AND SHALL BE FILLED WITH PREFORMED BITUMINOUS JOINT FILLER.
3. ALL CURBS SHALL BE INSTALLED ON AN APPROVED, COMPACTED SUBGRADE.

FLUSH CURB
SCALE: NTS

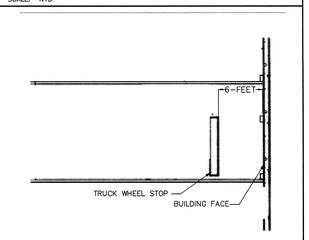


NOTES:
1) CONCRETE WHEEL STOPS TO BE PAINTED SAFETY YELLOW.
2) CONCRETE STOPS ARE NOT REQUIRED AT DOCK DOOR LOCATIONS THAT HAVE DOCK SEAL/CUSHION SYSTEMS.
3) IF PARKING SLAB CURB IS 8"-9" OR GREATER WITH STANDOFF CURB, THE CONCRETE WHEEL STOP MAY BE OMITTED AS FENCED TRUCK WHEEL STOPS ARE NOT REQUIRED.

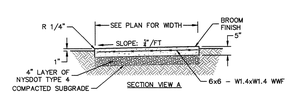
CONCRETE TRUCK WHEEL STOP
SCALE: NTS

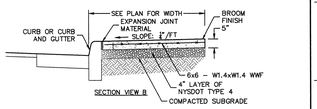


CHAIN LINK FENCE
SCALE: NTS



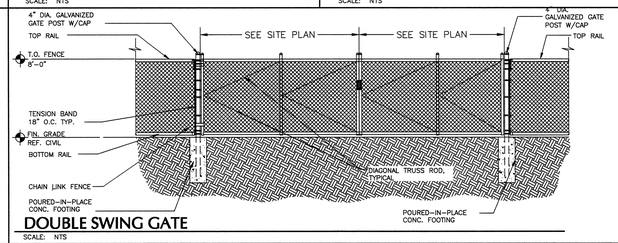
TRAILER STALLS AT BUILDING FACE
SCALE: NTS



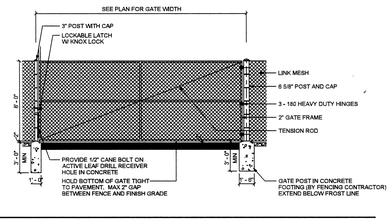


NOTES:
1. TO BE USED WHERE ADJACENT TO CURB OR CURB AND GUTTER.
2. CONCRETE TO BE 4,000 PSI.

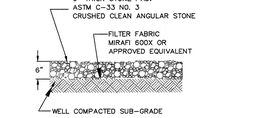
CONCRETE SIDEWALK SECTION
SCALE: NTS



DOUBLE SWING GATE
SCALE: NTS



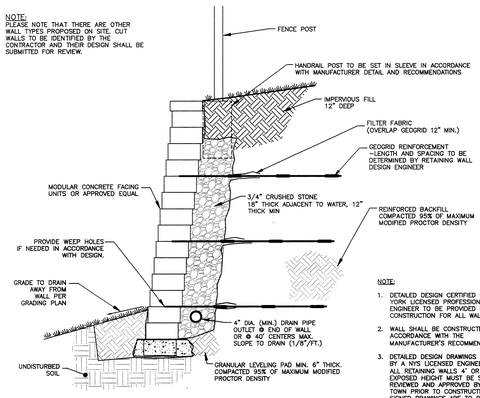
SWING GATE
SCALE: NTS



SECTION

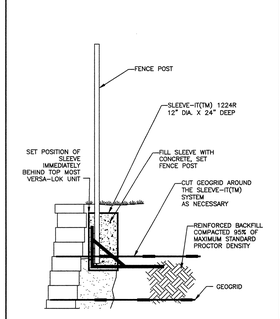
GRAVEL ACCESS ROAD
SCALE: NTS

NOTE:
PLEASE NOTE THAT THERE ARE OTHER WALL TYPES PROPOSED ON SITE. CUT WALLS TO BE IDENTIFIED BY THE CONTRACTOR AND THEIR DESIGN SHALL BE SUBMITTED FOR REVIEW.



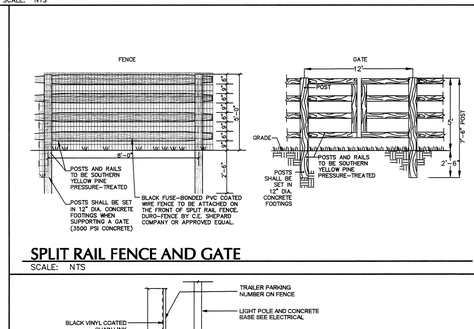
NOTE:
1. DETAILED DESIGN CERTIFIED BY NEW YORK LICENSED PROFESSIONAL ENGINEER TO BE PROVIDED PRIOR TO CONSTRUCTION FOR ALL WALLS.
2. WALL SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
3. DETAILED DESIGN DRAWINGS STAMPED BY A NYS LICENSED ENGINEER FOR ALL RETAINING WALLS 4' OR MORE OF EXPOSED HEIGHT MUST BE SUBMITTED, REVIEWED AND APPROVED BY THE TOWN PRIOR TO CONSTRUCTION. THESE SIGNED DRAWINGS ARE TO BE PROVIDED BY THE SUBCONTRACTOR.

TYPICAL MODULAR BLOCK WALL CROSS SECTION
SCALE: NTS



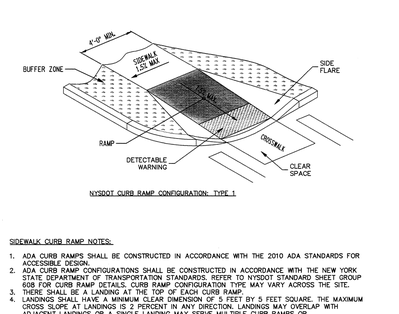
NOTE:
DETAIL SHOWN FOR VERSA-LOK MODULAR WALL BUT MAY VARY IF APPROVED EQUAL WALL SYSTEM IS USED.

RETAINING WALL POST DETAIL
SCALE: NTS



SPLIT RAIL FENCE AND GATE
SCALE: NTS

FENCE AT TRAILER PARKING
SCALE: NTS



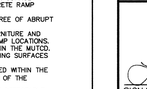
NYSDOT CURB RAMP CONFIGURATION: TYPE 1

SIDEWALK CURB RAMP NOTES:
1. ADA CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN.
2. ADA CURB RAMP CONFIGURATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARDS. REFER TO NYSDOT STANDARD SHEET GROUP 608 FOR CURB RAMP DETAILS. CURB RAMP CONFIGURATION TYPE MAY VARY ACROSS THE SITE.
3. THERE SHALL BE A LANDING AT THE TOP OF EACH CURB RAMP.
4. LANDINGS SHALL HAVE A MINIMUM CLEAR DIMENSION OF 5 FEET BY 5 FEET SQUARE. THE MAXIMUM CROSS SLOPE AT LANDINGS IS 2 PERCENT IN ANY DIRECTION. LANDINGS MAY OVERLAP WITH ADJACENT LANDINGS OR A SINGLE LANDING MAY SERVE MULTIPLE CURB RAMPS OR PARALLEL/PERPENDICULAR RAMPS.
5. THE MAXIMUM CROSS SLOPE OF CURB RAMPS SHALL BE 2 PERCENT. CURB RAMPS SURFACES SHALL GENERALLY LIE IN CONTINUOUS PLANES WITH A MINIMUM OF SURFACE WARP.
6. THE RUNNING GRADE OF CURB RAMPS SHOULD BE AS FLAT AS PRACTICABLE. THE MAXIMUM RUNNING GRADE OF ANY PORTION OF ANY CURB SHALL BE 1:12 (8.3%).
7. CURB RAMPS LOCATED WHERE PEDESTRIANS MAY WALK ACROSS THE CURB RAMP SHALL HAVE FLARED SIDES. THE LENGTH OF THE FLARES SHALL BE AT LEAST TEN (10) TIMES THE CURB HEIGHT, MEASURED ALONG THE CURB LINE. WHEN INFEASIBLE OR IMPRACTICABLE TO PROVIDE A LANDING THAT IS AT LEAST 5 FEET WIDE (MEASURED FORM THE TOP OF THE RAMP TO THE BACK OF THE SIDEWALK), THE LENGTH OF THE FLARES SHALL BE TWELVE (12) TIME THE CURB HEIGHT MEASURED ALONG THE CURB LINE.
8. THE SURFACE OF ALL CURB RAMPS SHALL BE STABLE, FIRM AND SLIP RESISTANT. A COARSE BROOM FINISH RUNNING PERPENDICULAR TO THE SLOPE IS RECOMMENDED ON CONCRETE RAMP SURFACES, EXCLUSIVE OF THE DETECTABLE WARNING FIELDS.
9. RAMP TRANSITIONS BETWEEN WALKS, GUTTERS OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT VERTICAL CHANGES.
10. COORDINATE ALL TRAFFIC CONTROL DEVICES, UTILITY LOCATIONS, SIGNS, STREET FURNITURE AND DRAINAGE TO ENSURE A CONTINUOUS PEDESTRIAN ACCESS ROUTE AT ALL CURB RAMP LOCATIONS. GUIDANCE FOR CROSSWALK MARKINGS AND TRAFFIC CONTROL DEVICES IS PROVIDED IN THE MUTCD. DRAINAGE GRATES AND UTILITY ACCESS COVERS ARE NOTE ALLOWED IN RAMP WALKING SURFACES OR LANDINGS UNLESS APPROVE BY THE DESIGN ENGINEER.
11. AT MARKED CROSSINGS, THE FULL WIDTH OF THE RAMP SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS. THE SIDES OF THE RAMP (THE FLARES) NEED NOT BE WITHIN THE WIDTH OF THE MARKINGS.
12. DETAILS ILLUSTRATE THAT DETECTABLE WARNINGS ARE REQUIRED. SEE THE CURRENT DETECTABLE WARNING STANDARD DETAIL AND NOTES FOR SPECIFIC DETECTABLE WARNING REQUIREMENTS.
13. SLOPES ON BLENDED TRANSITIONS SHALL NOT BE STEEPER THAN 2% (1 ON 50) IN ANY DIRECTION).
14. REFER TO THE SIDEWALK DETAIL FOR REQUIRED CONCRETE STRENGTH.

SIDEWALK CURB RAMP
SCALE: NTS

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

Date	Description	No.
Revisions		



SIGNATURE 8/30/2022 DATE

LEONARD J. DELLAMONICA, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

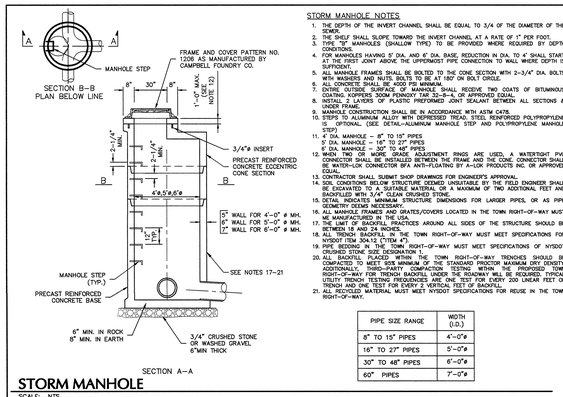
LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project
SUFFERN QUARRY LOGISTICS CENTER
SECTION No. 55.21. BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

Drawing Title
SITE CONSTRUCTION DETAILS I

Project No.	Drawing No.
100992901	CS501
Date: 08/30/2022	
Drawn By: SM	
Checked By: JED	Sheet of 1

© 2022 Langan



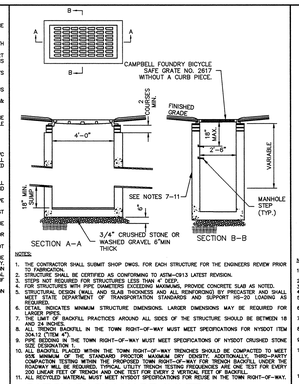
STORM MANHOLE

SCALE: NTS

STORM MANHOLE NOTES

1. THE DEPTH OF THE INVERT CHANNEL SHALL BE EQUAL TO 3/4 OF THE DIAMETER OF THE PIPE.
2. THE SHELF SHALL SLOPE TOWARD THE INVERT CHANNEL AT A RATE OF 1" PER FOOT.
3. TYPE "B" MANHOLES (SHALLOW TYPE) TO BE PROVIDED WHERE REQUIRED BY DEPTH CONDITIONS.
4. FOR MANHOLES HAVING 5' DIA. AND 6' DIA. BASE, REDUCTION IN DIA. TO 4' SHALL START AT THE FIRST JOINT ABOVE THE UPPERMOST PIPE CONNECTION TO WALL WHERE DEPTH IS SUFFICIENT.
5. ALL MANHOLE FRAMES SHALL BE BOLTED TO THE CONE SECTION WITH 2-3/4" DIA. BOLTS WITH WASHERS AND NUTS. BOLTS TO BE AT 180° ON BOLT CIRCLE.
6. ALL CONCRETE SHALL BE 4000 PSI MINIMUM.
7. ENTIRE OUTSIDE SURFACE OF MANHOLE SHALL RECEIVE TWO COATS OF BITUMINOUS COATING. KOPPERS 300M PENNOXY TAR 32-B-4, OR APPROVED EQUAL.
8. INSTALL TWO RINGS OF PLASTIC PREFORMED JOINT SEALANT BETWEEN ALL SECTIONS & UNDER FRAME.
9. MANHOLE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ASTM C478.
10. STEPS TO ALUMINUM ALLOY WITH DEPRESSED TREAD. STEEL REINFORCED POLYPROPYLENE IS OPTIONAL. (SEE DETAIL-ALUMINUM MANHOLE STEP AND POLYPROPYLENE MANHOLE STEP)
11. 4' DIA. MANHOLE – 6" TO 15" PIPES
    5' DIA. MANHOLE – 16" TO 27" PIPES
    6' DIA. MANHOLE – 30" TO 48" PIPES
12. WHEN TWO OR MORE GRADE ADJUSTMENT RINGS ARE USED, A WATERTIGHT PVC CONNECTOR SHALL BE INSTALLED BETWEEN THE FRAME AND THE CONE. CONNECTOR SHALL BE WATER-LOK CONNECTOR BY-A ANTI-FLOATING BY A-LOK PRODUCTS INC. OR APPROVED EQUAL.
13. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER'S APPROVAL.
14. SOIL CONDITIONS BELOW STRUCTURE DEEMED UNSUITABLE BY THE FIELD ENGINEER SHALL BE EXCAVATED TO A SUITABLE MATERIAL OR A MAXIMUM OF TWO ADDITIONAL FEET AND BACKFILLED WITH 3/4" CLEAN CRUSHED STONE.
15. DETAIL INDICATES MINIMUM STRUCTURE DIMENSIONS FOR LARGER PIPES, OR AS PIPE QUANTITY REQUIRES INCREASE.
16. ALL MANHOLE FRAMES AND GRATES/COVERS LOCATED IN THE TOWN RIGHT-OF-WAY MUST BE MANUFACTURED IN THE USA.
17. THE LIMIT OF BACKFILL PRACTICES AROUND ALL SIDES OF THE STRUCTURE SHOULD BE BETWEEN 18 AND 24 INCHES.
18. ALL TRENCH BACKFILL IN THE TOWN RIGHT-OF-WAY MUST MEET SPECIFICATIONS OF NYSDOT CRUSHED STONE SIZE DESIGNATION 1.
19. PIPE BEDDING IN THE TOWN RIGHT-OF-WAY MUST MEET SPECIFICATIONS OF NYSDOT CRUSHED STONE SIZE DESIGNATION 1.
20. ALL BACKFILL PLACED WITHIN THE TOWN RIGHT-OF-WAY TRENCHES SHOULD BE COMPACTED TO MEET 95% MINIMUM OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. ADDITIONALLY, THREE-PARTY COMPACTION TESTING WITHIN THE PROPOSED TOWN RIGHT-OF-WAY FOR TRENCH BACKFILL UNDER THE ROADWAY WILL BE REQUIRED. TYPICAL UTILITY TRENCH TESTING FREQUENCIES ARE ONE TEST FOR EVERY 200 LINEAR FEET OF TRENCH AND ONE TEST FOR EVERY 2 VERTICAL FEET OF BACKFILL.
21. ALL RECYCLED MATERIAL MUST MEET NYSDOT SPECIFICATIONS FOR REUSE IN THE TOWN RIGHT-OF-WAY.

PIPE SIZE RANGE	WIDTH (I.D.)
8" TO 15" PIPES	4'-0"ø
16" TO 27" PIPES	5'-0"ø
30" TO 48" PIPES	6'-0"ø
60" PIPES	7'-0"ø

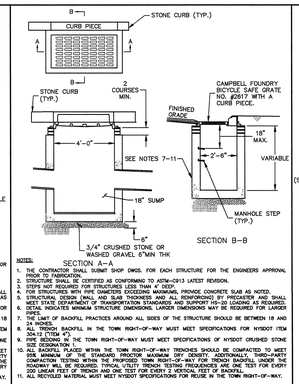


CATCH BASIN YARD INLET

SCALE: NTS

NOTES:

1. THE CONTRACTOR SHALL SUBMIT SHOP DWGS. FOR EACH STRUCTURE FOR THE ENGINEERS REVIEW PRIOR TO FABRICATION.
2. STRUCTURE SHALL BE CERTIFIED AS CONFORMING TO ASTM-C913 LATEST REVISION.
3. STEPS NOT REQUIRED FOR STRUCTURES LESS THAN 4' DEEP.
4. FOR STRUCTURES WITH PIPE DIAMETERS EXCEEDING MANIMUMS, PROVIDE CONCRETE SLAB AS NOTED.
5. STRUCTURAL DESIGN (WALL AND SLAB THICKNESS AND ALL REINFORCING) BY PRECASTER AND SHALL BE IN ACCORDANCE WITH LATEST STANDARDS AND SUPPORT HS-20 LOADING AS REQUIRED.
6. DETAIL INDICATES MINIMUM STRUCTURE DIMENSIONS. LARGER DIMENSIONS MAY BE REQUIRED FOR LARGER PIPES.
7. THE LIMIT OF BACKFILL PRACTICES AROUND ALL SIDES OF THE STRUCTURE SHOULD BE BETWEEN 18 AND 24 INCHES.
8. ALL TRENCH BACKFILL IN THE TOWN RIGHT-OF-WAY MUST MEET SPECIFICATIONS OF NYSDOT ITEM 304.12 ("ITEM 4").
9. PIPE BEDDING IN THE TOWN RIGHT-OF-WAY MUST MEET SPECIFICATIONS OF NYSDOT CRUSHED STONE SIZE DESIGNATION 1.
10. ALL BACKFILL PLACED WITHIN THE TOWN RIGHT-OF-WAY TRENCHES SHOULD BE COMPACTED TO MEET 95% MINIMUM OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. ADDITIONALLY, THREE-PARTY COMPACTION TESTING WITHIN THE PROPOSED TOWN RIGHT-OF-WAY FOR TRENCH BACKFILL UNDER THE ROADWAY WILL BE REQUIRED. TYPICAL UTILITY TRENCH TESTING FREQUENCIES ARE ONE TEST FOR EVERY 200 LINEAR FEET OF TRENCH AND ONE TEST FOR EVERY 2 VERTICAL FEET OF BACKFILL.
11. ALL RECYCLED MATERIAL MUST MEET NYSDOT SPECIFICATIONS FOR REUSE IN THE TOWN RIGHT-OF-WAY.

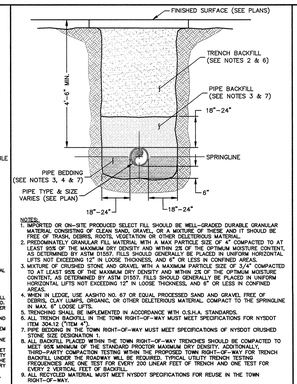


CATCH BASIN WITH CURB PIECE

SCALE: NTS

NOTES:

1. THE CONTRACTOR SHALL SUBMIT SHOP DWGS. FOR EACH STRUCTURE FOR THE ENGINEERS APPROVAL PRIOR TO FABRICATION.
2. STRUCTURE SHALL BE CERTIFIED AS CONFORMING TO ASTM-C913 LATEST REVISION.
3. STEPS NOT REQUIRED FOR STRUCTURES LESS THAN 4' DEEP.
4. FOR STRUCTURES WITH PIPE DIAMETERS EXCEEDING MANIMUMS, PROVIDE CONCRETE SLAB AS NOTED.
5. STRUCTURAL DESIGN (WALL AND SLAB THICKNESS AND ALL REINFORCING) BY PRECASTER AND SHALL BE IN ACCORDANCE WITH LATEST STANDARDS AND SUPPORT HS-20 LOADING AS REQUIRED.
6. DETAIL INDICATES MINIMUM STRUCTURE DIMENSIONS. LARGER DIMENSIONS MAY BE REQUIRED FOR LARGER PIPES.
7. THE LIMIT OF BACKFILL PRACTICES AROUND ALL SIDES OF THE STRUCTURE SHOULD BE BETWEEN 18 AND 24 INCHES.
8. ALL TRENCH BACKFILL IN THE TOWN RIGHT-OF-WAY MUST MEET SPECIFICATIONS OF NYSDOT ITEM 304.12 ("ITEM 4").
9. PIPE BEDDING IN THE TOWN RIGHT-OF-WAY MUST MEET SPECIFICATIONS OF NYSDOT CRUSHED STONE SIZE DESIGNATION 1.
10. ALL BACKFILL PLACED WITHIN THE TOWN RIGHT-OF-WAY TRENCHES SHOULD BE COMPACTED TO MEET 95% MINIMUM OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. ADDITIONALLY, THREE-PARTY COMPACTION TESTING WITHIN THE PROPOSED TOWN RIGHT-OF-WAY FOR TRENCH BACKFILL UNDER THE ROADWAY WILL BE REQUIRED. TYPICAL UTILITY TRENCH TESTING FREQUENCIES ARE ONE TEST FOR EVERY 200 LINEAR FEET OF TRENCH AND ONE TEST FOR EVERY 2 VERTICAL FEET OF BACKFILL.
11. ALL RECYCLED MATERIAL MUST MEET NYSDOT SPECIFICATIONS FOR REUSE IN THE TOWN RIGHT-OF-WAY.

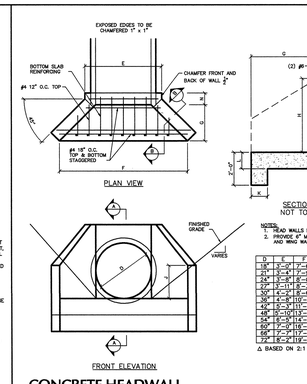


DRAINAGE PIPE TRENCH

SCALE: NTS

NOTES:

1. IMPORTED OR ON-SITE PRODUCED SELECT FILL SHOULD BE WELL-GRADED DURABLE GRANULAR MATERIAL CONSISTING OF CLEAN SAND, GRAVEL, OR A MIXTURE OF THESE AND IT SHOULD BE FREE OF TRASH, DEBRIS, ROOTS, VEGETATION OR OTHER DELETERIOUS MATERIAL.
2. PREDOMINATELY GRANULAR FILL MATERIAL WITH A MAX PARTICLE SIZE OF 3" COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AND WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT, AS DETERMINED BY ASTM D1557. FILLS SHOULD GENERALLY BE PLACED IN UNIFORM HORIZONTAL LIFTS NOT EXCEEDING 12" IN LOOSE THICKNESS, AND 4" OR LESS IN CONFINED AREAS.
3. MIXTURE OF CRUSHED STONE AND GRAVEL WITH A MAXIMUM PARTICLE SIZE OF 3/4" COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AND WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT, AS DETERMINED BY ASTM D1557. FILLS SHOULD GENERALLY BE PLACED IN UNIFORM HORIZONTAL LIFTS NOT EXCEEDING 12" IN LOOSE THICKNESS, AND 6" OR LESS IN CONFINED AREAS.
4. WHEN IN LEDGE, USE AASHTO NO. 67 OR EQUAL PROCESSED SAND AND GRAVEL FREE OF DEBRIS, CLAY LUMPS, ORGANIC OR OTHER DELETERIOUS MATERIAL, COMPLY WITH NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARDS AND SUPPORT HS-20 LOADING AS REQUIRED.
5. DETAIL INDICATES MINIMUM STRUCTURE DIMENSIONS. LARGER DIMENSIONS MAY BE REQUIRED FOR LARGER PIPES.
6. THE LIMIT OF BACKFILL PRACTICES AROUND ALL SIDES OF THE STRUCTURE SHOULD BE BETWEEN 18 AND 24 INCHES.
7. ALL TRENCH BACKFILL IN THE TOWN RIGHT-OF-WAY MUST MEET SPECIFICATIONS FOR NYSDOT ITEM 304.12 ("ITEM 4").
8. PIPE BEDDING IN THE TOWN RIGHT-OF-WAY MUST MEET SPECIFICATIONS OF NYSDOT CRUSHED STONE SIZE DESIGNATION 1.
9. ALL BACKFILL PLACED WITHIN THE TOWN RIGHT-OF-WAY TRENCHES SHOULD BE COMPACTED TO MEET 95% MINIMUM OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. ADDITIONALLY, THREE-PARTY COMPACTION TESTING WITHIN THE PROPOSED TOWN RIGHT-OF-WAY FOR TRENCH BACKFILL UNDER THE ROADWAY WILL BE REQUIRED. TYPICAL UTILITY TRENCH TESTING FREQUENCIES ARE ONE TEST FOR EVERY 200 LINEAR FEET OF TRENCH AND ONE TEST FOR EVERY 2 VERTICAL FEET OF BACKFILL.
10. ALL RECYCLED MATERIAL MUST MEET NYSDOT SPECIFICATIONS FOR REUSE IN THE TOWN RIGHT-OF-WAY.



D	E	F	G	H	J	K	L	N	R	Δ VOL. C.Y.
18"	2'-0"	7'-6"	1'-0"	0'-6"	2'-0"	0'-9"	8"	8	#5 @ 12" O.C.	1.70
21"	2'-0"	7'-6"	1'-0"	0'-6"	2'-0"	0'-9"	8"	8	#5 @ 12" O.C.	1.80
24"	2'-0"	8'-0"	1'-0"	0'-6"	2'-0"	0'-9"	8"	8	#5 @ 12" O.C.	1.90
27"	2'-0"	8'-6"	1'-0"	0'-6"	2'-0"	0'-9"	8"	8	#5 @ 12" O.C.	2.00
30"	2'-2"	8'-6"	1'-0"	0'-6"	2'-1"	0'-9"	10"	#5 @ 12" O.C.	2.85	
36"	2'-5"	9'-10"	1'-0"	0'-6"	2'-4"	0'-9"	10"	10"	#5 @ 12" O.C.	3.15
42"	2'-9"	11'-0"	1'-6"	0'-9"	2'-7"	0'-9"	10"	10"	#5 @ 12" O.C.	3.87
48"	3'-0"	12'-0"	1'-6"	0'-9"	2'-10"	0'-9"	10"	10"	#5 @ 12" O.C.	5.08
54"	3'-3"	14'-0"	1'-6"	0'-9"	3'-1"	0'-9"	12"	12"	#5 @ 9" O.C.	6.50
60"	3'-7"	15'-0"	1'-6"	0'-9"	3'-4"	0'-9"	12"	12"	#5 @ 9" O.C.	7.98
66"	3'-7"	17'-6"	1'-6"	0'-9"	3'-4"	0'-9"	12"	14"	#5 @ 9" O.C.	9.14
72"	4'-2"	17'-6"	1'-6"	0'-9"	3'-9"	0'-9"	12"	14"	#5 @ 9" O.C.	11.10

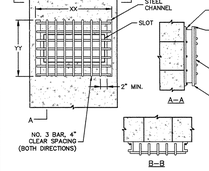
Δ BASED ON 2:1 CHANNEL SIDE SLOPES

CONCRETE HEADWALL

SCALE: NTS

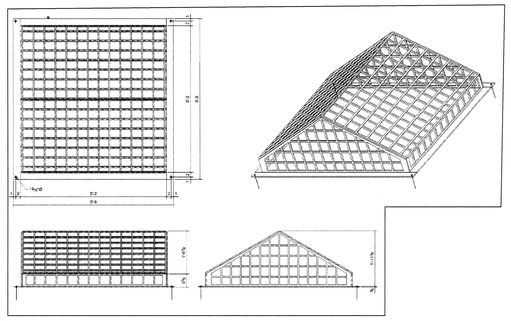
TYPICAL TRASH RACK DIMENSIONS TABLE		
ORIFICE/SLOT	XX (IN)	YY (IN)
12"Lx6"H SLOT	20	14
14"Lx6"H SLOT	24	14
18"Lx6"H SLOT	26	14
24"Lx6"H SLOT	32	14
28"Lx6"H SLOT	34	14
28"Lx8"H SLOT	34	16
30"Lx6"H SLOT	38	14
32"Lx8"H SLOT	42	16
34"Lx6"H SLOT	46	14

NOTE:
1. DIMENSION XX CAN BE ADJUSTED WHEN THE SEPARATION DISTANCE BETWEEN MULTIPLE ORIFICES PROHIBITS INDIVIDUAL TRASH RACKS OVER EACH ORIFICE OR WHEN SLOT(S) ARE CLOSE TO THE TOP OF THE OUTLET CONTROL STRUCTURE.
2. STEEL TO CONFORM TO ASTM A-36.
3. ALL SURFACES TO BE COATED WITH ZRC COLD GALVANIZING COMPOUND AFTER WELDING.



OUTLET STRUCTURE TRASH RACK

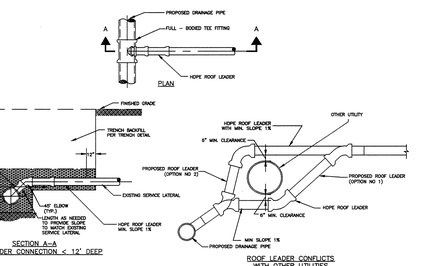
SCALE: NTS



NOTE:
1. SPACING BETWEEN BARS SHALL BE NO LESS THAN 6-INCHES.
2. STEEL TO CONFORM TO ASTM A-36.
3. ALL SURFACES TO BE COATED WITH ZRC COLD GALVANIZING COMPOUND AFTER WELDING.

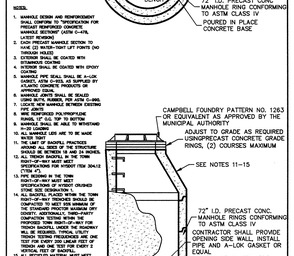
OUTLET STRUCTURE TRASH RACK (ANGLED) FOR WET POND

SCALE: NTS



ROOF LEADER CONNECTION

SCALE: NTS



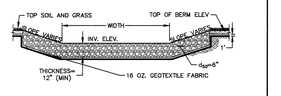
TYPICAL DOGHOUSE MANHOLE

SCALE: NTS

MIXTURES	RATE PER ACRE (POUNDS)	RATE PER 1,000 SQUARE FEET (POUNDS)
A. PERENNIAL RYEGRASS	30	0.68
TALL FESCUE OR SMOOTH BROMEGRASS	20	0.45
REDTOP	2	0.05
	OR	
B. KENTUCKY BLUEGRASS	25	0.60
CREEPING RED FESCUE	20	0.50
PERENNIAL RYEGRASS	10	0.20

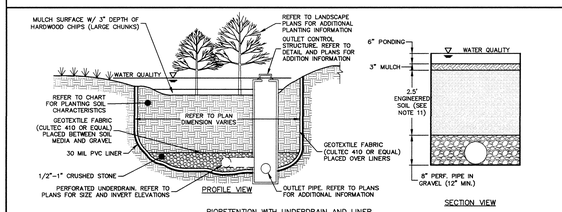
VEGETATED SWALE SEED MIX

SCALE: NTS

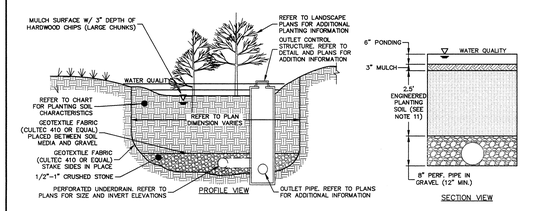


OVERFLOW WEIR

SCALE: NTS



BIORETENTION WITH UNDERDRAIN AND LINER



BIORETENTION WITH UNDERDRAIN

BIORETENTION AREA

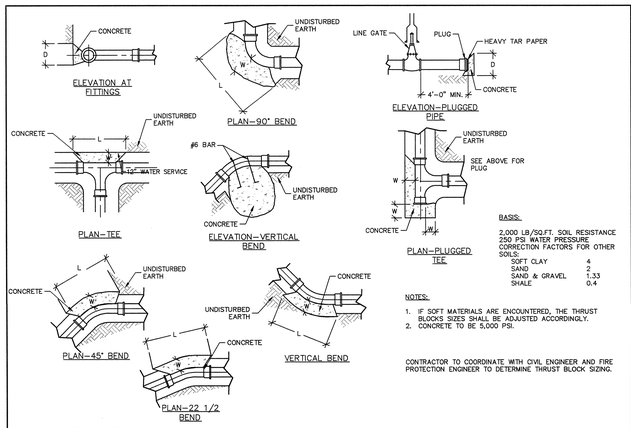
TREATMENT OF STORMWATER RUNOFF IS ACCOMPLISHED IN THE PROPOSED BIORETENTION AREAS BY MEANS OF INFILTRATION USING PLANTING SOILS. PLANTINGS OF NATIVE VEGETATION WITHIN THE BIORETENTION AREA MAINTAIN THE INFILTRATIVE CAPACITY OF THE SYSTEM, PROVIDE SOIL STABILIZATION, AND THE ATTENUATE NUTRIENTS AND OTHER CONTAMINANTS. MANAGEMENT ACTIONS INCLUDE THE FOLLOWING:

1. ALL BIORETENTION BASINS SHALL BE BUILT IN ACCORDANCE WITH NYSDEC STORMWATER MANAGEMENT DESIGN MANUAL INCLUDING APPENDIX C.
2. ANNUAL INSPECTION AND REPAIR OF OR REPLACEMENT OF TREATMENT COMPONENTS.
3. TWICE PER YEAR (SPRING AND FALL) INSPECT TREES AND SHRUBS TO EVALUATE HEALTH, REMOVE AND REPLACE DEAD OR DYING PLANTS, AND PRUNE DISEASED OR BROKEN PLANTS.
4. TREATMENT OF DISEASED VEGETATION WITH APPROPRIATE LOW-TOXICITY CHEMICALS (HERBICIDES, PESTICIDES).
5. WEED ANNUALLY AND PRUNE SHRUB VEGETATION UNTIL VEGETATION IS ESTABLISHED TO IMPROVE APPEARANCE.
6. REPLACE MULCH TO COVER EXPOSED SOIL AREA. REMOVE AND REPLACE MULCH EVERY TWO TO THREE YEARS. MULCH DEPTH NOT TO EXCEED 3-INCHES.
7. SAMPLE SOIL FOR FERTILITY EVERY THREE YEARS. ADDITION OF LIMESTONE ONE OR TWO TIMES PER YEAR TO MAINTAIN PROPER PH IS RECOMMENDED. FIELD OR LABORATORY TESTING FOR PH IS ACCEPTABLE.
8. CHECK BASIN FOR SEDIMENT BUILD UP AND REMOVE SEDIMENT IF GREATER THAN ONE INCH.
9. CHECK BASIN AFTER STORM EVENT TO ENSURE THAT IT DEWATERS PROPERLY (DRAINS WITHIN 48-HOURS).
10. CHECK OUTLET OVERFLOW FOR EVIDENCE OF BLOCKAGE AND SOIL EROSION AT DISCHARGE POINTS. CLEAN BLOCKAGES AS REQUIRED AND STABILIZE EROSIVE AREAS AS NEEDED.
11. SOIL PARAMETERS:

PARAMETER	VALUE
pH RANGE	5.2 TO 7.0
ORGANIC MATTER	1.5 TO 4.0%
MAGNESIUM	35 LBS/AC (MIN.)
PHOSPHORUS	75 LBS/AC (MIN.)
POTASSIUM	85 LBS/AC (MIN.)
SOLUBLE SALTS	500 PPM
CLAY	10 TO 25%
SILT	30 TO 35%
SAND	35 TO 60%

CONSTRUCTION SEQUENCE:

1. STAKE THE LIMITS AND PROVIDE OFFSETS OF THE PROPOSED BIORETENTION AREA AND SET ACCESSIBLE REFERENCE ELEVATIONS, AS NEEDED.
2. INSTALL EROSION AND SEDIMENT CONTROL MEASURES CONSISTENT WITH OVERALL DEVELOPMENT E&S PLAN.
3. STABILIZE THE GRADING AROUND THE PROPOSED AREA AND DIVERT RUNOFF AWAY FROM THE PROPOSED EXCAVATIONS.
4. EXCAVATE THE BIORETENTION AREA TO THE PROPOSED LINES AND GRADES SHOWN ON THE SITE PLANS, AND SCARIFY THE EXISTING SOIL SURFACES, TAKING CARE NOT TO COMPACT THE IN-SITU SOILS.
   4.1. ALL FILL AND BACKFILL SHOULD BE COMPACTED TO AT LEAST 95% OF THE OPTIMUM MOISTURE CONTENT, AS DETERMINED BY ASTM D1557. FILLS SHOULD GENERALLY BE PLACED IN UNIFORM HORIZONTAL LIFTS NOT EXCEEDING 12 INCHES IN LOOSE THICKNESS. IN CONFINED AREAS, THE LOOSE LIFT THICKNESS SHOULD BE 6 INCHES OR LESS AND EACH LIFT SHOULD BE COMPACTED WITH SUFFICIENT PASSES OF HAND OPERATED VIBRATORY OR IMPACT COMPACTION EQUIPMENT. A GEOTECHNICAL ENGINEER WITH APPROPRIATE FIELD AND LABORATORY SUPPORT SHOULD INSPECT AND APPROVE MATERIALS FOR USE AS FILL, AND TEST BACKFILL MATERIALS FOR COMPLIANCE WITH THE RECOMMENDED COMPACTION.
5. INSTALL THE UNDERDRAIN SYSTEM AND OVERFLOW STRUCTURES. INSTALL THE FABRIC ON THE SIDEWALLS AND STAKE IN PLACE.
6. BACKFILL THE EXCAVATIONS WITH THE SOIL MIXTURE AS SHOWN ON THE PLANS AND SPECIFIED HEREIN.
7. FINISH GRADING THE SURFACE OF THE BIORETENTION AREA. LEAVE ROOM FOR 3-INCHES OF WOOD CHIP MULCH.
8. PRESOAK THE PLANTING MIXTURE PRIOR TO PLACEMENT OF PLANTING STOCK. ALLOW THE SOIL MIXTURE TO SETTLE NATURALLY BEFORE PLACING THE PLANTS.
9. PLANT VEGETATION WITHIN THE BIORETENTION AREA AS SPECIFIED IN THE PLANTING NOTES AND LANDSCAPE PLANS.
10. MULCH THE SURFACE WITH NOT MORE THAN 3-INCHES OF SINGLE PASS, HARDWOOD MULCH. REMOVE TEMPORARY SEDIMENT CONTROLS AND ANY ENTRANCE BLOCKS TO THE BIORETENTION AREA AFTER ACCEPTANCE BY THE DESIGN PROFESSIONAL AND THE L



BASIS:

2,000 LB/SQ.FT. SOIL RESISTANCE
250 PSI WATER PRESSURE
CORRECTION FACTORS FOR OTHER SOILS:

SOFT CLAY	4
SAND	2
SAND & GRAVEL	1.33
SHALE	0.4

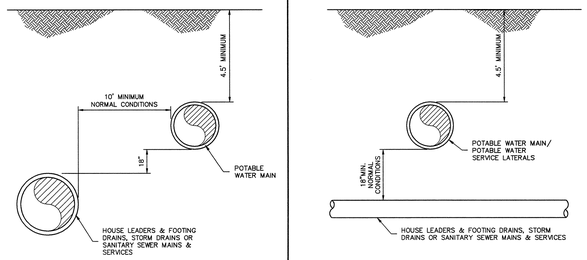
NOTES:

1. IF SOFT MATERIALS ARE ENCOUNTERED, THE THRUST BLOCKS SIZES SHALL BE ADJUSTED ACCORDINGLY.
2. CONCRETE TO BE 5,000 PSI.

CONTRACTOR TO COORDINATE WITH CIVIL ENGINEER AND FIRE PROTECTION ENGINEER TO DETERMINE THRUST BLOCK SIZING.

THRUST BLOCKS

SCALE: NTS



NOTE:
WHERE A 10' MINIMUM HORIZONTAL SEPARATION CANNOT BE OBTAINED DUE TO FIELD CONDITIONS, THE VERTICAL CLEAR DISTANCE SHALL BE A MINIMUM OF 18". HOWEVER, AN EXCEPTION TO THE 10' MINIMUM HORIZONTAL SEPARATION REQUIRES SEPARATE APPROVAL OF THE COUNTY HEALTH DEPARTMENT.

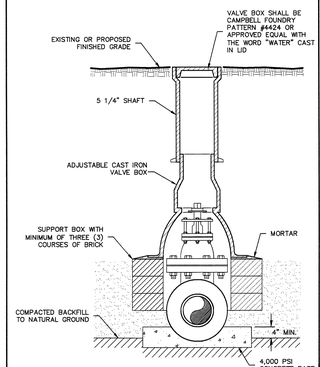
SEPARATION OF WATER MAIN AND SEWER PARALLEL INSTALLATION

SCALE: NTS

NOTE:
WATER MAINS PASSING UNDER SEWERS SHALL HAVE A VERTICAL CLEARANCE OF 18" MINIMUM BETWEEN THE SEWER AND WATER MAIN. AND THE SEWER SHALL BE SUPPORTED AS DIRECTED BY THE ENGINEER. AS REQUIRED, ONE FULL LENGTH OF WATER PIPE SHALL BE LOCATED SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE. THIS APPLIES WHEN THE WATER IS ABOVE OR BELOW THE SEWER. WHERE AN 18" SEPARATION CANNOT BE OBTAINED DUE TO FIELD CONDITIONS, SEPARATE APPROVAL OF THE COUNTY HEALTH DEPARTMENT SHALL BE REQUIRED.

SEPARATION OF WATER MAIN AND SEWER CROSSING

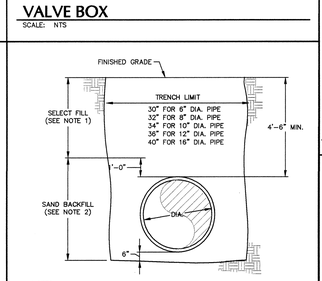
SCALE: NTS



NOTES:
1. SIMILAR INSTALLATION FOR CURB BOX OR SERVICE LINE.
2. REFER TO PLAN FOR SIZE AND LOCATION.
3. VALVES TO BE MUELLER.

VALVE BOX

SCALE: NTS

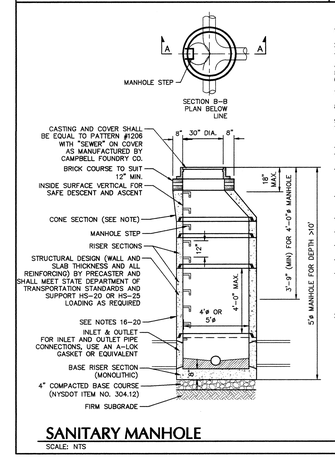


NOTES:

1. SELECT FILL SHALL BE MATERIAL FREE FROM CINDERS, ASHES, REFUSE, VEGETABLE OR ORGANIC MATTER, BOULDERS, ROCKS AND STONES, ASPHALT, OR ANY OTHER MATERIAL DEEMED UNSUITABLE BY THE ENGINEER. STONES NOT GREATER THAN 8 INCHES IN THEIR GREATEST DIMENSION MAY BE USED, UNLESS OTHERWISE SPECIFIED, BUT MAY NOT COMPRISE MORE THAN 15 BY VOLUME OF THE BACKFILL MATERIAL.
2. SAND BACKFILL TO 1 FOOT ABOVE TOP OF PIPE, IN A WET OR ROCK TRENCH, GRAVEL MAY BE SPECIFIED BY THE ENGINEER IN LIEU OF SAND.
3. ALL TRENCH BACKFILL IN THE TOWN RIGHT-OF-WAY MUST MEET SPECIFICATIONS FOR NYSDOT ITEM 304.12 ("ITEM 4").
4. PIPE BEDDING IN THE TOWN RIGHT-OF-WAY MUST MEET SPECIFICATIONS OF NYSDOT CRUSHED STONE SIZED DESIGNATION 1.
5. ALL BACKFILL PLACED WITHIN THE TOWN RIGHT-OF-WAY TRENCHES SHOULD BE COMPACTED TO MEET 95% MINIMUM OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. ADDITIONALLY, THIRD-PARTY COMPACTION TESTING WITHIN THE PROPOSED TOWN RIGHT-OF-WAY FOR TRENCH BACKFILL UNDER THE ROADWAY WILL BE REQUIRED. TYPICAL UTILITY TRENCH TESTING FREQUENCIES ARE ONE TEST FOR EVERY 200 LINEAR FEET OF TRENCH AND ONE TEST FOR EVERY 2 VERTICAL FEET OF BACKFILL.
6. ALL RECYCLED MATERIAL MUST MEET NYSDOT SPECIFICATIONS FOR REUSE IN THE TOWN RIGHT-OF-WAY.

TRENCH DETAIL FOR WATER MAIN

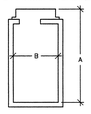
SCALE: NTS



SANITARY MANHOLE NOTES

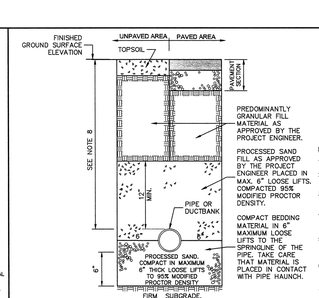
1. THE DEPTH OF THE INVERT CHANNEL SHALL BE EQUAL TO 3/4 OF THE DIAMETER OF THE SEWER.
2. THE SHELF SHALL SLOPE TOWARD THE INVERT CHANNEL AT A RATE OF 1" PER FOOT.
3. TYPE "B" MANHOLES (SHALLOW TYPE) TO BE PROVIDED WHERE REQUIRED BY DEPTH CONDITIONS.
4. SEE THE SPECIFICATIONS FOR LENGTH OF PIPE CONNECTIONS TO MANHOLE.
5. ALL CONCRETE SHALL BE 4000 PSI MINIMUM.
6. ENTIRE OUTSIDE SURFACE OF MANHOLE SHALL RECEIVE TWO COATS OF BITUMINOUS COATING. KOPPERS 300M PENNDOY TAR 32–B–4, OR APPROVED EQUAL.
7. INSTALL 2 LAYERS OF PLASTIC PREFORMED JOINT SEALANT BETWEEN ALL SECTIONS & UNDER FRAME.
8. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR MANHOLE IN ACCORDANCE WITH SPECIFICATIONS.
9. 4" DIA. MANHOLE – FROM 8" TO 30" PIPES.
10. UNLESS OTHERWISE SPECIFIED, SANITARY SEWER MANHOLES SHALL HAVE LETTERS "SEWER", AND STORM DRAIN MANHOLES SHALL HAVE LETTERS "DRAIN" CAST ON THE COVERS.
11. THE PRECAST CONCRETE STRUCTURE SHALL COMPLY WITH ASTM SPECIFICATIONS C478.
12. ALL SANITARY SEWER MANHOLES ARE TO BE CONSTRUCTED WITH THE COMPRESSION TYPE RESILIENT SEAL ASSEMBLY EQUAL TO "OMEGA CONCRETE PRODUCTS INC.".
13. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FURNISH AND CONSTRUCT THE PROPER SIZE STRUCTURE INCLUDING THE NECESSARY OPENINGS TO ACCOMMODATE THE WORK, AS SHOWN ON THE PLANS OR ORDERED BY THE ENGINEER, AT NO ADDITIONAL COST.
14. ALL NECESSARY PATCHING SHALL BE ACCOMPLISHED WITH A NON–SHRINK CEMENT MORTAR GROUT EQUAL TO "SIKA–SET" AS MANUFACTURED BY THE SIKA CHEMICAL CORPORATION.
15. SEWER MANHOLES OVER 6' IN HEIGHT MUST BE DESIGNED IN ACCORDANCE WITH NYSDOT REQUIREMENTS AND STAMPED BY A NYS LICENSED ENGINEER.
16. THE LIMIT OF BACKFILL PRACTICES AROUND ALL SIDES OF THE STRUCTURE SHOULD BE BETWEEN 18 AND 24 INCHES.
17. ALL TRENCH BACKFILL IN THE TOWN RIGHT–OF–WAY MUST MEET SPECIFICATIONS FOR NYSDOT ITEM 304.12 ("ITEM 4").
18. PIPE BEDDING IN THE TOWN RIGHT–OF–WAY MUST MEET SPECIFICATIONS OF NYSDOT CRUSHED STONE SIZE DESIGNATION 1.
19. ALL BACKFILL PLACED WITHIN THE TOWN RIGHT–OF–WAY TRENCHES SHOULD BE COMPACTED TO MEET 95% MINIMUM OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. ADDITIONALLY, THIRD–PARTY COMPACTION TESTING WITHIN THE PROPOSED TOWN RIGHT–OF–WAY FOR TRENCH BACKFILL UNDER THE ROADWAY WILL BE REQUIRED. TYPICAL UTILITY TRENCH TESTING FREQUENCIES ARE ONE TEST FOR EVERY 200 LINEAR FEET OF TRENCH AND ONE TEST FOR EVERY 2 VERTICAL FEET OF BACKFILL.
20. ALL RECYCLED MATERIAL MUST MEET NYSDOT SPECIFICATIONS FOR REUSE IN THE TOWN RIGHT–OF–WAY.

DEPTH 'A'	WIDTH 'B'
< 10'–0"	4'–0"ø
> 10'–0"	5'–0"ø



SANITARY MANHOLE

SCALE: NTS

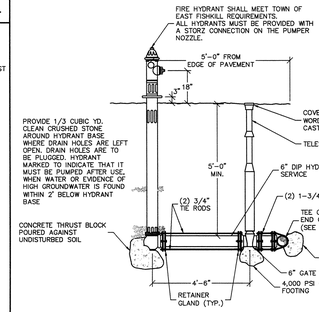


NOTES:

1. BACKFILL SHALL BE UNCONTAMINATED NATIVE SOIL, CRUSHED OR ON–SITE PROCESSED SELECT FILL SHOULD BE WELL–GRADED DURABLE GRANULAR MATERIAL CONSISTING OF CLEAN SAND, GRAVEL, OR A MIXTURE OF THESE AND IT SHOULD BE FREE OF TRASH, DEBRIS, ROOTS, VEGETATION OR OTHER DELETERIOUS MATERIALS.
2. PREDOMINANTLY GRANULAR FILL MATERIAL WITH A MAX PARTICLE SIZE OF 4" COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AND WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT, AS DETERMINED BY ASTM D1557. FILLS SHOULD GENERALLY BE PLACED IN UNIFORM HORIZONTAL LIFTS NOT EXCEEDING 12" IN LOOSE THICKNESS, AND 8" OR LESS IN CONFINED AREAS.
3. MIXTURE OF CRUSHED STONE AND GRAVEL WITH A MAXIMUM PARTICLE SIZE OF 3/4" COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AND WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT, AS DETERMINED BY ASTM D1557. FILLS SHOULD GENERALLY BE PLACED IN UNIFORM HORIZONTAL LIFTS NOT EXCEEDING 12" IN LOOSE THICKNESS, AND 6" OR LESS IN CONFINED AREAS.
4. WHEN IN LEDGE, USE AASHTO NO. 67 OR EQUAL PROCESSED SAND AND GRAVEL FREE OF DEBRIS, CLAY LUMPS, ORGANIC, OR OTHER DELETERIOUS MATERIAL. COMPACT TO THE SPRINGLINE IN MAX. 6" LOOSE LIFTS.
5. DETECTABLE WARNING TAPE SHALL BE GREEN AND MARKED "SEWER". INSTALL CONTINUOUS DETECTABLE WARNING TAPE DURING BACKFILLING OF TRENCH FOR UNDERGROUND PIPING. LOCATE TAPE 12" BELOW FINISHED GRADE, DIRECTLY OVER PIPING. EXCEPT 8" BELOW SUBGRADE UNDER PAVEMENTS AND SLAB.
6. TRENCHING RAIL BE IMPLEMENTED IN ACCORDANCE WITH O.S.H.A. STANDARDS.
7. ALL TRENCH BACKFILL IN THE TOWN RIGHT–OF–WAY MUST MEET SPECIFICATIONS FOR NYSDOT ITEM 304.12 ("ITEM 4").
8. PIPE BEDDING IN THE TOWN RIGHT–OF–WAY MUST MEET SPECIFICATIONS OF NYSDOT CRUSHED STONE SIZE DESIGNATION 1.
9. ALL BACKFILL PLACED WITHIN THE TOWN RIGHT–OF–WAY TRENCHES SHOULD BE COMPACTED TO MEET 95% MINIMUM OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY ADDITIONALLY, THIRD–PARTY COMPACTION TESTING WITHIN THE PROPOSED TOWN RIGHT–OF–WAY FOR TRENCH BACKFILL UNDER THE ROADWAY WILL BE REQUIRED. TYPICAL UTILITY TRENCH TESTING FREQUENCIES ARE ONE TEST FOR EVERY 200 LINEAR FEET OF TRENCH AND ONE TEST FOR EVERY 2 VERTICAL FEET OF BACKFILL.
10. ALL RECYCLED MATERIAL MUST MEET NYSDOT SPECIFICATIONS FOR REUSE IN THE TOWN RIGHT–OF–WAY.

SEWER PIPE TRENCH

SCALE: NTS

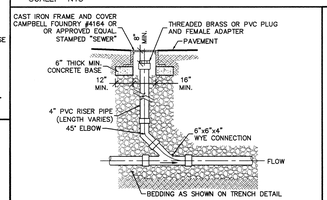


NOTES:

1. PUMPER OUTLET SHALL FACE STREET; HOSE OUTLETS SHALL BE PARALLEL TO STREET.
2. PLUMBINESS OF HYDRANT TO BE CHECKED IN TWO DIRECTIONS, 90 APART.
3. RODDING SHALL CONSIST OF TWO 3/4" THREADED RODS CAREFULLY COATED WITH BITUMASTIC PAINT. RODDING MAY BE OMITTED BETWEEN THE MAIN AND LATERAL VALVE ONLY WHERE A TAPPING VALVE OR HYDRANT VALVE ANCHORING TEE IS USED.
4. 1–1/2" STONE SHALL BE PLACED AROUND THE HYDRANT FROM THE BOTTOM OF THE TRENCH, BUT AT LEAST 6" BELOW THE BASE OF THE HYDRANT TO 6" ABOVE THE WASTE OPENING AND TO A DISTANCE OF 12" AROUND THE ELBOW.
5. THE HYDRANT LEAD SHALL BE A MINIMUM OF 6" IN DIAMETER. AUXILIARY VALVES SHALL BE INSTALLED ON ALL HYDRANT LEADS.
6. HYDRANT DRAINS SHOULD BE PLUGGED. WHEN THE DRAINS ARE PLUGGED THE BARRELS MUST BE PUMPED DRY AFTER USE DURING FREEZING WEATHER. A 3" BLACK CIRCLE SHALL BE PAINTED DIRECTLY UNDER THE PUMPER OUTLET.
7. WHERE HYDRANT DRAIN ARE NOT PLUGGED, A GRAVEL POCKET OR DRY WELL SHALL BE PROVIDED UNLESS NATURAL SOILS WILL PROVIDE ADEQUATE DRAINAGE.
8. HYDRANT DRAINS SHALL NOT BE CONNECTED OR LOCATED WITHIN 10' OF SANITARY SEWERS, STORM SEWERS OR STORM DRAINS.
9. HYDRANT DRAINS, WHERE ALLOWED, MUST BE ABOVE THE SEASONAL GROUND WATER TABLE.

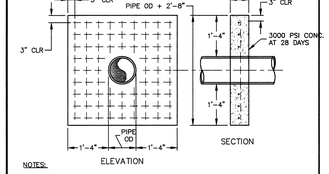
FIRE HYDRANT

SCALE: NTS



SANITARY CLEANOUT

SCALE: NTS

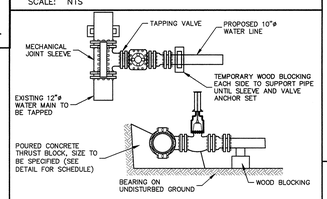


NOTES:

1. PRIOR TO CONSTRUCTION OF COLLAR, THE OUTSIDE OF THE PIPE SHALL BE CLEANED. (PRECAST UNITS MAY BE USED AT THE ENGINEERS DISCRETION)
2. ALL REINFORCING STEEL SHALL BE GRADE 60.
3. MAINTAIN A MINIMUM 6" COVER OVER ANTI–SEEP COLLAR.
4. THE CONNECTION OF ANTI–SEEP COLLARS TO OUTLET PIPES SHALL BE WATERTIGHT AND ADEQUATE.
5. O–RING GASKETS SHALL BE USED ON BASIN DISCHARGE PIPES THROUGH BERM AREAS.
6. MAXIMUM SPACING OF ANTI–SEEP COLLARS THROUGH BERM AREAS SHALL BE 40 FEET.

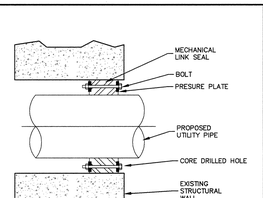
ANTI-SEEP COLLAR

SCALE: NTS



TAPPING SLEEVE AND VALVE ASSEMBLY

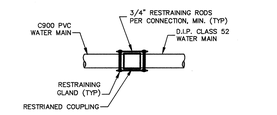
SCALE: NTS



1. CORE–DRILL OPENING IN EXISTING MANHOLE/CATCH BASIN WALL TO ACCOMODATE MECHANICAL LINK SEAL WITH MIN. 0.5" CLEARANCE ALL AROUND.
2. SET SLEEVE IN POSITION USING NON–SHRINK GROUT TO ASTM 1107 (SIKA GROUT 212, MANUFACTURED BY SIKA, OR APPROVED EQUIVALENT).
3. SET MECHANICAL LINK SLEEVE INTO POSITION USING NON–SHRINK GROUT ON THE OUTSIDE AND INSIDE OF THE LINK SEAL GROUT SHALL CONFORM TO ASTM 1107 (SIKA GROUT 212, MANUFACTURED BY SIKA, OR APPROVED EQUIVALENT)

UTILITY PIPE CONNECTION INTO EXISTING STRUCTURE

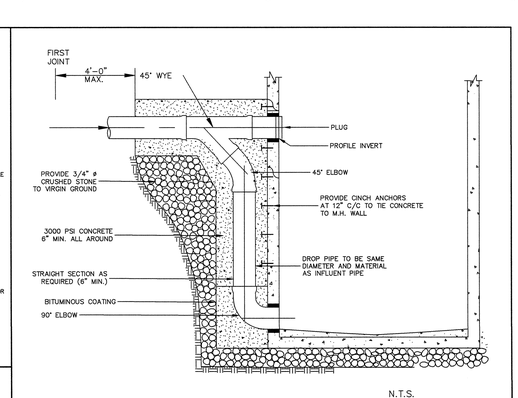
SCALE: NTS



NOTES:
1. COUPLINGS TO BE EBAA IRON INC. SERIES 3800 OR APPROVED EQUAL.
2. TO BE USED AS REQUIRED.

PVC TO DIP CONNECTION

SCALE: NTS

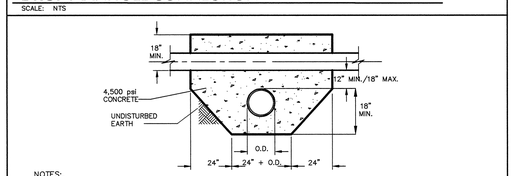


N.T.S.

NOTE:
DROP PIPE TO BE USED IN ALL CASES WHERE THE DIFFERENCE BETWEEN INLET INVERT AND OUTLET INVERT IS TWO (2) FEET OR GREATER.

DROP MANHOLE CONNECTION

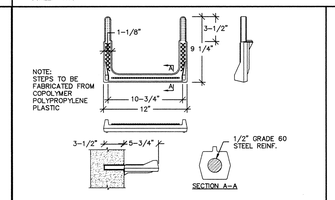
SCALE: NTS



NOTES:
1. ENCASEMENT OF LOWER PIPE TO BE CARRIED 24" IN EACH DIRECTION BEYOND THE WALLS OF THE UPPER CONDUIT, EXCEPT IN CASES OF SANITARY PIPE CROSSINGS (SEE NOTE 3).
2. CONCRETE ENCASEMENT NOT NEEDED WHEN CLEARANCE EXCEEDS 4" EXCEPT WHERE SANITARY SEWER AND WATER MAINS OR STORM SEWER CONFLICT, THEN ENCASEMENT NOT NEEDED WHEN CLEARANCE EXCEEDS 18" (SEE NOTE 3).
3. ALL SANITARY PIPES SHALL BE ENCASED IN CONCRETE, WHEN THE VERTICAL DISTANCE BETWEEN PIPE CROSSINGS IS 18" OR LESS AND THE HORIZONTAL SEPARATION DISTANCE BETWEEN PIPES IS LESS THAN 10'. ENCASEMENT SHALL BE EXTENDED FOR A DISTANCE OF 10' (20' TOTAL) FROM BOTH SIDES OF THE CENTERLINE OF THE PIPE OR UNTIL THE PIPE SEPARATION IS 10' HORIZONTAL, WHICHEVER IS LONGER.

UTILITY CROSSING ENCASEMENT

SCALE: NTS



POLYPROPYLENE MANHOLE STEP

SCALE: NTS

GENERAL NOTES:

1) CONSTRUCTION ACTIVITIES OF STRUCTURES OVER 6' DEEP MUST COMPLY WITH OSHA FALL PROTECTION REQUIREMENTS.
2) DESIGN ENGINEER MUST REVIEW SHOP DRAWINGS FOR ALL STRUCTURES AND THEN SUBMIT TO THE TOWN FOR REVIEW AND APPROVAL OF ANY STRUCTURES LOCATED WITHIN THE TOWN RIGHT-OF -WAY.
3) ALL MANHOLE FRAMES AND GRATES/COVERS IN THE TOWN RIGHT-OF-WAY MUST BE MADE IN THE USA.
4) ALL CONCRETE STRUCTURES IN THE TOWN RIGHT OF WAY MUST BE DESIGNED TO NYSDOT SPECIFICATIONS AND SUPPORT HS-20 LOADING. STRUCTURES DEEPER THAN 6' MUST BE DESIGNED/STAMPED BY A NYS LICENSED ENGINEER.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

Date	Description	No.

Revisions

Leonard D. Savino 8/30/2022
SIGNATURE DATE

LEONARD D. SAVINO, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project

SUFFERN QUARRY LOGISTICS CENTER

SECTION No. 55.21. BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

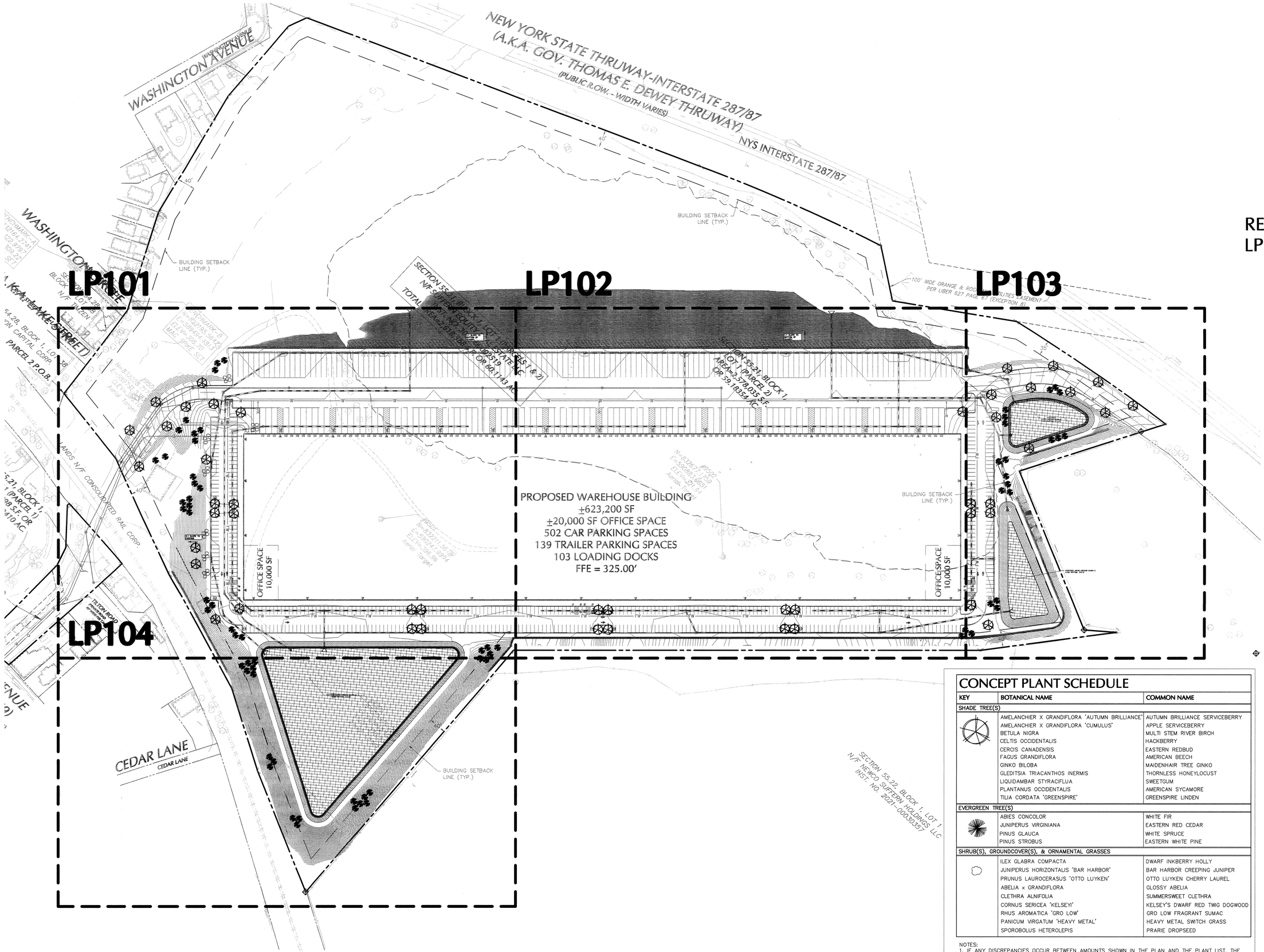
Drawing Title

SITE CONSTRUCTION DETAILS III

Project No.	100992901
Date	08/30/2022
Drawn By	SM
Checked By	JED
Drawing No.	CS503
Sheet	of 1

© 2022 Langan

Date: 8/30/2022 Time: 19:01 User: smusa Style Table: Langan.stb Layout: CS503 Document Code: 100992901-0501-CS501-0101



REFER TO LP501 & LP502 FOR NOTES AND DETAILS

CONCEPT PLANT SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME
SHADE TREE(S)		
	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SERVICEBERRY
	AMELANCHIER X GRANDIFLORA 'CUMULUS'	APPLE SERVICEBERRY
	BETULA NIGRA	MULTI STEM RIVER BIRCH
	CELTIS OCCIDENTALIS	HACKBERRY
	CERCIS CANADENSIS	EASTERN REDBUD
	FAGUS GRANDIFLORA	AMERICAN BEECH
	GINKO BILOBA	MAIDENHAIR TREE GINKO
	GLEDITSIA TRIACANTHOS INERMIS	THORNLESS HONEYLOCUST
	LIQUIDAMBAR STYRACIFLUA	SWEETGUM
	PLANTANUS OCCIDENTALIS	AMERICAN SYCAMORE
	TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LINDEN
EVERGREEN TREE(S)		
	ABIES CONCOLOR	WHITE FIR
	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR
	PINUS GLAUCA	WHITE SPRUCE
	PINUS STROBUS	EASTERN WHITE PINE
SHRUB(S), GROUNDCOVER(S), & ORNAMENTAL GRASSES		
	ILEX GLABRA COMPACTA	DWARF INKBERRY HOLLY
	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR CREEPING JUNIPER
	PRUNUS LAUROCERASUS 'OTTO LUYKEN'	OTTO LUYKEN CHERRY LAUREL
	ABELIA x GRANDIFLORA	GLOSSY ABELIA
	CLETHRA ALNIFOLIA	SUMMERSWEET CLETHRA
	CORNUS SERICEA 'KELSEYI'	KELSEY'S DWARF RED TWIG DOGWOOD
	RHUS AROMATICA 'GRO LOW'	GRO LOW FRAGRANT SUMAC
	PANICUM VIRGATUM 'HEAVY METAL'	HEAVY METAL SWITCH GRASS
	SPOROBOLUS HETEROLEPIS	PRARIE DROPSEED

NOTES:
1. IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN IN THE PLAN AND THE PLANT LIST, THE PLAN SHALL DICTATE.
2. MINIMUM SHRUB SIZE = 30" IN HEIGHT. MINIMUM TREE SIZE = 2 ½ – 3" CAL.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

Date	Description	No.
Revisions		

STATE OF NEW YORK · LEONARD D. SANTOS · 090013 · PROFESSIONAL ENGINEER

8/30/2022
SIGNATURE DATE

LEONARD D. SANTOS, P.E.
PROFESSIONAL ENGINEER - NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

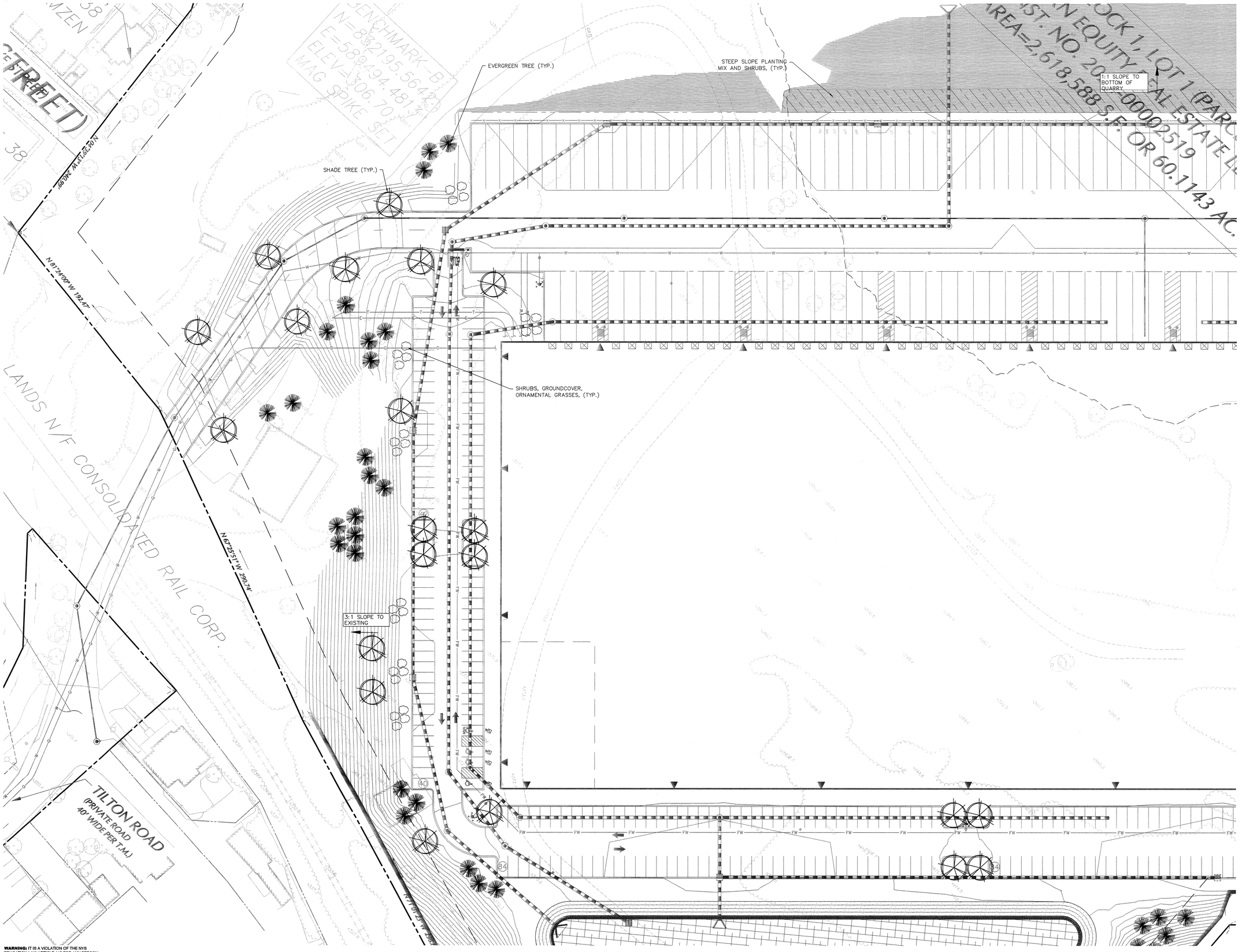
Project
SUFFERN QUARRY LOGISTICS CENTER
SECTION No. 55.21. BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

Drawing Title
OVERALL CONCEPT SITE LANDSCAPE PLAN

Project No. 100992901	Drawing No. LP100
Date 08/30/2022	
Drawn By	
Checked By	Sheet of 1

© 2022 Langan.

Date: 8/30/2022 Time: 19:02 User: smusa Style Table: Langan.stb Layout: LP100 Document Code: 100992901-0501-LP101-0101



REFER TO LP100 FOR PLANTING SCHEDULE;

REFER TO LP501 & LP502 FOR NOTES AND DETAILS

SCALE: 1 INCH = 30 FEET

Date	Description	No.
Revisions		

SIGNATURE — DATE 8/30/2022

LEONARD D. SAVINO, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project

SUFFERN QUARRY LOGISTICS CENTER

SECTION No. 55.21, BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

Drawing Title

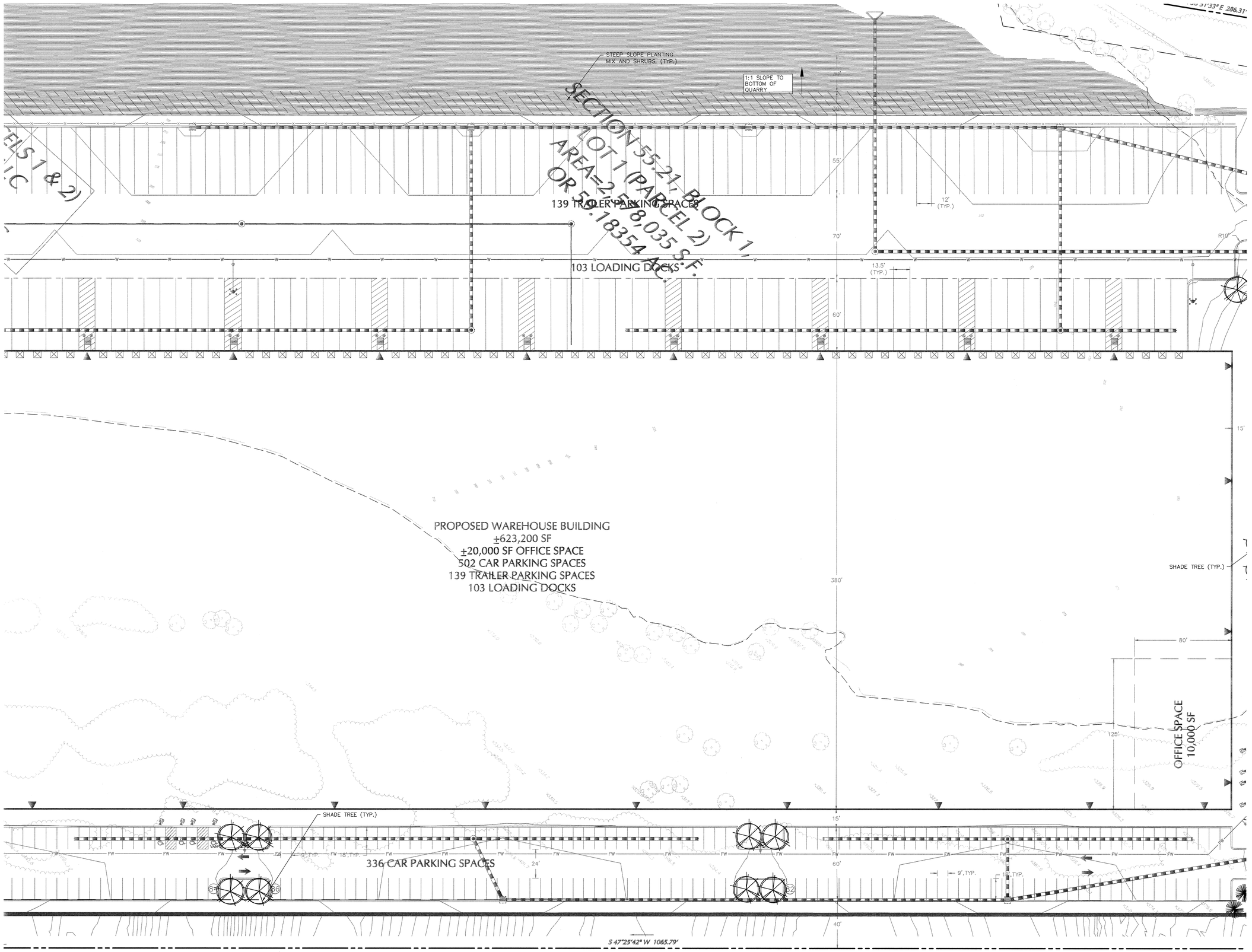
CONCEPT SITE LANDSCAPE PLAN I

Project No.	Drawing No.
100992901	LP101
Date: 08/30/2022	
Drawn By	
Checked By	
	Sheet of 1

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

© 2022 Langan

Date: 8/30/2022 Time: 19:02 User: smusa Style Table: Langan.stb Layout: LP101 Document Code: 100992901-0501-LP101-0102



REFER TO LP100 FOR PLANTING SCHEDULE;

REFER TO LP501 & LP502 FOR NOTES AND DETAILS

SCALE: 1 INCH = 30 FEET

Date	Description	No.
Revisions		

STATE OF NEW YORK
LEONARD D. SAVINO
PROFESSIONAL ENGINEER

SIGNATURE 8/30/2022 DATE

LEONARD D. SAVINO, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project

SUFFERN QUARRY LOGISTICS CENTER

SECTION No. 55.21, BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

Drawing Title

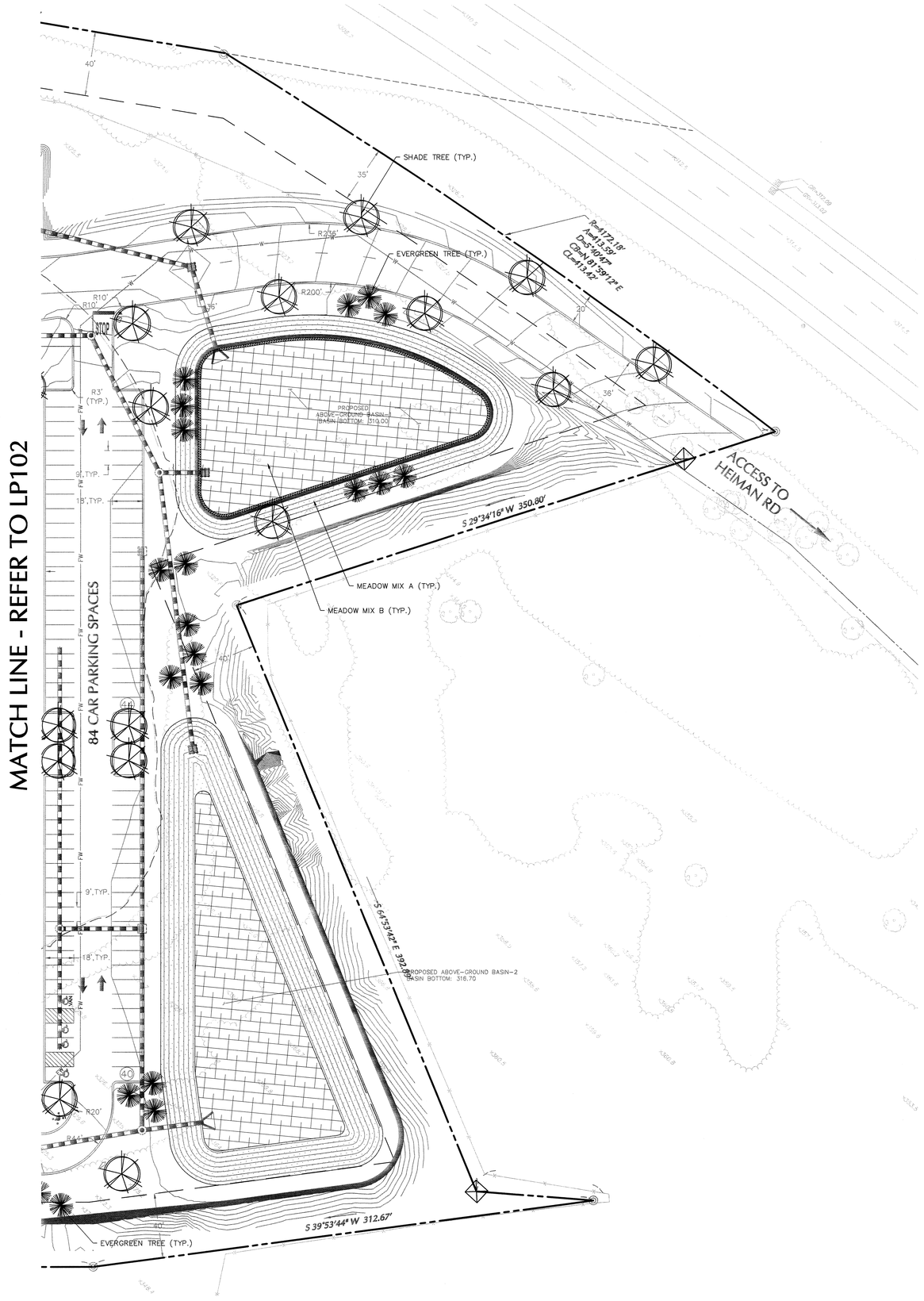
CONCEPT SITE LANDSCAPE PLAN II

Project No.	Drawing No.
100992901	LP102
Date: 08/30/2022	
Drawn By	
Checked By	Sheet of 1

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

© 2022 Langan.

Date: 8/30/2022 Time: 19:03 User: smusa Style Table: Langan.stb Layout: LP102 Document Code: 100992901-0501-LP101-0102



REFER TO LP100 FOR PLANTING SCHEDULE;

REFER TO LP501 & LP502 FOR NOTES AND DETAILS

SCALE: 1 INCH = 30 FEET

Date	Description	No.
Revisions		

STATE OF NEW YORK — LEONARD D. SAUNDERS — 090013 — PROFESSIONAL ENGINEER

SIGNATURE 8/30/2022 DATE

LEONARD D. SAUNDERS, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project

SUFFERN QUARRY LOGISTICS CENTER

SECTION No. 55.21. BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

Drawing Title

CONCEPT SITE LANDSCAPE PLAN III

Project No.	Drawing No.
100992901	LP103
Date: 08/30/2022	
Drawn By	
Checked By	
	Sheet of 1

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

© 2022 Langan

Date: 8/30/2022 Time: 19:03 User: smusa Style Table: Langan.stb Layout: LP103 Document Code: 100992901-0501-LP101-0102

MATCH LINE - REFER TO LP101

REFER TO LP100 FOR PLANTING SCHEDULE;

REFER TO LP501 & LP502 FOR NOTES AND DETAILS

30 0 15 30
SCALE: 1 INCH = 30 FEET

Date	Description	No.

Revisions

STATE OF NEW YORK
LEONARD D SANGO
090013
PROFESSIONAL ENGINEER

SIGNATURE 8/30/2022 DATE

LEONARD D. SANGO, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project

SUFFERN QUARRY LOGISTICS CENTER

SECTION No. 55.21. BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

Drawing Title

CONCEPT SITE LANDSCAPE PLAN IV

Project No.	Drawing No.
100992901	LP104
Date: 08/30/2022	
Drawn By	
Checked By	
	Sheet of 1

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

© 2022 Langan

Date: 8/30/2022 Time: 19:04 User: smusa Style Table: Langan.stb Layout: LP104 Document Code: 100992901-0501-LP101-0102

GENERAL LANDSCAPE PLANTING NOTES

1. NAMES OF PLANTS AS DESCRIBED ON THIS PLAN CONFORM TO THOSE GIVEN IN "STANDARDIZED PLANT NAMES", 1942 EDITION, PREPARED BY THE AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE. NAMES OF PLANT VARIETIES NOT INCLUDED THEREIN CONFORM TO NAMES GENERALLY ACCEPTED IN NURSERY TRADE.
2. ALL EXPOSED GROUND SURFACES THAT ARE NOT PAVED WITHIN THE CONTRACT LIMIT LINE, AND THAT ARE NOT COVERED BY LANDSCAPE PLANTING OR SEEDING AS SPECIFIED, SHALL BE COVERED BY A NATURAL MULCH THAT WILL PREVENT SOIL EROSION AND THE EMANATION OF DUST.
3. NO PLANT SHALL BE PUT INTO THE GROUND BEFORE ROUGH GRADING HAS BEEN COMPLETED AND APPROVED BY THE PROJECT LANDSCAPE ARCHITECT OR PROJECT ENGINEER.
4. STANDARDS FOR TYPE, SPREAD, HEIGHT, ROOT BALL AND QUALITY OF NEW PLANT MATERIAL SHALL BE IN ACCORDANCE WITH GUIDELINES AS SET FORTH IN THE "AMERICAN STANDARD FOR NURSERY STOCK", PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN. PLANT MATERIAL SHALL HAVE NORMAL HABIT OF GROWTH AND HEALTHY, VIGOROUS, AND FREE FROM DISEASES AND INSECT INFESTATION.
5. NEW PLANT MATERIAL SHALL BE NURSERY GROWN UNLESS SPECIFIED OTHERWISE. ALL PLANTS SHALL BE SET PLUMB AND SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS THE PLANT'S ORIGINAL GRADE BEFORE DIGGING. PLANT MATERIAL OF THE SAME SPECIES AND SPECIFIED AS THE SAME SIZE SHOULD BE SIMILAR IN SHAPE, COLOR AND HABIT. THE LANDSCAPE ARCHITECT HAS THE RIGHT TO REJECT PLANT MATERIAL THAT DOES NOT CONFORM TO THE TYPICAL OR SPECIFIED HABIT OF THAT SPECIES.
6. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITY AND SEWER LINES PRIOR TO THE START OF EXCAVATION ACTIVITIES. NOTIFY THE PROJECT ENGINEER AND OWNER IMMEDIATELY OF ANY CONFLICTS WITH PROPOSED PLANTING LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE.
7. THE CONTRACTOR SHALL NOT MAKE SUBSTITUTIONS. IF THE SPECIFIED LANDSCAPE MATERIAL IS NOT OBTAINABLE, THE CONTRACTOR SHALL SUBMIT PROOF OF NON-AVAILABILITY TO THE LANDSCAPE ARCHITECT AND OWNER, TOGETHER WITH A WRITTEN PROPOSAL FOR USE OF AN EQUIVALENT MATERIAL.
8. LANDSCAPE CONTRACTOR TO STAKE OUT PLANTING LOCATIONS, FOR REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT AND/OR OWNER BEFORE PLANTING WORK BEGINS. THE LANDSCAPE ARCHITECT AND/OR OWNER SHALL DIRECT THE CONTRACTOR IN THE FINAL PLACEMENT OF ALL PLANT MATERIAL AND LOCATION OF PLANTING BEDS TO ENSURE COMPLIANCE WITH DESIGN INTENT UNLESS OTHERWISE INSTRUCTED.
9. THE LANDSCAPE ARCHITECT MAY REVIEW PLANT MATERIALS AT THE SITE, BEFORE PLANTING, FOR COMPLIANCE WITH REQUIREMENTS FOR GENUS, SPECIES, VARIETY, SIZE, AND QUALITY. THE LANDSCAPE ARCHITECT RETAINS THE RIGHT TO FURTHER REVIEW PLANT MATERIALS FOR SIZE AND CONDITION OF BALLS AND ROOT SYSTEM, INSECTS, INJURIES, AND LATENT DEFECTS, AND TO REJECT UNSATISFACTORY OR DEFECTIVE MATERIAL AT ANY TIME DURING PROGRESS OF WORK. THE CONTRACTOR SHALL REMOVE REJECTED PLANT MATERIALS IMMEDIATELY FROM PROJECT SITE AS DIRECTED BY THE LANDSCAPE ARCHITECT OR OWNER.
10. DELIVERY, STORAGE, AND HANDLING
    A. PACKAGED MATERIALS: PACKAGED MATERIALS SHALL BE DELIVERED IN CONTAINERS SHOWING WEIGHT, ANALYSIS, AND NAME OF MANUFACTURER. MATERIALS SHALL BE PROTECTED FROM DETERIORATION DURING DELIVERY, AND WHILE STORED AT SITE.
    B. TREES AND SHRUBS: THE CONTRACTOR SHALL PROVIDE TREES AND SHRUBS DUG FOR THE GROWING SEASON FOR WHICH THEY WILL BE PLANTED. DO NOT PRUNE PRIOR TO DELIVERY UNLESS OTHERWISE DIRECTED BY THE LANDSCAPE ARCHITECT. DO NOT BEND OR BIND-TIE TREES OR SHRUBS IN SUCH A MANNER AS TO DAMAGE BARK, BREAK BRANCHES, OR DESTROY NATURAL SHAPE. PROVIDE PROTECTIVE COVERING DURING TRANSIT. DO NOT DROP BALLED AND BURLAPPED STOCK DURING DELIVERY OR HANDLING.
    C. ALL PLANTS SHALL BE BALLED AND BURLAPPED OR CONTAINER GROWN AS SPECIFIED. NO CONTAINER GROWN STOCK WILL BE ACCEPTED IF IT IS ROOT BOUND. ALL ROOTBALL WRAPPING AND BINDING MATERIAL MADE OF SYNTHETICS OR PLASTICS SHALL BE REMOVED FROM THE TOP OF THE BALL AT THE TIME OF PLANTING. IF THE PLANT IS SHIPPED WITH A WIRE BASKET AROUND THE ROOT BALL, THE WIRE BASKET SHALL BE CUT AND FOLDED DOWN 8 INCHES INTO THE PLANTING HOLE. WITH CONTAINER GROWN STOCK, THE CONTAINER SHALL BE REMOVED AND THE ROOT BALL SHALL BE CUT THROUGH THE SURFACE IN TWO LOCATIONS.
    D. THE CONTRACTOR SHALL HAVE TREES AND SHRUBS DELIVERED TO SITE AFTER PREPARATIONS FOR PLANTING HAVE BEEN COMPLETED AND PLANT IMMEDIATELY. IF PLANTING IS DELAYED MORE THAN 6 HOURS AFTER DELIVERY, THE CONTRACTOR SHALL SET TREES AND SHRUBS IN SHADE, PROTECT FROM WEATHER AND MECHANICAL DAMAGE AND KEEP ROOTS MOIST BY COVERING WITH MULCH, BURLAP OR OTHER ACCEPTABLE MEANS OF RETAINING MOISTURE.
11. ALL LANDSCAPED AREAS TO BE CLEARED OF ROCKS, STUMPS, TRASH AND OTHER UNSIGHTLY DEBRIS. ALL FINE GRADED AREAS SHOULD BE HAND RAKED SMOOTH ELIMINATING ANY CLUMPS AND AND UNEVEN SURFACES PRIOR TO PLANTING OR MULCHING.
12. ALL PLANT MATERIAL SHALL BE INSTALLED AS PER DETAILS, NOTES AND CONTRACT SPECIFICATIONS. THE LANDSCAPE ARCHITECT MAY REVIEW INSTALLATION AND MAINTENANCE PROCEDURES.
13. NEW PLANT MATERIAL SHALL BE GUARANTEED TO BE ALIVE AND IN VIGOROUS GROWING CONDITION FOR A PERIOD OF ONE YEAR FOLLOWING ACCEPTANCE BY THE OWNER. ANY PLANT MATERIAL FOUND TO BE UNHEALTHY, DYING OR DEAD DURING THIS PERIOD, SHALL BE REMOVED AND REPLACED IN KIND BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.
14. THE CONTRACTOR SHALL KEEP AREA CLEAN DURING DELIVERY AND INSTALLATION OF PLANT MATERIALS. REMOVE AND DISPOSE OF OFF-SITE ANY ACCUMULATED DEBRIS OR UNUSED MATERIALS. REPAIR DAMAGE TO ADJACENT AREAS CAUSED BY LANDSCAPE INSTALLATION OPERATIONS.
15. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL THEN BE WATERED WEEKLY OR AS REQUIRED BY SITE AND WEATHER CONDITIONS TO MAINTAIN VIGOROUS AND HEALTHY PLANT GROWTH.
16. THE BACKFILL MIXTURE AND SOIL MIXES TO BE INSTALLED PER THE SPECIFICATIONS.
17. AFTER PLANT IS PLACED IN TREE PIT LOCATION, ALL TWINE HOLDING ROOT BALL TOGETHER SHOULD BE COMPLETELY REMOVED AND THE BURLAP SHOULD BE PULLED DOWN SO 1/3 OF THE ROOT BALL IS EXPOSED. SYNTHETIC BURLAP SHOULD BE COMPLETELY REMOVED AFTER INSTALLATION.
18. MULCH SHOULD NOT BE PILED UP AROUND THE TRUNK OF ANY PLANT MATERIAL. NO MULCH OR TOPSOIL SHOULD BE TOUCHING THE BASE OF THE TRUNK ABOVE THE ROOT COLLAR.
19. ALL FENCE INSTALLATION SHALL BE COMPLETED PRIOR TO COMMENCEMENT OF ANY LANDSCAPE PLANTING, LAWN AND GRASSES, OR IRRIGATION WORK.
20. FOR ANY DISCREPANCIES BETWEEN THE PLANT SCHEDULE AND PLANTING PLAN THE GRAPHIC QUANTITY SHOWN SHALL GOVERN.
21. PLANT MATERIALS SHALL NOT BE PLANTED UNTIL THE FINISHED GRADING HAS BEEN COMPLETED.
22. ALL PLANT INSTALLATIONS SHALL BE COMPLETED EITHER BETWEEN APRIL 1 – JUNE 15 OR AUGUST 15 – NOVEMBER 1, UNLESS OTHERWISE DIRECTED BY THE PROJECT LANDSCAPE ARCHITECT. SEE LAWN SEEDING DATES IN SEEDING NOTES.

LAWN WATERING SCHEDULE

THE FOLLOWING WATERING SCHEDULE COVERS ROUGHLY 8 WEEKS TO ESTABLISH A HEALTHY STAND OF GRASS FROM SEED. THE CONTRACTOR SHALL BE OBLIGATED TO ENSURE A HEALTHY STAND OF GRASS AT THE END OF THE MAINTENANCE/BOND PERIOD. ANY BARE OR DEAD AREAS IN THE LAWN SHALL BE PREPARED, RESEEDED AND REESTABLISHED PRIOR TO THE END OF THE MAINTENANCE/BOND PERIOD AND TO THE SATISFACTION OF THE PROJECT LANDSCAPE ARCHITECT AND THE OWNER.

IMPORTANT ASPECTS TO ATTAINING AND SUSTAINING A HEALTHY STAND OF GRASS ARE THE INSTALLATION OF TOPSOIL, SEED BED PREPARATION, ATTAINING OPTIMAL pH FOR THE INTENDED PLANT SPECIES, FERTILIZING, MULCH COVERING, AND SUFFICIENT WATERING PER THESE NOTES AND/OR PROJECT SPECIFICATIONS.

1. SEEDING SHALL BE DONE DURING THE SEASONS SPECIFIED IN THE LAWN SEED MIX NOTES AND/OR PROJECT SPECIFICATIONS.
2. AFTER THE SEEDBED IS PREPARED, SEED IS INSTALLED, AND MULCH IS APPLIED, WATER LIGHTLY TO KEEP THE TOP 2 INCHES OF SOIL CONSISTENTLY MOIST, NOT SATURATED. AT NO TIME SHOULD WATER BE APPLIED TO THE POINT OF RUNOFF OR THE DISPLACEMENT OF SEED.
3. DEPENDING ON SOIL TEMPERATURES, IT MAY TAKE SEVERAL WEEKS FOR GERMINATION TO OCCUR. DIFFERENT SPECIES WITHIN THE MIX GERMINATE AT DIFFERENT TIMES AND THEREFORE CONTRACTOR SHOULD CONTINUE THE LIGHT WATERING, AS DESCRIBED ABOVE, UNTIL THERE IS AT LEAST 2 INCHES OF GROWTH THROUGHOUT.
4. AT THIS POINT, WATERING FREQUENCY MAY BE REDUCED TO EVERY 3 TO 5 DAYS. WATER SHALL BE APPLIED TO WET A 6 INCH MINIMUM SOIL DEPTH TO PROMOTE HEALTHY DEEP ROOTS.
5. BEGIN MOWING ONCE PER WEEK AFTER THE GRASS HAS REACHED 3 INCHES HEIGHT. MOW TO A HEIGHT OF NO LESS THAN 2–½ INCHES. AFTER 2 TO 3 WEEKS OF MOWING, CONTINUE TO WATER TO A 6 INCH MINIMUM SOIL DEPTH AS NECESSARY PER WEATHER CONDITIONS, AND SOIL MOISTURE SENSORS IF APPLICABLE.

LAWN SEED MIX

1. LAWN SEED MIX: LESCO GRASS SEED – ALL PRO TRANSITION MIX (3 TURF-TYPE TALL-FESCUE GRASSES)

   NOTES:
   A) SEED RATE:
      1) NEW ESTABLISHMENT: SEED AT A RATE OF 6–8 LBS/1000 SQ FT
      2) RENOVATION: 20–50% EXISTING COVER: 5–7 LBS/1000 SQ FT
         50–75% EXISTING COVER: 4–6 LBS/1000 SQ FT
2. GENERAL SEED NOTES:
   A) FINAL SEED MIXTURES, RATES, AND SPECIES TO BE DETERMINED BASED ON PROJECT LANDSCAPE ARCHITECT REVIEW.
   B) SEEDING SHALL TAKE PLACE IN THE SPRING (APRIL 1 TO JUNE 15) OR THE FALL (SEPTEMBER 1 TO OCTOBER 15).
   C) ELIMINATE UNWANTED VEGETATION PRIOR TO SEEDING USING A GLYPHOSATE–BASED HERBICIDE PER MANUFACTURER'S SPECIFICATIONS.
   D) IT IS RECOMMENDED THAT CONTRACTOR INSTALL SEED MIXTURE USING A NO–TILL TRUAX–TYPE DRILL SEEDER WHERE APPLICABLE.
   E) THERE MUST BE CONTINUOUS SOIL MOISTURE FOR 4–6 WEEKS TO ALLOW FOR PROPER GERMINATION.

PLANTING SOIL SPECIFICATIONS

1. PLANTING SOIL, ALTERNATELY MAY BE REFERRED TO AS TOPSOIL, SHOULD BE FRIABLE, FERTILE, WELL DRAINED, FREE OF DEBRIS, TOXINS, TRASH AND STONES OVER 1/2" DIA., IT SHOULD HAVE A HIGH ORGANIC CONTENT SUITABLE TO SUSTAIN HEALTHY PLANT GROWTH AND SHOULD LOOK AESTHETICALLY PLEASING HAVING NO NOXIOUS ODORS.
2. PLANTING SOIL:

   REUSE SURFACE SOILS STOCKPILED ON SITE, VERIFYING COMPLIANCE WITH PLANTING SOIL AND TOPSOIL CRITERIA IN THIS SPECIFICATION THROUGH TESTING. CLEAN SURFACE SOIL OF ALL ROOTS, PLANTS, SOD, AND GRAVEL OVER 1" IN DIAMETER AND DELETERIOUS MATERIALS. IF ON–SITE SOILS ARE TO BE USED FOR PROPOSED PLANTING, THE CONTRACTOR SHALL DEMONSTRATE, THROUGH SOIL TESTING, THAT ON–SITE SOILS MEET THE SAME CRITERIA AS INDICATED IN NOTES PLANS AND SPECIFICATIONS.

   SUPPLEMENT WITH IMPORTED OR MANUFACTURED TOPSOIL FROM OFF SITE SOURCES WHEN TOPSOIL AND PLANTING SOIL QUANTITIES ARE INSUFFICIENT. OBTAIN SOIL DISPLACED FROM NATURALLY WELL–DRAINED SITES WHERE TOPSOIL OCCURS AT LEAST 4" DEEP. DO NOT OBTAIN FROM AGRICULTURAL LAND, BOGS, MARSHES OR CONTAMINATED SITES.

   CONTRACTOR SHALL TEST SOILS AND FURNISH SAMPLES UPON REQUEST. PACKAGED MATERIALS SHALL BE UNOPENED BAGS OR CONTAINERS, EACH BEARING A NAME, GUARANTEE, AND TRADEMARK OF THE PRODUCER, MATERIAL COMPOSITION, MANUFACTURER'S CERTIFIED ANALYSIS, AND THE WEIGHT OF THE MATERIALS. SOIL OR AMENDMENT MATERIALS SHALL BE STORED ON SITE TEMPORARILY IN STOCKPILES PRIOR TO PLACEMENT AND SHALL BE PROTECTED FROM INTRUSION OF CONTAMINANTS AND EROSION. AFTER MIXING, SOIL MATERIALS SHALL BE COVERED WITH A TARPAULIN UNTIL TIME OF ACTUAL USE.

   ALL PLANTING SOILS SHALL BE SUBMITTED FOR TESTING TO THE STATE COOPERATIVE EXTENSION SERVICE, OR APPROVED EQUAL, PRIOR TO DELIVERY TO THE SITE. CONTRACTOR SHALL FURNISH SOIL SAMPLES AND SOIL TEST RESULTS TO LANDSCAPE ARCHITECT OR OWNER AT A RATE OF ONE SAMPLE PER 500 CUBIC YARDS TO ENSURE CONSISTENCY ACROSS THE TOTAL VOLUME OF PLANTING SOIL REQUIRED. TEST RESULTS SHALL EVALUATE FOR ALL CRITERIA LISTED IN THIS SPECIFICATION. IF TESTING AGENCY DETERMINES THAT THE SOILS ARE DEFICIENT IN ANY MANNER AND MAY BE CORRECTED BY ADDING AMENDMENTS, THE CONTRACTOR SHALL FOLLOW STATED RECOMMENDATIONS FOR SOIL IMPROVEMENT AND FURNISH SUBMITTALS FOR ALL AMENDMENTS PRIOR TO DELIVERY OF SOIL TO THE PROJECT SITE.

   A. THE FOLLOWING TESTING SHOULD BE PERFORMED AND RESULTS GIVEN TO THE LANDSCAPE ARCHITECT FOR APPROVAL BEFORE INSTALLATION:
      a. PARTICLE SIZE ANALYSIS – LOAMY SAND: 60–75% SAND, 25–40% SILT, AND 5–15% CLAY.
      b. FERTILITY ANALYSIS: pH (5.5–6.5), SOLUBLE SALTS (LESS THAN 2 MMHO/CM), NITRATE, PHOSPHATE, POTASSIUM, CALCIUM AND MAGNESIUM
      c. ORGANIC MATTER CONTENT: 2.5–5% IN NATIVE SOILS; UP TO 10% IN AMENDED SOILS
      d. TOXIC SUBSTANCE ANALYSIS
      e. MATERIAL DRAINAGE RATE: 60% PASSING IN 2 MINUTES, 40% RETAINED
      f. NOT MORE THAN 1% OF MATERIAL SHALL BE RETAINED BY A #4 SIEVE
3. BIORETENTION SOIL MIX
   a. BIORETENTION SOIL MIX IS TO BE USED IN ALL DETENTION BASINS AND RAIN GARDENS.
   b. MIX TO CONSIST OF 60% COARSE SAND, 40% SUBMITTED TOPSOIL/HORTICULTURAL SOIL MIX
   c. TOPSOIL/HORTICULTURAL SOIL MIX: REFER TO SPECIFICATIONS LISTED IN SECTION ABOVE

   d. COARSE SAND

      1) PARTICLE SIZE ANALYSIS

SIEVE	PERCENT PASSING
3/8 INCH (9.5 MM)	100
NO 4 (4.75 MM)	95–100
NO 8 (2.36 MM)	80–100
NO 16 (1.18 MM)	50–85
NO 30 (.60 MM)	25–60
NO 50 (.30 MM)	10–30
NO 100 (.15 MM)	2–10
NO 200 (0.75 MM	2–5

      2) CHEMICAL ANALYSIS
         PH: LOWER THAN 7.0
         TOXIC SUBSTANCE ANALYSIS

   e. FINAL BIORETENTION MIX

      1) PARTICLE SIZE ANALYSIS
         a) SAND – 80–85%
         b) SILT – 10–15%
         c) CLAY – 2–5%

            NOT MORE THAN 1% OF MATERIAL TO BE RETAINED BY A #4 SIEVE

      2) CHEMICAL ANALYSIS
         a) PH – 5.5–6.5
         b) SOLUBLE SALTS: LESS THAN 2 MMHO/CM

      3) CONTRACTOR TO SUBMIT TOXIC SUBSTANCE ANALYSIS AND MATERIAL DRAINAGE RATE IN ADDITION TO INFORMATION LISTED ABOVE. DRAINAGE RATE OF MATERIAL TO EXCEED 1 INCH/HOUR

4. SOIL AMENDMENT FOR PLANT MATERIAL:
   IF SOIL ORGANIC CONTENT IS INADEQUATE, SOIL SHALL BE AMENDED WITH COMPOST OR ACCEPTABLE, WEED FREE, ORGANIC MATTER. ORGANIC AMENDMENT SHALL BE WELL COMPOSTED, PH RANGE OF 6–8; MOISTURE CONTENT 35–55% BY WEIGHT 100% PASSING THROUGH 1" SIEVE; SOLUBLE SALT CONTENT LESS THAN 0.5 MM HOS/CM; MEETING ALL APPLICABLE ENVIRONMENTAL CRITERIA FOR CLEAN FILL.

   A. ORGANIC MATTER AS A SOIL AMENDMENT: LEAF MOLD WITH 60–90% ORGANIC CONTENT BY WEIGHT, SHREDDED LEAF LITTER, COMPOSTED FOR A MINIMUM OF 1 YR. SHOULD BE FREE OF DEBRIS, STONES OVER 1/2", WOOD CHIPS OVER 1".

   B. SOIL IN BEDS AND PLANTING ISLANDS OTHER THAN BACKFILL MATERIAL AND TOPSOIL, SHOULD BE FRIABLE, WELL DRAINED, AND FREE OF DEBRIS, INCLUDING STONES AND TRASH.

   C. AMENDMENTS FOR BACK FILL IN TREE AND SHRUB PITS:
      a. GROUND LIMESTONE (WITH A MIN. OF 88% OF CALCIUM AND MAGNESIUM CARBONATES) USED PENDING RESULTS OF SOIL ANALYSIS.
         – BRING pH LEVELS TO 5.5 MIN. TO 6.5 FOR NON–ERICACEOUS PLANTS
         – BRING pH LEVELS TO 4.5 MIN. TO 5.5 FOR ERICACEOUS PLANTS
      b. TERRA–SORB BY "PLANT HEALTH CARE" 800–421–9051 (SEE MANUFACTURER RECOMMENDATIONS) USED IN PLANTER BACKFILL MIXTURE WITH TREES AND SHRUBS.
      c. MYCOR–ROOT SAVER BY "PLANT HEALTH CARE" 800–421–9051 (SEE MANUFACTURER RECOMMENDATIONS) USED IN BACKFILL MIXTURE WITH TREES.

5. WHERE PLANTING AREAS ARE PROPOSED FOR FORMER PAVED OR GRAVEL AREAS, BEDS SHALL BE EXCAVATED TO A MINIMUM 30" DEPTH AND, AT A MINIMUM, BE BACKFILLED WITH BOTTOM LAYER OF SANDY LOAM (ORGANIC CONTENT LESS THAN 2%) OVER WHICH TOPSOIL AND PLANTING SOILS WILL BE PLACED AT DEPTHS INDICATED IN PLANS, DETAILS AND NOTES.
6. CLEAN SOIL FILL IN LANDSCAPE AREAS:
   LANDSCAPE FILL MATERIAL, BELOW PLANTING SOILS, SHALL HAVE THE PHYSICAL PROPERTIES OF A SANDY LOAM WITH AN ORGANIC CONTENT OF LESS THAN 2% AND A PH BETWEEN 5 – 7.
7. SOIL PLACEMENT:
   A. CONTRACTOR TO PROVIDE SIX INCHES (6") MINIMUM DEPTH PLANTING SOIL LAYER IN LAWN AREAS, TWELVE INCHES (12") MINIMUM DEPTH PLANTING SOIL LAYER IN GROUNDCOVER AND PERENNIAL AREAS, EIGHTEEN INCHES (18") MINIMUM DEPTH PLANTING SOIL LAYER IN SHRUB AREAS, AND THIRTY–SIX INCHES (36") MINIMUM DEPTH PLANTING SOIL LAYER IN TREE PLANTING AREAS.

   B. SCARIFY AND/OR TILL COMPACTED SUBSOILS TO A MINIMUM DEPTH OF 6 INCHES. THOROUGHLY MIX A 6 INCH DEPTH LAYER OF PLANTING SOIL INTO THE SUBSOIL PRIOR TO PLACING PLANTING SOIL AT THE DEPTHS INDICATED ABOVE. PLANTING SOIL SHALL BE PLACED IN 12–18" LIFTS AND WATER THOROUGHLY BEFORE INSTALLING NEXT LIFT. REPEAT UNTIL DEPTHS AND FINISH GRADES HAVE BEEN ACHIEVED. NO SOILS SHALL BE PLACED IN A FROZEN OR MUDDY CONDITION.

   C. PLANTING SOIL PRESENT AT THE SITE, IF ANY, MAY BE USED TO SUPPLEMENT TOTAL AMOUNT REQUIRED. CONTRACTOR TO FURNISH AN ANALYSIS OF ON–SITE PLANTING SOIL UTILIZED IN ALL PLANTING AREAS.
8. SOIL CONDITIONING:
   A. ADJUST pH AND NUTRIENT LEVELS AS REQUIRED TO ENSURE AN ACCEPTABLE GROWING MEDIUM. LOWER pH USING ELEMENTAL SULFUR ONLY. PEAT MOSS OR COPPER SULFATE MAY NOT BE USED. GROUND LIMESTONE AS A SOIL AMENDMENT MATERIAL WILL ONLY BE USED PENDING RESULTS OF SOIL ANALYSIS. PROVIDE WITH MINIMUM 88% CALCIUM AND MAGNESIUM CARBONATES AND SHALL HAVE TOTAL 100% PASSING THE 10 MESH SIEVE, MINIMUM 90% PASSING 20 MESH SIEVE, AND MINIMUM 60% PASSING 100 MESH SIEVE.

   B. ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.

   C. SOIL MODIFICATIONS (PENDING RESULTS OF SOIL ANALYSIS):
      a. THOROUGHLY TILL ORGANIC MATTER (LEAF COMPOST) INTO THE TOP 6 TO 12 IN. OF MOST PLANTING SOILS TO IMPROVE THE SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A pH HIGHER THAN 7.0. PEAT MOSS MAY NOT BE USED AS ORGANIC MATTER AMENDMENT.

      b. MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR GYPSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. IMPROVE DRAINAGE IN HEAVY SOILS BY PLANTING ON RAISED MOUNDS OR BEDS AND INCLUDING SUBSURFACE DRAINAGE LINES.

      c. MODIFY EXTREMELY SANDY SOILS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.

MEADOW SEED NOTES

MEADOW SEED MIX A – ERNST SEED MIX ERNMX–181 "NATIVE STEEP SLOPE MIX"

22%	SORGHASTRUM NUTANS	INDIANGRASS
17%	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM
25%	ELYMUS CANADENSIS	CANADA WILDRYE
15%	ELYMUS VIRGINICUS	VIRGINIA WILDRYE
4%	AGROSTIS PERENNANS	AUTUMN BENTGRASS
4%	AGROSTIS SCABRA	TICKLEGRASS
4%	TRIDENS FLAVUS	PURPLETOP
2%	CHAMAECRISTA FASCICULATA	PARTRIDGE PEA
2%	ECHINACEA PURPUREA	PURPLE CONEFLOWER
1%	COREOPSIS LANCOLATA	LANCELEAF COREOPSIS
1%	LIATRIS SPICATA	MARSH BLAZING STAR
1%	MONARDA FISTULOSA	WILD BERGAMOT
1%	PENSTEMON DIGITALIS	TALL WHITE BEARDTONGUE
1%	RUDBECKIA HIRTA	BLACKEYED SUSAN

NOTES:
SEED AT A RATE OF 60 LBS/ACRE OF 100% PURE LIVE SEED.

MEADOW SEED MIX B ERNST SEED MIX ERNMX–183 "NATIVE DETENTION AREA MIX"

32%	PANICUM CLANDESTINUM, 'TIOGA'	DEERTONGUE, 'TIOGA'
20%	CAREX VULPINOIDEA	FOX SEDGE
20%	ELYMUS VIRGINICUS	VIRGINIA WILDRYE
20%	PASCUM VIRGATUM, 'SHAWNEE'	SWITCHGRASS, 'SHAWNEE'
4%	AGROSTIS PERENNANS, ALBANY PINE BUSH	AUTUMN BENTGRASS, ALBANY PINE BUSH
2%	JUNCUS TENUIS	PATH RUSH
1%	JUNCUS EFFUSUS	SOFT RUSH
1%	PANICUM RIGIDULUM	REDTOP PANICGRASS

NOTES:
1. SEED AT A RATE OF 20 LBS/ACRE OF 100% PURE LIVE SEED.
2. FOR SPRING SEEDING, APPLY A NURSE CROP OF OATS AT A RATE OF 30 LBS/ACRE.
3. FOR FALL SEEDING, APPLY A NURSE CROP OF WINTER RYE AT A RATE OF 30 LBS/ACRE.

GENERAL SEEDING NOTES:

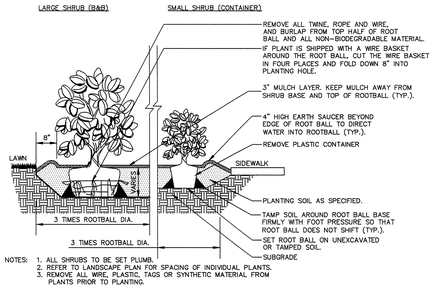
1. FINAL SEED MIXTURES, RATES & SPECIES TO BE DETERMINED BASED ON SCD REVIEW.
2. SEEDING SHALL TAKE PLACE IN THE SPRING (APRIL 1 TO JUNE 15) OR THE FALL (SEPTEMBER 1 TO OCTOBER 15).
3. ELIMINATE UNWANTED VEGETATION PRIOR TO SEEDING USING A GLYPHOSATE–BASED HERBICIDE PER MANUFACTURER'S SPECIFICATIONS. CONTRACTOR TO ENSURE HERBICIDE IS INDICATED FOR USE ACROSS WATER BODIES.
4. IT IS RECOMMENDED THAT CONTRACTOR INSTALL SEED MIXTURE USING A NO–TILL TRUAX–TYPE DRILL SEEDER WHERE APPLICABLE.
5. THERE MUST BE CONTINUOUS SOIL MOISTURE FOR 4–6 WEEKS TO ALLOW PROPER GERMINATION.

WEED CONTROL / MAINTENANCE

1. DURING THE ESTABLISHMENT YEAR, CONTRACTOR SHALL MOW SEEDING IF WEED HEIGHT EXCEEDS MEADOW MIX HEIGHT. MOW AT A HEIGHT OF 8"–10". DO NOT MOW CLOSE, AS SOME OF THE MEADOW MIX MAY BE DAMAGED.
2. AFTER THE FIRST GROWING SEASON, AND IF MEADOW MIX IS WELL ESTABLISHED, THE MEADOW MIX SHALL BE MOWED ONLY ONCE ANNUALLY. ANNUAL MAINTENANCE MOWING SHALL BE DONE IN LATE WINTER DURING THE MONTH OF MARCH.
3. MOW IN DETENTION BASIN AND WETLAND TRANSITION AREAS DURING DRIER SITE CONDITIONS WHEN SOIL DISTURBANCE WILL NOT OCCUR. MAINTENANCE FOR DETENTION BASIN AND WETLAND TRANSITION AREAS SHALL OCCUR DURING LATE SUMMER (JULY 15 – AUGUST 15) WHEN THE WATER TABLE IS USUALLY AT ITS LOWEST POINT OF THE YEAR. DO NOT MOW IN DETENTION BASIN, WETLAND OR WETLAND TRANSITION AREAS AFTER ESTABLISHMENT OF MEADOW MIX.

LANDSCAPE MAINTENANCE NOTES

1. MAINTENANCE OPERATIONS BEFORE APPROVAL:
   A. PLANT CARE SHALL BEGIN IMMEDIATELY AFTER EACH PLANT IS SATISFACTORILY INSTALLED AND SHALL CONTINUE THROUGHOUT THE LIFE OF THE CONTRACT UNTIL FINAL ACCEPTANCE OF THE PROJECT.
   B. CARE SHALL INCLUDE, BUT NOT BE LIMITED TO, REPLACING MULCH THAT HAS BEEN DISPLACED BY EROSION OR OTHER MEANS, REPAIRING AND RESHAPING WATER RINGS OR SAUCERS, MAINTAINING STAKES AND GUYS AS ORIGINALLY INSTALLED, WATERING WHEN NEEDED OR DIRECTED, AND PERFORMING ANY OTHER WORK REQUIRED TO KEEP THE PLANTS IN A HEALTHY CONDITION.
   C. CONTRACTOR SHALL REMOVE AND REPLACE ALL DEAD, DEFECTIVE AND/OR REJECTED PLANTS AS REQUIRED BEFORE FINAL ACCEPTANCE.
2. MAINTENANCE DURING CONSTRUCTION:
   A. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER PLANTING. PLANTS SHALL BE WATERED, MULCHED, WEEDED, PRUNED, SPRAYED, FERTILIZED, CULTIVATED, AND OTHERWISE MAINTAINED AND PROTECTED UNTIL PROVISIONAL ACCEPTANCE. SETTLED PLANTS SHALL BE RESET TO PROPER GRADE AND POSITION, PLANTING SAUCER RESTORED AND MULCH MATERIAL REMOVED. STAKES AND WIRES SHALL BE TIGHTENED AND REPAIRED. DEFECTIVE WORK SHALL BE CORRECTED AS SOON AS POSSIBLE AFTER IT BECOMES APPARENT AND WEATHER AND SEASON PERMIT.
   B. IF A SUBSTANTIAL NUMBER OF PLANTS ARE SICKLY OR DEAD AT THE TIME OF INSPECTION, ACCEPTANCE SHALL NOT BE GRANTED AND THE CONTRACTOR'S RESPONSIBILITY FOR MAINTENANCE OF ALL PLANTS SHALL BE EXTENDED FROM THE TIME REPLACEMENTS ARE MADE OR EXISTING PLANTS ARE DEEMED ACCEPTABLE BY THE LANDSCAPE ARCHITECT.
   C. ALL REPLACEMENTS SHALL BE PLANTS OF THE SAME KIND AND SIZE SPECIFIED ON THE PLANT LIST OR THAT WHICH WAS TO REMAIN OR BE RELOCATED. THEY SHALL BE FURNISHED AND PLANTED AS SPECIFIED. THE COST SHALL BE BORNE BY THE CONTRACTOR. REPLACEMENTS RESULTING FROM THEFT, LOSS, OR DAMAGE DUE TO OCCUPANCY OF THE PROJECT IN ANY PART, VANDALISM, PHYSICAL DAMAGE BY ANIMALS, VEHICLES, ETC., AND LOSSES DUE TO CURTAILMENT OF WATER BY LOCAL AUTHORITIES SHALL BE APPROVED AND PAID FOR BY THE OWNER.
   D. PLANTS SHALL BE GUARANTEED FOR A PERIOD OF TWO YEARS AFTER INSPECTION AND PROVISIONAL ACCEPTANCE.
   E. AT THE END OF THE ESTABLISHMENT PERIOD, INSPECTION SHALL BE MADE AGAIN. ANY PLANT REQUIRED UNDER THIS CONTRACT THAT IS DEAD OR UNSATISFACTORY TO THE LANDSCAPE ARCHITECT OR OWNER SHALL BE REMOVED FROM THE SITE AND REPLACED DURING THE NORMAL PLANTING SEASON.
3. LAWN MAINTENANCE:
   A. BEGIN MAINTENANCE IMMEDIATELY AFTER EACH PORTION OF LAWN IS PLANTED AND CONTINUE FOR 8 WEEKS AFTER ALL LAWN PLANTING IS COMPLETED.
   B. WATER TO KEEP SURFACE SOIL MOIST, REPAIR WASHED OUT AREAS BY FILLING WITH TOPSOIL, LIMING, FERTILIZING AND RE–SEEDING; MOW TO



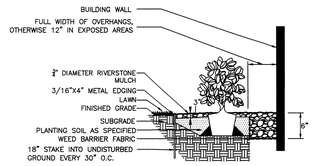
NOTES:
1. ALL SHRUBS TO BE SET PLUMB.
2. REFER TO LANDSCAPE PLAN FOR SPACING OF INDIVIDUAL PLANTS.
3. REMOVE ALL WIRE, PLASTIC, TAGS OR SYNTHETIC MATERIAL FROM PLANTS PRIOR TO PLANTING.

1 SHRUB AND ORNAMENTAL GRASS PLANTING

NTS

STONE MULCH NOTES

1. LANDSCAPED AREAS BETWEEN THE BUILDING AND THE PARKING LOT CURB SHALL BE MULCHED WITH 3" DECORATIVE RIVERSTONE.
2. DECORATIVE STONE MULCH DEPTH AT PLANTINGS SHALL BE 3" DEPTH WITH WEED BLOCK FABRIC BENEATH.
3. REFER TO PLANS FOR EXACT LOCATIONS.



NOTES:
1. LANDSCAPE STEEL EDGE IS REQUIRED BETWEEN RIVERSTONE AND LAWN.
2. DO NOT INSTALL STEEL EDGE BETWEEN PLANTING AREA AND CONCRETE.
3. RIVERSTONE TO BE INSTALLED ON BUS STOP PLANTING ISLAND, WHERE PLANTINGS OR LAWN MEET BUILDING WALLS, AND UNDER BUILDING OVERHANGS WHERE SHOWN ON THE LANDSCAPE PLANS.

2 STONE MULCH

NTS

WET POND NOTES

CONSTRUCTION PROCESS:

1. PREPARE FINAL PONDSCAPING AND GRADING PLANS OF THE STORMWATER WETLAND. AT THIS TIME ORDER WETLAND PLANT STOCK FROM AQUATIC NURSERIES.
2. ONCE THE STORMWATER WETLAND COLUMN HAS BEEN EXCAVATED, THE WETLAND SHOULD BE GRADED TO CREATE THE MAJOR INTERNAL FEATURES (POOL, AQUATIC BENCH, DEEP-WATER CHANNELS, ETC).
3. TOP SOIL AND/OR WETLAND MULCH IS ADDED TO THE STORMWATER WETLAND EXCAVATION. SINCE DEEP SUBSOILS OFTEN LACK THE NUTRIENTS AND ORGANIC MATTER TO SUPPORT VIGOROUS PLANT GROWTH, THE ADDITION OF MULCH OR TOPSOIL IS IMPORTANT. IF IT IS AVAILABLE, WETLAND MULCH IS PREFERABLE TO TOPSOIL. AFTER THE MULCH OR TOPSOIL HAS BEEN ADDED, THE STORMWATER WETLAND NEEDS TO BE GRADED TO ITS FINAL ELEVATIONS. ALL WETLAND FEATURES ABOVE THE NORMAL POOL SHOULD BE STABILIZED TEMPORARILY. SEE SOIL EROSION AND SEDIMENT CONTROL PLAN FOR SEED SPECIFICATION.
4. AFTER GRADING TO FINAL ELEVATIONS, THE POND DRAIN SHOULD BE CLOSED AND THE POOL ALLOWED TO FILL. USUALLY NOTHING SHOULD BE DONE TO THE STORMWATER WETLAND FOR SIX TO NINE MONTHS OR UNTIL THE NEXT PLANTING SEASON. A GOOD DESIGN RECOMMENDATION IS TO EVALUATE THE WETLAND ELEVATION DURING A STANDING PERIOD OF APPROXIMATELY SIX MONTHS. DURING THIS TIME THE STORMWATER WETLAND CAN EXPERIENCE STORM FLOWS AND INUNDATION, SO THAT IT CAN BE DETERMINED WHERE THE PONDSCAPING ZONES ARE LOCATED AND WHETHER OR NOT THE FINAL GRADE AND MICROTOPOGRAPHY WILL PERSIST OVERTIME.
5. BEFORE PLANTING THE STORMWATER WETLAND DEPTHS SHOULD BE MEASURED TO THE NEAREST INCH TO CONFIRM PLANTING DEPTH. THE PONDSCAPE PLAN MAY BE MODIFIED AT THIS TIME TO REFLECT ALTERED DEPTHS OR AVAILABILITY OF PLANT STOCK. ZONES SHOULD BE STAKED OUT AT THE APPROPRIATE LEVELS PRIOR TO PLANTING UNDER THE SUPERVISION OF LANDSCAPE ARCHITECT OR WETLAND SCIENTIST.
6. EROSION CONTROLS SHOULD BE STRICTLY APPLIED DURING THE STANDING AND PLANTING PERIODS. ALL AREAS ABOVE THE NORMAL POOL ELEVATION SHOULD BE VEGETATIVELY STABILIZED DURING THE STANDING PERIOD, USUALLY WITH HYDROSEEDING.
7. THE STORMWATER WETLAND SHOULD BE DE-WATERED AT LEAST THREE DAYS BEFORE PLANTING, AS A DRY WETLAND IS EASIER TO PLANT THAN A WET ONE.
8. DURING THE INITIAL PLANTING PRECAUTIONS SHOULD BE UNDERTAKEN TO PREVENT AND PROHIBIT ANIMALS FROM GRAZING UNTIL PLANT COMMUNITIES ARE WELL ESTABLISHED. SUCH PRECAUTIONS COULD BE DEER FENCING, MUSKRAT TRAPPING, PLANTING AFTER SEASONAL BIRD MIGRATIONS OR ATTRACTING BIRDS OF PREY AND BATS TO CONTROL NUTRIA POPULATIONS.

OPERATIONS AND MAINTENANCE NOTES:

1. CONSTRUCTED STORMWATER WETLANDS REQUIRE CONSIDERABLE ROUTINE MAINTENANCE, BUT DO NOT REQUIRE LARGE, INFREQUENT SEDIMENT REMOVAL UNLIKE CONVENTIAL POND SYSTEMS THAT REQUIRE RELATIVELY MINOR ROUTINE MAINTENANCE AND EXPENSIVE SEDIMENT REMOVAL AT INFREQUENT INTERVALS.
2. CAREFUL OBSERVATION OF THE SYSTEM OVER TIME IS REQUIRED IN THE FIRST THREE YEARS AFTER CONSTRUCTION. WITHIN THE FIRST GROWING SEASON OR UNTIL IT IS DETERMINED THAT THE SYSTEM IS ESTABLISHED, FREQUENT INSPECTIONS WILL BE REQUIRED, POSSIBLY BIWEEKLY OR MONTHLY BASIS. FOLLOWING THIS, TWICE A YEAR INSPECTIONS ARE NEEDED DURING BOTH THE GROWING AND NON-GROWING SEASON. DATA GATHERED DURING THESE INSPECTIONS SHOULD BE RECORDED, MAPPED AND ASSESSED. THE FOLLOWING OBSERVATIONS SHOULD BE MADE DURING THE INSPECTIONS:
   a. TYPES AND DISTRIBUTION OF DOMINANT WETLAND PLANTS IN THE MARSH.
   b. THE PRESENCE AND DISTRIBUTION OF PLANTED WETLAND SPECIES; THE PRESENCE AND DISTRIBUTION OF VOLUNTEER WETLAND SPECIES; SIGNS THAT VOLUNTEER SPECIES ARE REPLACING THE PLANTED WETLAND SPECIES.
   c. PERCENTAGE OF UNVEGETATED STANDING WATER (EXCLUDING THE DEEP WATER CELLS WHICH ARE NOT SUITABLE FOR EMERGENT PLANT GROWTH).
   d. THE MAXIMUM ELEVATION AND THE VEGETATIVE CONDITION IN THIS ZONE, IF THE DESIGN ELEVATION OF THE NORMAL POOL IS BEING MAINTAINED FOR WETLANDS WITH EXTENDED ZONES.
   e. STABILITY OF THE ORIGINAL DEPTH ZONES AND THE MOCROTOPOGRAPHIC FEATURES.
   f. ACCUMULATION OF SEDIMENT IN THE FOREBAY AND MICROPOOL.
   g. SURVIVAL RATE OF PLANTS IN THE WETLAND BUFFER.
   h. SHALLOW MARSH AND EXTENDED DETENTION WETLAND DESIGNS INCLUDE FOREBAYS TO TRAP SEDIMENT BEFORE REACHING THE WETLAND. THEREFORE BAYS SHOULD BE CLEANED OUT EVERY YEAR.
   i. CLEAN OUTS AND DISCHARGE LOCATIONS SHOULD BE INSPECTED MORE FREQUENTLY. INSPECTIONS FOR THEM COULD COINCIDE WITH ABOVE NORMAL OR EXTENDED PERIOD RAINFALL, RATHER THAN JUST INCREASING THE INSPECTION INTERVALS. THUS, IF THERE ARE PERIODS OF DROUGHT OR SMALL INFREQUENT EVENTS IT WOULD NOT BE NECESSARY FOR AN INSPECTION.
3. THE OWNER OF THE PROPERTY SHALL BE THE RESPONSIBLE AGENT FOR THE STORMWATER MANAGEMENT FACILITIES ON SAID PROPERTY.

PLANT LIST: WET POND #1

ZONE 1: 6'-1' PERMANENT WATER - EXCLUDES DEEP POOL AREA

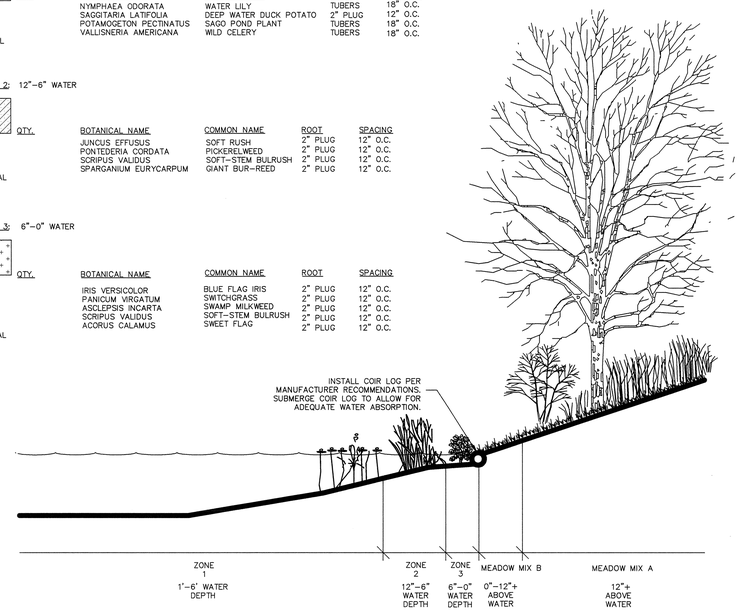
QTY.	BOTANICAL NAME	COMMON NAME	ROOT	SPACING
	NYMPHAEA ODORATA	WATER LILY	TUBERS	18" O.C.
	SAGGITARIA LATIFOLIA	DEEP WATER DUCK POTATO	2" PLUG	12" O.C.
	POTAMOGETON PECTINATUS	SAGO POND PLANT	TUBERS	18" O.C.
	VALLISNERIA AMERICANA	WLD CELERY	TUBERS	18" O.C.
TOTAL				

ZONE 2: 12"-6" WATER

QTY.	BOTANICAL NAME	COMMON NAME	ROOT	SPACING
	JUNCUS EFFUSUS	SOFT RUSH	2" PLUG	12" O.C.
	PONTEDERIA CORDATA	PICKERELWEED	2" PLUG	12" O.C.
	SCIRPUS VALIDUS	SOFT-STEM BULRUSH	2" PLUG	12" O.C.
	SPARGANIUM EURYCARPUM	GIANT BUR-REED	2" PLUG	12" O.C.
TOTAL				

ZONE 3: 6"-0" WATER

QTY.	BOTANICAL NAME	COMMON NAME	ROOT	SPACING
	IRIS VERSICOLOR	BLUE FLAG IRIS	2" PLUG	12" O.C.
	PANICUM VIRGATUM	SWITCHGRASS	2" PLUG	12" O.C.
	ASCLEPSIS INCARTA	SWAMP MILKWEED	2" PLUG	12" O.C.
	SCIRPUS VALIDUS	SOFT-STEM BULRUSH	2" PLUG	12" O.C.
	ACORUS CALAMUS	SWEET FLAG	2" PLUG	12" O.C.
TOTAL				



WARNING: IT IS A VIOLATION OF THE NY'S EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

Date	Description	No.

Revisions

STATE OF NEW YORK — LEONARD D. SAVINO — PROFESSIONAL ENGINEER

SIGNATURE 8/30/2022 DATE

LEONARD D. SAVINO, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project

SUFFERN QUARRY LOGISTICS CENTER

SECTION No. 55.21. BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

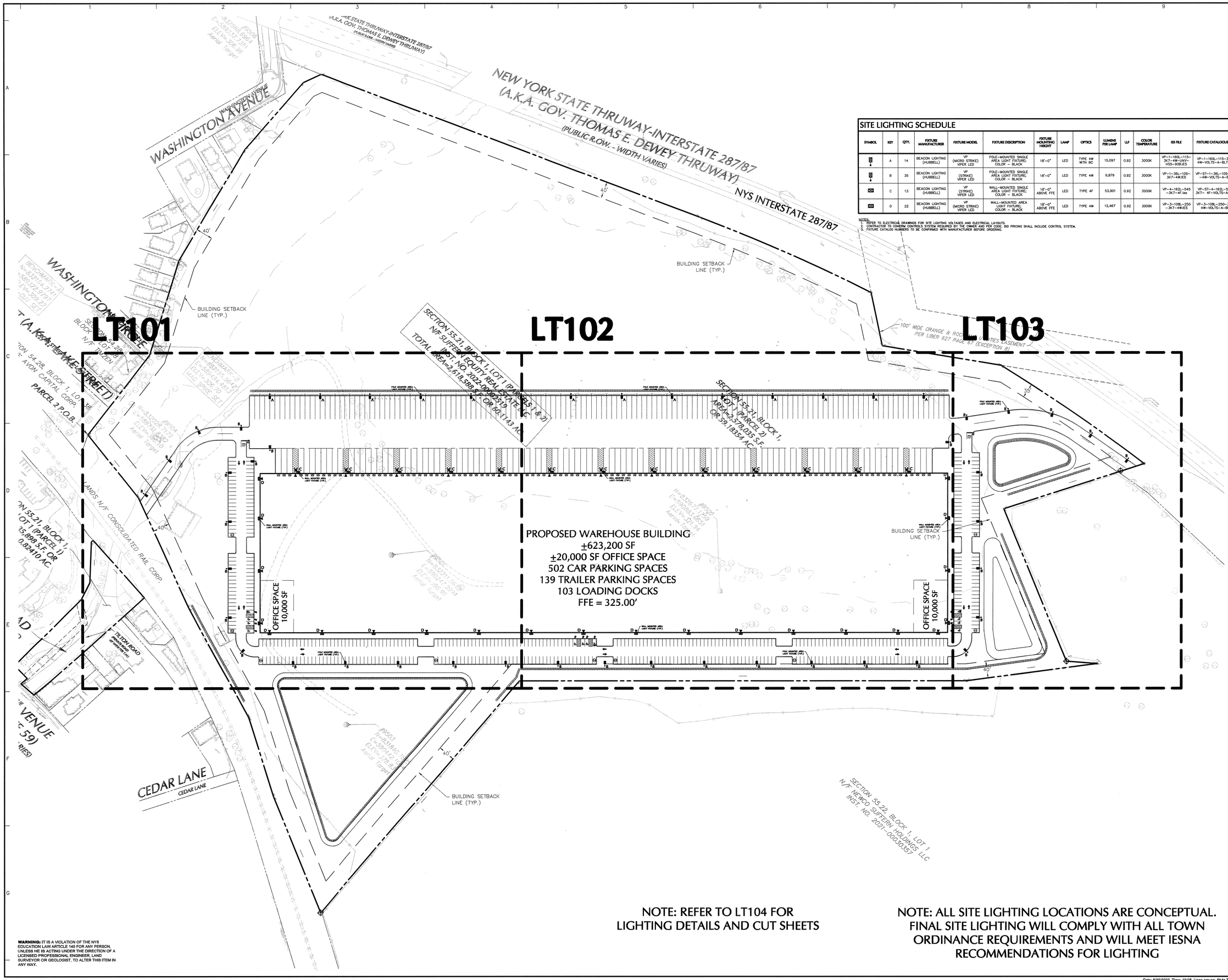
Drawing Title

CONCEPT PLANTING DETAILS II

Project No.	Drawing No.
100992901	LP502
Date: 08/30/2022	
Drawn By	
Checked By	Sheet of 1

© 2022 Langan.

Date: 8/30/2022 Time: 19:04 User: smusa Style Table: Langan.stb Layout: LP502 Document Code: 100992901-0501-LP501-0101



SITE LIGHTING SCHEDULE

SYMBOL	KEY	QTY.	FIXTURE MANUFACTURER	FIXTURE MODEL	FIXTURE DESCRIPTION	FIXTURE MOUNTING HEIGHT	LAMP	OPTICS	LUMENS PER LAMP	LLF	COLOR TEMPERATURE	IES FILE	FIXTURE CATALOGUE NO.	POLE MANUFACTURER	POLE DESCRIPTION	POLE LENGTH	POLE CATALOGUE NO.
	A	14	BEACON LIGHTING (HUBBELL)	VP (MICRO STRIKE) VIPER LED	POLE-MOUNTED SINGLE AREA LIGHT FIXTURE; COLOR – BLACK	18'–0"	LED	TYPE 4W WITH BC	15,097	0.92	3000K	VP–1–16DL–115–3K7–4W–UNV–HSS–90BJES	VP–1–16DL–115–3K7–4W–VOLTS–A–BLT–BC	BEACON LIGHTING (HUBBELL)	SQUARE STRAIGHT STEEL; COLOR – BLACK	15'–0"	SSS–8–15–40–A–1–B3–BLT
	B	35	BEACON LIGHTING (HUBBELL)	VP (STRIKE) VIPER LED	POLE-MOUNTED SINGLE AREA LIGHT FIXTURE; COLOR – BLACK	18'–0"	LED	TYPE 4W	9,879	0.92	3000K	VP–1–36L–105–3K7–4W.IES	VP–ST–1–36L–105–3K7–4W–VOLTS–A–BLT	BEACON LIGHTING (HUBBELL)	SQUARE STRAIGHT STEEL; COLOR – BLACK	15'–0"	SSS–8–15–40–A–1–B3–BLT
	C	13	BEACON LIGHTING (HUBBELL)	VP (STRIKE) VIPER LED	WALL-MOUNTED SINGLE AREA LIGHT FIXTURE; COLOR – BLACK	18'–0" ABOVE FFE	LED	TYPE 4F	53,901	0.92	3000K	VP–4–16ZL–545–3K7– 4F.ies	VP–ST–4–16ZL–545–3K7– 4F–VOLTS–A–BLT				
	D	22	BEACON LIGHTING (HUBBELL)	VP (MICRO STRIKE) VIPER LED	WALL-MOUNTED AREA LIGHT FIXTURE; COLOR – BLACK	18'–0" ABOVE FFE	LED	TYPE 4W	12,467	0.92	3000K	VP–3–10BL–250–3K7–4W.IES	VP–3–10BL–250–3K7–4W–VOLTS–A–BLT	–	–	–	–

NOTES:
1. REFER TO ELECTRICAL DRAWINGS FOR SITE LIGHTING VOLTAGES AND ELECTRICAL LAYOUTS.
2. CONTRACTOR TO CONFIRM CONTROLS SYSTEM REQUIRED BY THE OWNER AND PER CODE. BID PRICING SHALL INCLUDE CONTROL SYSTEM.
3. FIXTURE CATALOG NUMBERS TO BE CONFIRMED WITH MANUFACTURER BEFORE ORDERING.

NOTE: REFER TO LT104 FOR LIGHTING DETAILS AND CUT SHEETS

NOTE: ALL SITE LIGHTING LOCATIONS ARE CONCEPTUAL. FINAL SITE LIGHTING WILL COMPLY WITH ALL TOWN ORDINANCE REQUIREMENTS AND WILL MEET IESNA RECOMMENDATIONS FOR LIGHTING

80 0 40 80
SCALE: 1 INCH = 80 FEET

Date	Description	No.
Revisions		

STATE OF NEW YORK
LEONARD D. BANKO
LICENSED PROFESSIONAL ENGINEER

Signature 8/30/2022 Date

LEONARD D. BANKO, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project
SUFFERN QUARRY LOGISTICS CENTER
SECTION No. 55.21. BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

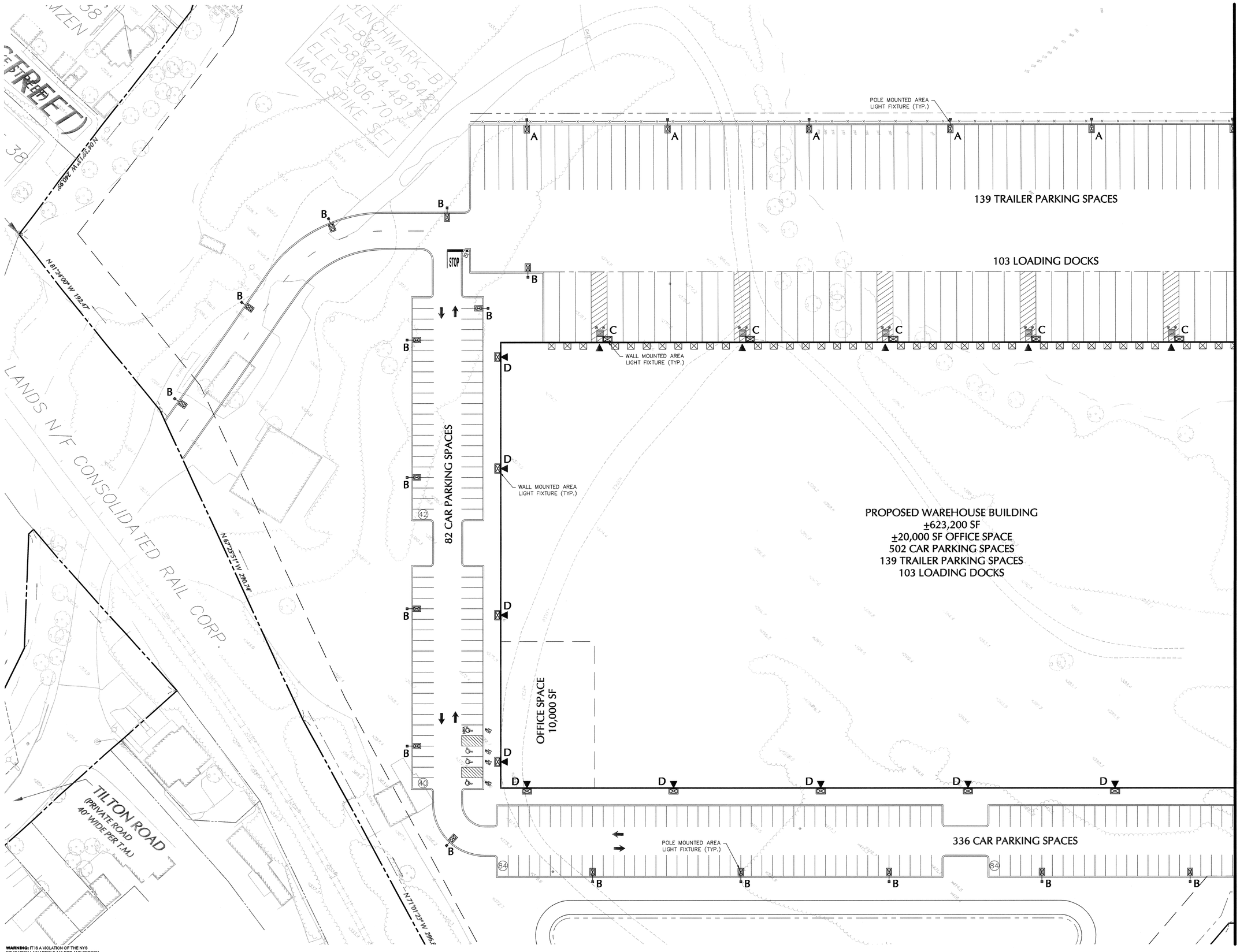
Drawing Title
OVERALL CONCEPT SITE LIGHTING PLAN

Project No.	Drawing No.
100992901	LT100
Date: 08/30/2022	
Drawn By	
Checked By	Sheet of 1

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

© 2022 Langan

Date: 8/30/2022 Time: 19:05 User: smusa Style Table: Langan.stb Layout: LT100 Document Code: 100992901-0501-LL101-0101



NOTES:

1. REFER TO LT100 FOR SITE LIGHTING SCHEDULE
2. REFER TO LT104 FOR LIGHTING DETAILS AND CUT SHEETS

30 0 15 30
SCALE: 1 INCH = 30 FEET

Date	Description	No.
Revisions		

Signature 8/30/2022 Date

LEONARD D. BRINO, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project

SUFFERN QUARRY LOGISTICS CENTER

SECTION No. 55.21. BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

Drawing Title

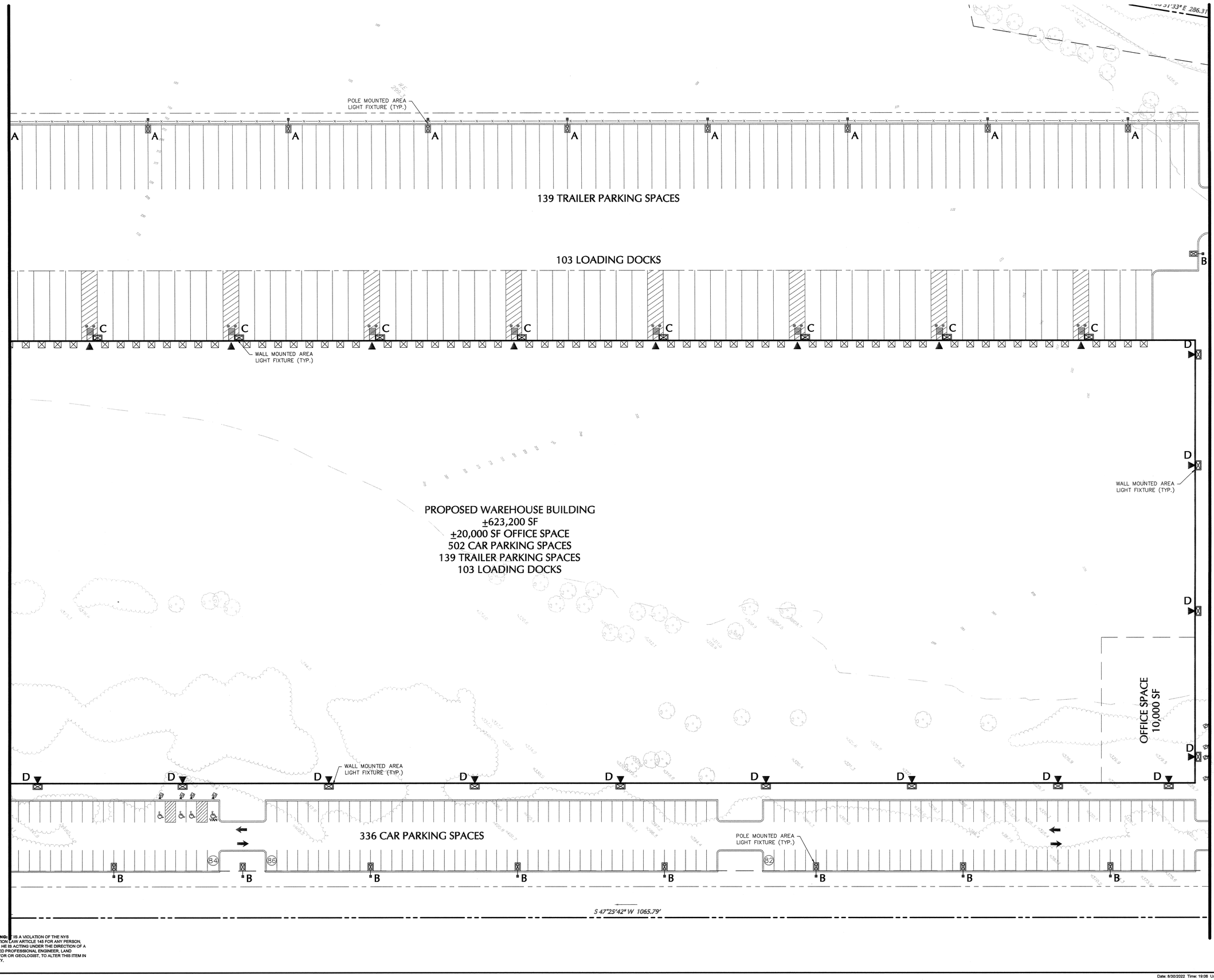
CONCEPT SITE LIGHTING PLAN I

Project No.	Drawing No.
100992901	LT101
Date 08/30/2022	
Drawn By	
Checked By	
	Sheet of 1

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

© 2022 Langan

Date: 8/30/2022 Time: 19:05 User: smusa Style Table: Langan.stb Layout: LT101 Document Code: 100992901-0501-LL101-0102



NOTES:

1. REFER TO LT100 FOR SITE LIGHTING SCHEDULE
2. REFER TO LT104 FOR LIGHTING DETAILS AND CUT SHEETS

SCALE: 1 INCH = 30 FEET

Date	Description	No.
Revisions		

LEONARD D. BARANELLO
PROFESSIONAL ENGINEER
STATE OF NEW YORK

SIGNATURE 8/30/2022 DATE

LEONARD D. BARANELLO, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project

SUFFERN QUARRY LOGISTICS CENTER

SECTION No. 55.21, BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

Drawing Title

CONCEPT SITE LIGHTING PLAN II

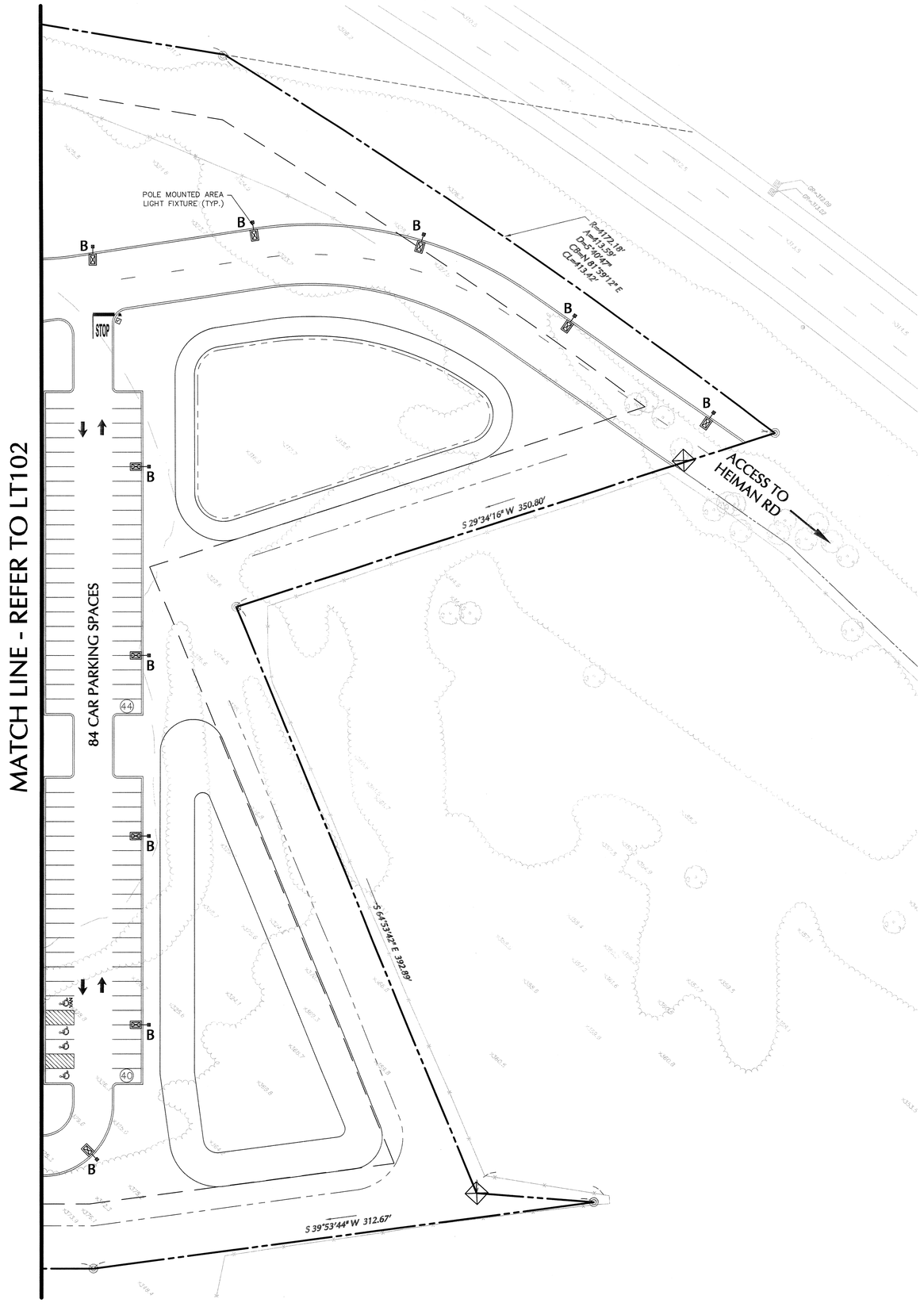
Project No.	Drawing No.
100992901	LT102
Date 08/30/2022	
Drawn By	
Checked By	

Sheet of 1

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

© 2022 Langan

Date: 8/30/2022 Time: 19:06 User: smusa Style Table: Langan.stb Layout: LT102 Document Code: 100992901-0501-LL101-0102



NOTES:

1. REFER TO LT100 FOR SITE LIGHTING SCHEDULE
2. REFER TO LT104 FOR LIGHTING DETAILS AND CUT SHEETS

30 0 15 30
SCALE: 1 INCH = 30 FEET

Date	Description	No.
Revisions		

STATE OF NEW YORK
LEONARD D. SAVINO
LICENSED PROFESSIONAL ENGINEER

Leonard D. Savino — 8/30/2022
SIGNATURE — DATE

LEONARD D. SAVINO, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project
SUFFERN QUARRY LOGISTICS CENTER
SECTION No. 55.21. BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

Drawing Title
CONCEPT SITE LIGHTING PLAN III

Project No.	Drawing No.
100992901	LT103
Date 08/30/2022	
Drawn By	
Checked By	
	Sheet of 1

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

© 2022 Langan

LIGHTING NOTES:

GENERAL

1. POINT-BY-POINT CALCULATIONS PROVIDED WITHIN HAVE BEEN PREPARED IN ACCORDANCE TO IESNA STANDARDS AND IN CONSIDERATION OF THE VARIABLES WITHIN THESE NOTES AND SITE LIGHTING SCHEDULE. THE VALUES SHOWN ON THE PLANS ARE NOT AN INDICATION OF THE INITIAL LIGHT INTENSITIES OF THE LAMPS. THESE VALUES ARE AN APPROXIMATION OF THE MAINTAINED INTENSITIES DELIVERED TO THE GROUND PLANE USING INDUSTRY STANDARD LIGHT LOSS FACTORS (LLF) WHICH COVER LAMP DEGRADATION AND NATURAL BUILDUP/ DIRT DEGRADATION ON THE FIXTURE LENS. THE LIGHTING PLAN IS DESIGNED WITH AN INDUSTRY STANDARD LLF IN ACCORDANCE WITH GUIDANCE AS PROVIDED BY IESNA. MINOR VARIATIONS IN TOPOGRAPHY, PHYSICAL OBSTRUCTIONS, AMBIENT OR ADJACENT LIGHT SOURCES AND/OR OTHER POTENTIAL IMPACTS HAVE NOT BEEN INCLUDED IN THESE CALCULATIONS. THEREFORE, AS-BUILT LIGHT INTENSITIES MAY VARY, IN EITHER DIRECTION, FROM WHAT IS EXPLICITLY PORTRAYED WITHIN THESE DRAWINGS.NO GUARANTEE OF LIGHT LEVELS IS EXPRESSED OR IMPLIED BY THE POINT BY POINT CALCULATIONS SHOWN ON THESE PLANS.
2. LIGHT LEVEL POINT SPACING IS 20 FT. LEFT TO RIGHT AND 20 FT. TOP TO BOTTOM. POINT BY POINT CALCULATIONS ARE BASED ON THE LIGHT LOSS FACTOR AS STATED IN THE LIGHTING SCHEDULE.

COMPLIANCE

3. ALL SITE LIGHTING RELATED WORK AND MATERIALS SHALL COMPLY WITH CITY, COUNTY, AND OTHER APPLICABLE GOVERNING AUTHORITY REQUIREMENTS.
4. LIGHTING LAYOUT COMPLIES WITH THE ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA) SAFETY STANDARDS FOR LIGHT LEVELS.

COORDINATION

5. CONTRACTOR TO COORDINATE POWER SOURCE WITH LIGHT FIXTURES TO ENSURE ALL SITE LIGHTING IS OPERATING EFFECTIVELY, EFFICIENTLY AND SAFELY.
6. REFER TO ELECTRIFICATION PLAN FOR PROVIDING ADEQUATE POWER FOR SITE LIGHTING.
7. CONTRACTOR TO COORDINATE LOCATION OF EASEMENTS, UNDERGROUND UTILITIES AND DRAINAGE BEFORE DRILLING POLE BASES.
8. INSTALLATION OF ALL LIGHTING FIXTURES, POLES, FOOTINGS, AND FEEDER CABLE TO BE COORDINATED WITH ALL SITE WORK TRADES TO AVOID CONFLICT WITH FINISHED AND PROPOSED WORK.
9. CONTRACTOR TO COORDINATE INSTALLATION OF UNDERGROUND FEEDER CABLE FOR EXTERIOR LIGHTING WITH EXISTING AND PROPOSED UTILITIES, SITE DRAINAGE SYSTEMS, AND PAVING. CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER'S REPRESENTATIVE SHOULD ANY UTILITIES, NOT SHOWN ON THE PLANS, BE FOUND DURING EXCAVATIONS.

POLES AND FOOTINGS

10. PROVIDE A CONCRETE BASE FOR EACH LIGHT POLE AT THE LOCATIONS INDICATED ON THE CONSTRUCTION DRAWINGS AND/OR IN ACCORDANCE WITH PROJECT PLANS AND SPECIFICATIONS RELATING DIRECTLY TO CAST-IN-PLACE CONCRETE. THE USE OF ALTERNATE LIGHTING FOUNDATIONS, SUCH AS PRECAST, MAY CHANGE THE SIZING AND REINFORCEMENT REQUIREMENTS FROM THOSE SHOWN ON THESE PLANS. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO ORDERING ANY SUBSTITUTED PRODUCTS.
11. CONTRACTOR SHALL EXAMINE AND VERIFY THAT SOIL CONDITIONS ARE SUITABLE TO SUPPORT LOADS EXERTED UPON THE FOUNDATIONS DURING EXCAVATION. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY UNSATISFACTORY CONDITIONS.
12. POLE FOUNDATIONS SHALL NOT BE POURED IF FREE STANDING WATER IS PRESENT IN EXCAVATED AREA.
13. ALL POLES HIGHER THAN 25 FT. SHALL BE EQUIPPED WITH FACTORY INSTALLED VIBRATION DAMPENERS.

WALL MOUNTED FIXTURES

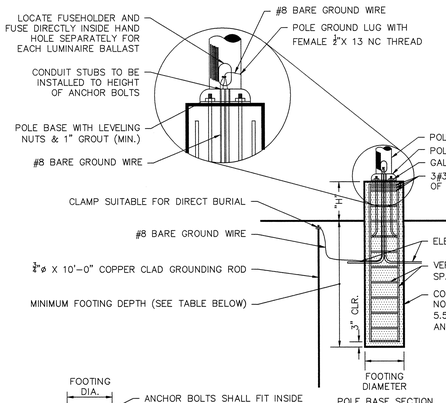
14. CONTRACTOR TO COORDINATE INSTALLATION OF ALL THE WALL MOUNTED FIXTURES AND ELECTRICAL CONNECTIONS TO SITE STRUCTURE(S) WITH BUILDING MEP, ARCHITECT, AND/OR OWNER.
15. INSTALLATION AND ELECTRICAL CONNECTIONS FOR WALL MOUNTED FIXTURES TO BE COORDINATED WITH ARCHITECTURAL, STRUCTURAL, UTILITY AND SITE PLANS AND TO BE IN ACCORDANCE WITH ALL APPLICABLE CODES.

ADJUSTMENT AND INSPECTION

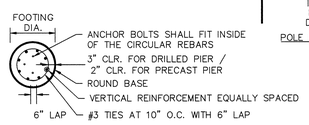
16. CONTRACTOR TO OPERATE EACH LUMINAIRE AFTER INSTALLATION AND CONNECTION. INSPECT FOR IMPROPER CONNECTIONS AND OPERATION.
17. CONTRACTOR TO AIM AND ADJUST ALL LUMINAIRES TO PROVIDE ILLUMINATION LEVELS AND DISTRIBUTION AS INDICATED ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE LANDSCAPE ARCHITECT AND/OR OWNER.
18. CONTRACTOR TO CONFIRM THAT LIGHT FIXTURES, TILT ANGLE AND AIMING MATCH SPECIFICATIONS ON THE PLANS.

REQUIREMENTS FOR ALTERNATES

19. ALL LIGHTING SUBSTITUTIONS MUST BE MADE WITHIN 14 DAYS PRIOR TO THE BID DATE TO PROVIDE AMPLE TIME FOR REVIEW AND TO ISSUE AN ADDENDUM INCORPORATING THE SUBSTITUTION WITH THE FOLLOWING REQUIREMENTS:
    - A. ANY SUBSTITUTION TO LIGHTING FIXTURES, POLES, ETC. MUST BE APPROVED BY THE OWNER, ENGINEER AND TENANTS. ANY COST ASSOCIATED WITH REVIEW AND/OR APPROVAL OF THE SUBSTITUTIONS SHALL BE ENTIRELY BORNE BY THE CONTRACTOR
    - B. COMPUTER PREPARED PHOTOMETRIC LAYOUT OF THE PROPOSED LIGHTED AREA WHICH INDICATES, BY ISOFOOTCANDLE, THE SYSTEM'S PERFORMANCE.
    - C. A PHOTOMETRIC REPORT FROM A NATIONAL INDEPENDENT TESTING LABORATORY WITH REPORT NUMBER, DATE, FIXTURE CATALOG NUMBER, LUMINAIRE AND LAMP SPECIFICATIONS; IES CALCULATIONS, POINT BY POINT FOOT CANDLE PLAN, STATISTIC ZONES SHOWING AVERAGE, MAXIMUM, MINIMUM AND UNIFORMITY RATIOS. SUMMARY, ISOLUX PLOT, AND CATALOGUE CUTS. CATALOGUE CUTS MUST IDENTIFY OPTICS, LAMP TYPE, DISTRIBUTION TYPE, REFLECTOR, LENS, BALLASTS, WATTAGE, VOLTAGE, FINISH HOUSING DESCRIPTION AND ALL OTHER PERTINENT INFORMATION.
    - D. POLE MANUFACTURER AASHTO CALCULATIONS INDICATING THE POLE AND ANCHOR BOLTS BEING SUBMITTED ARE CAPABLE OF SUPPORTING THE POLE AND FIXTURE SYSTEMS BEING UTILIZED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
    - E. THE UNDERWRITERS LABORATORY LISTING AND FILE NUMBER FOR THE SPECIFIC FIXTURE(S) TO BE UTILIZED.
    - F. A COLOR PHOTOGRAPH THAT CLEARLY SHOWS THE REPLACEMENT FIXTURE POLE MOUNTED, THE FIXTURE'S COLOR, FINISH, AND PHYSICAL CHARACTERISTICS.



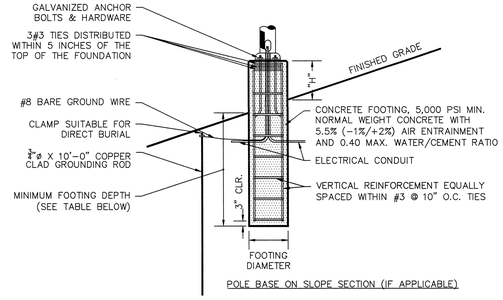
POLE BASE SECTION



PLAN

NOTES:

EXPOSED HEIGHT OF POLE BASE (H) SHALL BE MEASURED ON THE UPHILL SIDE OF A SLOPE. FOOTING DEPTH (D) SHALL BE MEASURED ON THE DOWNHILL SIDE OF A SLOPE. AN ADDITIONAL VARIABLE HEIGHT (V) WILL BE BASED ON THE SLOPE ON WHICH THE POLE BASE IS LOCATED. CONTRACTOR TO CALCULATE FULL LENGTH OF EACH POLE BASE REQUIRED ON SLOPES (H+D+V = TOTAL BASE LENGTH)



POLE BASE ON SLOPE SECTION (IF APPLICABLE)

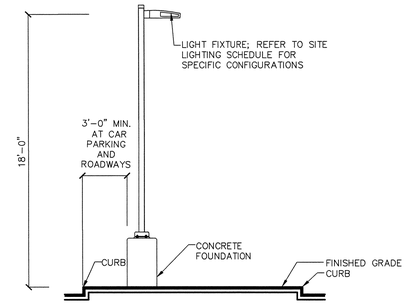
NOTES:

1. SHAFT CAP, ARMS, BASE FLANGE, ANCHOR BOLTS, LEVELING NUTS, CONNECTION HARDWARE, BOLT COVERS, HANDHOLE COVER, AND BOLT CIRCLE TEMPLATE SHALL BE FURNISHED BY POLE MANUFACTURER.
2. EACH STANDARD TO BE PROTECTED AGAINST LIGHTNING WITH AN INTERCONNECTED GROUND ROD. THIS ROD SHALL BE BONDED PER SECTION NUMBER 250-86, N.E.C.
3. CONCRETE WORK SHALL COMPLY WITH THE REQUIREMENT OF ACI 318. CAST-IN-PLACE SHALL HAVE UNCONFINED COMPRESSIVE STRENGTH OF AT LEAST 5,000 PSI AT 28-DAYS. DEFORMED REINFORCEMENT BARS SHALL CONFORM TO ASTM A615, GRADE 60.
4. CONTRACTOR TO ENSURE CONCRETE POLE BASES ARE POURED / PLACED ABSOLUTELY VERTICAL & LEVEL.
5. IF POLE BASE IS CAST-IN-PLACE, POLE BASE SHALL BE ONE CONTINUOUS POUR. EXPOSED PORTION OF BASE SHALL BE HAND-RUBBED SMOOTH.
6. CONTRACTOR TO COMPACT SUBGRADE AROUND POLE BASE PER EARTHWORK SPECIFICATIONS / GEOTECH REPORT.
7. CONTRACTOR TO CONFIRM GROUNDING DESIGN WITH MEP.

THE INFORMATION ILLUSTRATED IN THE LIGHT POLE FOUNDATION DETAIL HAS BEEN PROVIDED FOR GENERAL REFERENCE AND PRELIMINARY COST ESTIMATE PURPOSES. LIGHT POLE FOUNDATIONS SHOULD BE DESIGNED AND DETAILED BY A LICENSED STRUCTURAL ENGINEER BASED ON EXISTING SOIL CONDITIONS, LOCAL DESIGN STANDARDS AND MANUFACTURERS RECOMMENDATIONS.

MOUNTING HEIGHT	FOOTING DEPTH	FOOTING DIAMETER	EXPOSED HEIGHT "H"	VERTICAL REINFORCEMENT
18'-0"	4'-6"	2'-0"	3'-0"	6#5 BARS

LIGHT POLE BASE NTS



SECTION

NOTES:

1. CURB LOCATION IS SHOWN FOR SCHEMATIC PURPOSE. LIGHT POLES SHALL BE LOCATED PER THE LIGHTING PLANS.

LIGHT FIXTURE AND POLE NTS

VIPER Area/Site
VIPER LUMINAIRE

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

FEATURES

- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as auto dealership, retail, commercial, and campus parking lots
- Featuring two different optical technologies, Strike and Micro Strike Optics, which provide the best distribution patterns for retrofit or new construction
- Rated for high vibration applications including bridges and overpasses. All sizes are rated for 1.5G
- Control options including photo control, occupancy sensing, NX Distributed Intelligence™, wiSCAPE and 7-Pin with networked controls
- New customizable lumen output feature allows for the wattage and lumen output to be customized in the factory to meet whatever specification requirements may entail
- Field interchangeable mounting provides additional flexibility after the fixture has shipped

cULus IP65

CONTROL TECHNOLOGY

NX DISTRIBUTED INTELLIGENCE wiSCAPE

SPECIFICATIONS

CONSTRUCTION
- One-piece housing with hidden vertical heat fins are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with 1000 hour powder coat paint finish
- Silicone hardware is corrosion resistant

OPTICS
- Micro Strike Optics (160, 320, 480, or 720 LED counts) maximize uniformity in applications and come standard with mid-power LEDs which evenly illuminate the entire optic, creating a consistent, uniform light appearance. Catalog logic found on page 2
- Strike Optics (96, 72, 108, or 162 LED counts) provide best in class distributions and maximum pole spacing in new applications with high-powered LEDs. Strike optics are held in place with a polycarbonate bezel to ensure a dust and water tight seal. Strike Optics so both solutions can be contained on the same application. Catalog logic found on page 3
- Both optics maximize target zone illumination with minimal losses at the house-side, reducing light trespass issues. Additional house-side shielding and/or internal visors can be added for further reduction of illumination behind the pole
- Three-color silicone gasket ensures a weatherproof seal
- Zero uplight at 0 degrees of tilt
- Field rotatable optics

INSTALLATION
- Mounting patterns for each arm can be found on page 11
- Optional universal mounting block for ease of installation during retrofit applications. Universal mounting block is a field accessory for square and round poles.
- All mounting hardware included

INSTALLATION (CONTINUED)
- Knuckle arm fitter option available for 2-3/8" OD tenon
- For products with EPA less than 1 mounted to a pole greater that 20ft, a vibration damper is recommended

ELECTRICAL
- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40°C to 40°C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/IEEE C62.41.2 Category C High and Surge Exposure Category C3. Automatically takes fixture off-line for protection when device is compromised

CONTROLS
- Photocell, occupancy sensor programmable controls, and Zigbee wireless controls available for complete on/off and dimming control
- Please consult brand or sales representative for more information on control options. Certain as some combinations may not operate as anticipated depending on your application
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0-10V Dimming Drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than the 6" standard

CONTROLS (CONTINUED)
- NX Distributed Intelligence™ available with in fixture wireless control module, features dimming and occupancy sensor
- wiSCAPE® available with in fixture wireless control module, features dimming and occupancy sensor. Also available in 7-Pin configuration

CERTIFICATIONS
- Meets Buy American requirements
- Listed to UL1598 and CSA C22.2 #250.0-24 for wet locations and 40°C ambient temperatures
- 1.5 G rated for ANSI C136.31 high vibration applications
- Fixture is IP65 rated
- Meets ADA recommendations using 3K CCT configuration at 0 degrees of tilt
- This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 04/03/2020. See Buy American Solutions

WARRANTY
- 5 year warranty
- See HLI Commercial and Industrial Outdoor Lighting Warranty for additional information

KEY DATA	
Lumen Range	5,000-80,000
Wattage Range	36-600
Efficacy Range (LPW)	92-155
Weight lbs. (kg)	13.7-30.9 (6.2-13.9)

© 2022 Beacon Products, a division of Hubbell Lighting, Inc. Specifications subject to change without notice. 701 Millennium Boulevard • Greenville, SC 29607 / Tel: 864.678.0000 / Website: www.beaconproducts.com

AREA LIGHT FIXTURES

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

RATIO Flood
MEDIUM AND LARGE

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

FEATURES

- Medium and Large LED flood with a variety of NEMA distributions for lighting applications such as area safety/security, accent, flag pole columns, or signs
- Part of the Ratio flood series, this luminaire was designed in cohesion with the sitelines products to provide a sleek and timeless look
- Features a dense optical array, providing reduced pixelation and increased visual comfort without compromising performance
- Applications include safety/security, accent, flag pole, columns and signs

IP66 DLC DLC

CONTROL TECHNOLOGY

SiteSync NX DISTRIBUTED INTELLIGENCE

SPECIFICATIONS

CONSTRUCTION
- Corrosion resistant, rugged die-cast aluminum housing with powder coatpaint finish
- High impact UV stabilized acrylic outer lens protects LEDs and allows for cleaning and debris removal
- Internal venting fins create optimal heat dissipation and allow all water to drain from the face of the luminaire
- Visor, louver and vandal Lens options
- Easy maintenance access to electrical components with removal of four screws from back of fixture housing
- Lens hardware is internal to the fixture allowing for uniform pressure on the gasket for an optimal water tight seal

OPTICS
- 176 or 360 midpower LEDs
- Stock Versions: 4000K and 5000K CCT
- Variety of NEMA distributions - N (bug), M (4x4), and W (6x6). Stock version Wide (6x6) only
- Entire optical aperture illuminates to create a large luminous surface area resulting in low-glare appearance without sacrificing optical performance

CONTROLS
- Photo control, occupancy sensor and wireless available for complete on/off dimming control

CONTROLS (CONTINUED)
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0-10V dimming leads available for use with control devices (provided by others), must specify lead length
- 0-10V dimming driver standard, continuous dimming option to have leads pulled out for easy connection
- SiteSync™ wireless control system is available via 7-pin and can be ordered separately. See ordering information and details at: www.hubbelllighting.com/sitesync

INSTALLATION
- Interchangeable knuckle and trunnion mounting options
- Knuckle arm fitter option available for 2-¾" OD tenon, 180 degrees of adjustability (with no options), 4 degree adjustable increments
- Trunnion option available for surface and crossarm mounting using (1) ¾" or (2) ½" size through bolts

ELECTRICAL
- 120-480V operation, 50/60Hz
- Driver IP66 and RoHS compliant driver
- Ambient operating temperature -40°C to 40°C (265W configuration rated for 25°C)
- 7-pin module can limit backwards rotation of the luminaire
- Drivers have 90% power factor and less than 20% THD

ELECTRICAL (CONTINUED)
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- 10kA surge protector optional

CERTIFICATIONS
- Fixture is IP66 rated
- Listed to UL1598 for use in wet locations
- DLC® (DesignLights Consortium Qualified, with some Premium Qualified configurations. Please refer to the DLC website for specific product qualifications at www.designlights.org
- This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 04/03/2020. See Buy American Solutions

WARRANTY
- 5 year limited warranty
- See HLI Standard Warranty for additional information

KEY DATA	
Lumen Range	12,000-30,000
Wattage Range	124-266
Efficacy Range (LPW)	116-125
Reported Life (Hours)	L70=19,000
Weight lbs. (kg)	16.0-25.7 (7.2-11.66)

© 2020 Hubbell Outdoor Lighting, a division of Hubbell Lighting, Inc. Specifications subject to change without notice. 701 Millennium Blvd • Greenville, SC 29607 / Tel: 864.678.0000 / Website: www.hubbelloutdoor.com

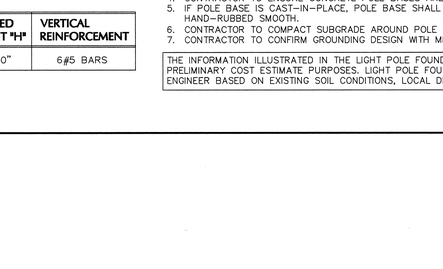
RATIO

RFL4 RFL3

RELATED PRODUCTS

RATIO Family | RFL1 | RFL2 | RFL3

PHOTOMETRY # BROCHURE # CUTSHEET # SPECSHEET



SSS-B SERIES POLES
SQUARE STRAIGHT STEEL

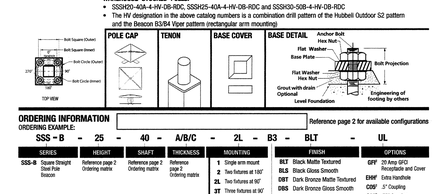
Cat.#
Job
Type
Approvals

APPLICATIONS
- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

CONSTRUCTION
- SHAFT: One-piece straight steel with square cross section, flat sides and minimum 0.23" radius on all corners; Minimum yield of 46,000 psi (ASTM-A500, Grade B); Longitudinal weld seam to appear flush with shaft side wall; Steel base plate with axial bolt circle slots welded flush to pole shaft having minimum yield of 36,000 psi (ASTM A36)
- BASE COVER: Two-piece square aluminum base cover included standard
- POLE CAP: Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- HAND HOLE: Rectangular 3x5 steel hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover
- ANCHOR BOLTS: Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for leveling
  Anchor bolt part numbers: 3/4 x 30 x 3 — TAB-30-M38
  1 x 36 x 4 — TAB-36-M38

FINISH
- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint prime applied over "white metal" steel substrate cleaned via mechanical shot blast method
- Decorative finish coat available in multiple standard colors; Custom colors available; RAL number preferable

WAREHOUSE 'STOCKED' POLES:
- SSS#20-40A-4-HV-DB-RDC, SSS#25-40A-4-HV-DB-RDC and SSS#30-50B-4-HV-DB-RDC
- The HV designation in the above catalog numbers is a combination drill pattern of the Hubbell Outdoor S2 pattern and the Beacon 83/84 Viper pattern (rectangular arm mounting).



ORDERING INFORMATION
ORDERING EXAMPLE: SSS-B - 25 - 40 - A/B/C - 2L - B3 - BLT - UL
Reference page 2 for available configurations

SERIES	HEIGHT	SHAFT	THICKNESS
SSS-B Square Straight Steel Pole Beacon	Reference page 2 Ordering matrix	Reference page 2 Ordering matrix	Reference page 2 Ordering matrix

MOUNTING	
1	Single arm mount
2	Two fixtures at 180°
2L	Two fixtures at 90°
3T	Three fixtures at 90°
4	Four fixtures at 90°
TA	Tenon (2.38" OD x 4" TAB)
TB	Tenon (2.88" OD x 4" TAB)
TC	Tenon (3.5" OD x 6" TAB)
TB*	Removable Tenon (2.375 x 4.25)
OT	Open Top (includes pole cap)

FINISH	
BLT	Black Matte Textured
BLS	Black Gloss Smooth
DBT	Dark Bronze Matte Textured
DBS	Dark Bronze Gloss Smooth
GTT	Graphite Matte Textured
LGS	Light Grey Gloss Smooth
PSS	Platinum Silver Smooth
WHT	White Matte Textured
WHS	White Gloss Smooth
VGT	Verde Green Textured
Color Option	
CC	Custom Color

OPTIONS	
GFF	20 Amp GFCI Receptacle and Cover
EHH*	Extra Handhole
C05*	.5" Coupling
C07*	.75" Coupling
C10*	1" Coupling
MPB*	Mid-pole Luminaire Bracket
VM2	2nd mode vibration damper
LAB	Lens Anchor Bolts
UL	UL Certified

MOUNTING ORIENTATION
Denotes handhole location

1 2 2L 3T 3Y 4

1 Removable tenon used in conjunction with side arm mounting. First specify desired arm configuration followed by the "TB" notation. Example: SSS-B-25-40-A-1-BR-TB-BBT
2 Specify option location using high hand or side (i.e. Fixture Orientation)
3 Not recommended on poles 20' and taller with EPA of less than 1.

ACCESSORIES - Order Separately

Catalog Number	Description
VM1*	1st mode vibration damper
VM2XX	2nd mode vibration damper

DRILL PATTERN
B1 Cruze, "AM" arm
B3 2 bolt (2-¾" spacing), Viper "A" arm
S2 2 bolt (3-½" spacing), Viper "AD" arm

Beacon Products • 701 Millennium Blvd, Greenville, SC 29607 • Phone: 864-678-1000
Due to our continued efforts to improve our products, product specifications are subject to change without notice.
© 2021 BEACON PRODUCTS. All Rights Reserved • For more information visit our website: www.beaconproducts.com • Printed in USA SSS-B POLES-SPEC JULY 20, 2020 8:42 AM

LIGHT POLE

KIM LIGHTING

PATR
BOLLARD

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

FEATURES

- IDA Dark Sky Compliant, No Up-light configuration
- Elegant form factor blended with Performance Optics
- Integral NEMA 3R Enclosure
- Dual receptacle power panel
- PA System capability
- Bluetooth® enabled RGBW accent

cULus LISTED | DLC | IK10

CONTROL TECHNOLOGY

Bluetooth DMX SiteSync phorus

SPECIFICATIONS

CONSTRUCTION
HOUSING:
- Castings are low copper aluminum alloy die-cast
- Gaskets are molded silicone to prevent harmful ingress to the lamp and driver compartments
- IP65 rated

SHAFT:
- Aluminum shaft(s) is 125" thick extruded aluminum 6061 alloy
- Concrete shaft(s) conforms to current specifications for "Portland Cement," ASTM C150, Type I or II. Aggregates shall meet current requirements of "Specifications for Concrete Aggregates," ASTM C33. Water shall be clean and free from deleterious amounts of silt, oil, acids, alkalies or organic materials. Wire for reinforcement shall conform to ASTM A185. Steel for lugs and plates shall conform to ASTM A36, or A283 grade D
- Concrete shaft(s) is medium sand-blasted with anti-graffiti sealer and material color shall be integral to the concrete mix
- Concrete shaft(s) is cured to allow for completion of the hydration process, and result in a 28 day compressive strength of not less than 4,500 psi
- Concrete shaft(s) is cast from fiberglass molds used to insure uniform parts. Mold parting lines maybe slightly visible in finished parts

OPTICS
- LEDs mount to a metal printed circuit board assembly (MCPCB)
- Optical lenses are clear injection molded PMMA acrylic
- UO configurations have an optically clear flat tempered glass lens, all other configurations have either an optically clear or high transmission diffused acrylic lens

INSTALLATION
- Aluminum shaft configurations will have four 3/8" x 10" x 2" zinc plated L-hook anchor bolts shall to be installed with an included template. Nuts and washers are provided to level and secure the mounting plate to the anchor bolts
- Aluminum shaft configurations will have a mounting plate and be able to be rotated 20° in either direction during installation for aiming adjustment
- Concrete shaft configurations will have four steel mounting tabs for installation on four 1/2" x 10" x 2" zinc electroplated L-hook anchor bolts. Each anchor bolt is supplied with two nuts, two washers, and a rigid pressed board template
- Concrete shaft configurations are pelletized with adequate hold-downs to prevent load movement in transit.
- Fixtures must be grounded in accordance with national, state and/or local electrical codes. Failure to do so may result in serious personal injury

ELECTRICAL
- Universal voltage, 120 through 277V with a ±10% tolerance. Driver is Underwriters Laboratories listed
- High voltage configurations, 208-277, 347-480. Driver is Underwriters Laboratories listed
- "Thermal Shield", secondary side, thermistor provides protection for the sustainable life of LED module and electronic components
- Drivers are greater than a 0.9 power factor, less than 20% harmonic distortion, and be suitable for operation in -40°C to 40°C ambient environments
- Luminaire is capable of operating at 100% brightness in a 40°C environment. Both driver and optical array have integral thermal protection that will dim the luminaire upon detection of temperatures in excess of 85°C

(Specifications continued on page 3)

KEY DATA	
Lumen Range	397-2,350
Wattage Range	14-22
Efficacy Range (LPW)	29-108
Reported Life (Hours)	L70/60,000

© 2021 KIM Lighting, a division of Hubbell Lighting, Inc. Specifications subject to change without notice. 701 Millennium Blvd • Greenville, SC 29607 / Tel: 864.678.0000 / Website: kimlighting.com

BOLLARD

Pavilion™

RELATED PRODUCTS

Pavilion Square | Pavilion Round Tapered Fitted

PHOTOMETRY # BROCHURE # CUTSHEET # SPECSHEET # Dimensional Drawings

Date	Description	No.
Revisions		

STATE OF NEW YORK — LICENSED & SURVEYED — LEONARD D. SAVINO — 090013 — PROFESSIONAL ENGINEER

SIGNATURE 8/30/2022 DATE

LEONARD D. SAVINO, P.E.
PROFESSIONAL ENGINEER NY Lic. No. 090013

LANGAN
Langan Engineering and Environmental Services, Inc.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com

Project

SUFFERN QUARRY LOGISTICS CENTER
SECTION No. 55.21, BLOCK No. , LOT No. 1
VILLAGE OF SUFFERN, TOWN OF RAMAPO
ROCKLAND COUNTY NEW YORK

Drawing Title

CONCEPT SITE LIGHTING DETAILS

Project No.	100992901
Date	8/30/2022
Drawn By	
Checked By	
Drawing No.	LT501
Sheet	of 1

© 2022 Langan.