# VILLAGE DENTAL



#### **ARCHITECT**

PENINSULA ARCHITECTS 1775 MAIN STREET, PENINSULA, OHIO P: 330.657.2800

CONTACT: JOE MATAVA

#### **SURVEY**

**APEX LAND SURVEYING** 2858 FULMER DR. SILVER LAKE, OHIO 44224 P: 330.928.7750

CONTACT: KELLY DUNFORD, P.S.

#### CIVIL

**GUTOSKEY & ASSOCIATES** 10185 GOTTSCHALK PARKWAY#4, CHAGRIN FALLS, OHIO P: 440.543.6900

CONTACT: JOE GUTOSKEY

#### **BUILDER**

**MEP CONSULTANTS** 

**STRUCTURAL** 

### **ABBREVIATIONS**

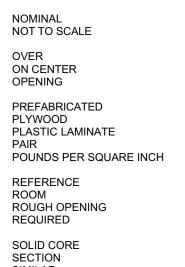
ABOVE HDWR. AIR CONDITIONING ABOVE FINISHED FLOOR HVAC ALTERNATE AIR COND. AUTHORITY HAVING JURISDICTION HT APPROX APPROXIMATELY ARCH ARCHITECTURAL ASPH ASPHALT BOTTOM BTW BETWEEN CAST IN PLACE CONTROL JOINT CEILING CONCRETE MASONRY UNIT MTD CONC CONCRETE CLEAN OUT CONTINUOUS DEPARTMENT DIAMETER DIMENSION DOOR DRAWING ELECTRICAL **EXHAUST EXPOSED EXTERIOR** FLOOR DRAIN STRUC FOUNDATION FINISHED FLOOR FOOTING FUR FURRING GALV GALVANIZED

GENERAL CONTRACTOR

GYPSUM BOARD

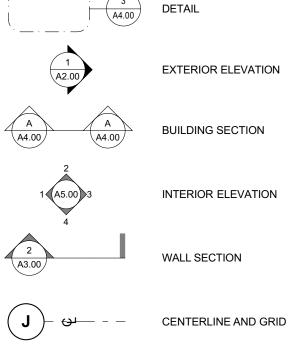
# **HOLLOW CORE** HARDWARF HOLLOW METAL HEATING, VENTILATION, AND

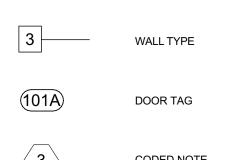
INSULATION JOIST LAMINATED MASONRY MATERIAL MAXIMUM MECHANICAL MANUFACTURER MISCELLANEOUS MASONRY OPENING MOUNTED METAL



STRUCTURAL TYPICAL UNLESS NOTED OTHERWISE WELDED WIRE FABRIC

# SYMBOLS





# ⟨ 3 ⟩ CODED NOTE SPOT ELEVATION

### MATERIALS LEGEND

DIMENSIONAL LUMBER	GRAVEL
PLYWOOD	CONCRETE
FINISH WOOD	CONCRETE BLOCK
GYPSUM BOARD	STEEL
BRICK	RIGID INSULATION
EARTH	SPRAY FOAM INSULATION
STONE VENEER	MINERAL WOOL INSULATIO

### PROJECT GENERAL NOTES

CONTRACTOR SHALL PROVIDE ALL MATERIALS AND WORKMANSHIP FOR ALL CONSTRUCTION REQUIRED HEREIN AND SHALL BE IN ACCORDANCE WITH THE: COMMERCIAL BUILDING CODE: 2024 OF OHIO (IBC 2021 + AMENDMENTS)

> RESIDENTIAL BUILDING CODE: 2019 OF OHIO (IRC 2018 + AMENDMENTS) MECHANICAL CODE: 2024 OF OHIO (IMC 2021 + AMENDMENTS) ELECTRICAL CODE: 2023 OF OHIO (NFPA 70, 2023 + AMENDMENTS) PLUMBING CODE: 2024 OF OHIO (IPC 2021 + AMENDMENTS) ENERGY CONSERVATION CODE: 2021 OF OHIO (IECC 2021 + AMENDMENTS) ACCESSIBILITY CODE: 2017 OF OHIO (A117.1.2017 + AMENDMENTS) FUEL AND GAS CODE: 2021 OF OHIO (IFGC 2021 + AMENDMENTS) FIRE CODE: 2017 OF OHIO

THE CONTRACTOR WILL FURNISH ALL LABOR, MATERIAL, EQUIPMENT, PERMITS, TAXES, AND INSURANCE NECESSARY TO COMPLETE THE WORK INDICATED AND/ OR IMPLIED IN THE CONSTRUCTION DOCUMENTS UNLESS NOTED OTHERWISE AND WILL COORDINATE THE WORK RESPONSIBILITIES OF ALL SUBCONTRACTORS. ALL LABOR AND MATERIALS TO CARRY OUT FULLY THE INTENTIONS OF THE PLANS AND SPECIFICATIONS ARE PART OF THE CONTRACT, WHETHER OR NOT SPECIFICALLY DOCUMENTED.

AS THE CURRENT NATIONAL BOARD OF FIRE UNDERWRITERS AND ALL OTHER APPLICABLE CITY CODES, LOCAL LAWS, AND AUTHORITIES HAVING JURISDICTION. CODE STANDARDS AND PUBLICATIONS OF PRIVATE AND PUBLIC BODIES MENTIONED WITHIN THE SPECIFICATIONS OR ON THE DRAWINGS, WILL BE CONSIDERED TO BE THOSE IN FORCE AT THE TIME OF THE CONTRACT AWARD. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL CONTROLLED INSPECTIONS AND ANY TECHNICAL

ALL MANUFACTURED ARTICLES, MATERIALS, AND EQUIPMENT WILL BE NEW AND FREE OF DEFECTS AND WILL BE SUPPLIED, INSTALLED, CONNECTED, ERECTED, USED, CLEANED, AND CONDITIONED AS DIRECTED BY THE RESPECTIVE MANUFACTURERS, UNLESS SPECIFIED OTHERWISE. THE CONTRACTOR WILL NOTIFY THE ARCHITECT OF ANY ERRORS, OMISSIONS, CONFLICTS, OR AMBIGUITIES IN AND BETWEEN THE DRAWINGS AND THE SPECIFICATIONS PRIOR TO PROCEEDING WITH THE WORK. IF SUCH NOTICE IS NOT FURNISHED TO THE ARCHITECT, THE CONTRACTOR WILL BE DEEMED

TO HAVE INSPECTED THE DRAWINGS AND SPECIFICATIONS AND TO HAVE FOUND THEM IN PROPER FORM

THE CONTRACTOR REPRESENTS THAT HE HAS HAD ADEQUATE ACCESS TO THE JOB SITE AND BUILDING AREA IN WHICH THE WORK IS TO BE PERFORMED. THAT HE HAS SATISFIED HIMSELF AT TO THE NATURE AND LOCATION OF WORK, INCLUDING ANY OBSTRUCTIONS, SCOPE OF WORK, ACTUAL LEVELS, THE EQUIPMENT AND FACILITIES NEEDED PRELIMINARY TO AND DURING THE EXECUTION OF THE WORK AND ALL OTHER MATTERS, WHICH CAN IN ANY WAYAFFECT THE WORK OR THE COST THEREOF UNDER THIS CONTRACT, AND THAT HE HAS STUDIED THE CONTRACT DOCUMENTS AND ALL OTHER DOCUMENTS PERTAINING TO THE INSTALLATION OF OTHER TRADES WHICH MAY INFLUENCE HIS WORK.

NO SUBSTITUTIONS ARE PERMITTED EXCEPT WHERE THE TERM "APPROVED EQUAL" APPEARS. ALL

SUBSTITUTIONS MUST BE APPROVED IN WRITING BY THE ARCHITECT. THE CONTRACTOR IS TO SUBMIT SAMPLES OR CATALOG CUTS OF ALL VISIBLE MATERIALS AND EQUIPMENT FOR THE ARCHITECT'S APPROVAL PRIOR TO INSTALLATION.

EXISTING BUILDING CODE: 2024 OF OHIO (IEBC 2021 + AMENDMENTS)

ALL WORK WILL CONFORM TO THE CURRENT OHIO BUILDING, MECHANICAL & PLUMBING CODES, AS WELL

TESTING REQUIRED FOR CONTROLLED INSPECTIONS AS STIPULATED BY ALL APPLICABLE CODES.

THE CONTRACTOR WILL ASSUME FULL RESPONSIBILITY, INCLUDING RESPONSIBILITY FOR ALL RELATED COSTS FOR ANY AND ALL WORK DONE WITHOUT THE APPROVAL OF THE ARCHITECT IF SUCH WORK IS IN CONFLICT WITH THE CONTRACT, DRAWINGS, OR SPECIFICATIONS. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE SAFE WORKING CONDITIONS AT THE SITE. THE ARCHITECT AND OWNER WILL NOT BE DEEMED TO HAVE ANY RESPONSIBILITY OR LIABILITY IN CONNECTION HEREWITH.

CONSTRUCTION OPERATIONS WILL NOT INVOLVE INTERRUPTION OF HEATING, WATER, ELECTRICAL, OR OTHER SERVICES TO ANY PORTION OF THE BUILDING OUTSIDE THE LIMITS OF THE CONSTRUCTION SITE. THE CONTRACTOR WILL BE RESPONSIBLE FOR CORRECTING ANY DEFICIENCIES CUASED BY DEFECTIVE OR ILL TIMED WORK AT NO ADDITIONAL COST TO THE OWNER.

CONTRACTOR TO MAINTAIN FULL SET OF PLANS AND INSTALLATION INSTRUCTIONS ON SITE. PERFORM VISUAL INSPECTION OF ENVELOPE AND INSULATION TO MEET 2021 IECC, 402.5.1.5 "BUILDING ENVELOPE PERFORMANCE VERIFICATION" ITEM 2

### PROJECT INFORMATION

TWO STORY COMMERCIAL ADDITION TO AN EXISTING HISTORIC STRUCTURE.

COUNTY: PARCEL #: 3200737 ACRES: DISTRICT: 5 - VILLAGE CORE DISTRICT HISTORIC DISTRICT

FRONT YARD: A MIN. OF 75% OF THE FRONT WALL SHALL BE BUILT TO THE EDGE OF THE FRONT 10', EXCEPT WHEN ABUTTING A RESIDENTIAL USE THEN IT'S 20' 0', EXCEPT WHEN ABUTTING A RESIDENTAIL

USE THEN IT'S 15'. MAX HEIGHT: ACTUAL HEIGHT: 23'-11"

CONSTRUCTION TYPE: V-B

OFFICE = 1 SPACE / 400 SF, AND 1 SPACE FOR EACH 250 SF AS MAX. PERMITTED PARKING REQUIRED = 2 SPACES

# **GROSS ADDITION BUILDING AREAS:**

	SQUARE FOOTAGE	
FLOOR	AF	₹E
FIRST FLOOR		5
SECOND FLOOR		5
	1,097	7

#### ALLOWABLE BUILDING AREA: 9,000 SF, NOT SPRINKLED

BUSINESS/OFFICE AREA = 150 GROSS FIRST FLOOR: 572 / 150 = 4 OCCUPANTS SECOND FLOOR: 525 / 150 = 4 OCCUPANTS TOTAL = 8 OCCUPANTS SECTION 1017.2: EXIT ACCESS TRAVEL DISTANCE FOR

OCCUPANCY, NOT SUPRESSED IS 200'

### DRAWING INDEX

### \* DENOTES SHEETS PRINTED IN COLOR

\*G1.00 COVER SHEET

C1.00 SITE PLAN C1.01 SWM PLAN

> C1.02 CALCULATIONS C1.03 CALCULATIONS

AS1.00 SITE PHOTOS AS1.01 ARCHITECTURAL SITE PLAN

L0.01 LANDSCAPE PLAN L0.02 LANDSCAPE PLANTING DETAILS L0.03 LANDSCAPE SPECIFICATIONS

L0.04 LANDSCAPE SPECIFICATIONS L0.05 LANDSCAPE SPECIFICATIONS

L0.06 LANDSCAPE SPECIFICATIONS L0.07 LANDSCAPE SPECIFICATIONS L0.08 LANDSCAPE SPECIFICATIONS

A1.01 FLOOR PLANS

A3.00 EXTERIOR ELEVATIONS

A4.00 BUILDING SECTIONS

A5.00 SPECIFICATIONS A5.01 SPECIFICATIONS

VARIANCE SET 04-17-2025

PLANNING COMMISSION09-15-2025

04-01-2025

PROJECT #: 2501

AHBR REVIEW

ISSUE:

Peninsula

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PROGRESS NOT FOR

**CONSTRUCTION** 

9/16/2025

PENINSULA ARCHITECTS

**GUTOSKEY AND ASSOCIATES** 

**ORAVEC DESIGN BUILD** 

PROJECT TEAM:

CIVIL ENGINEER:

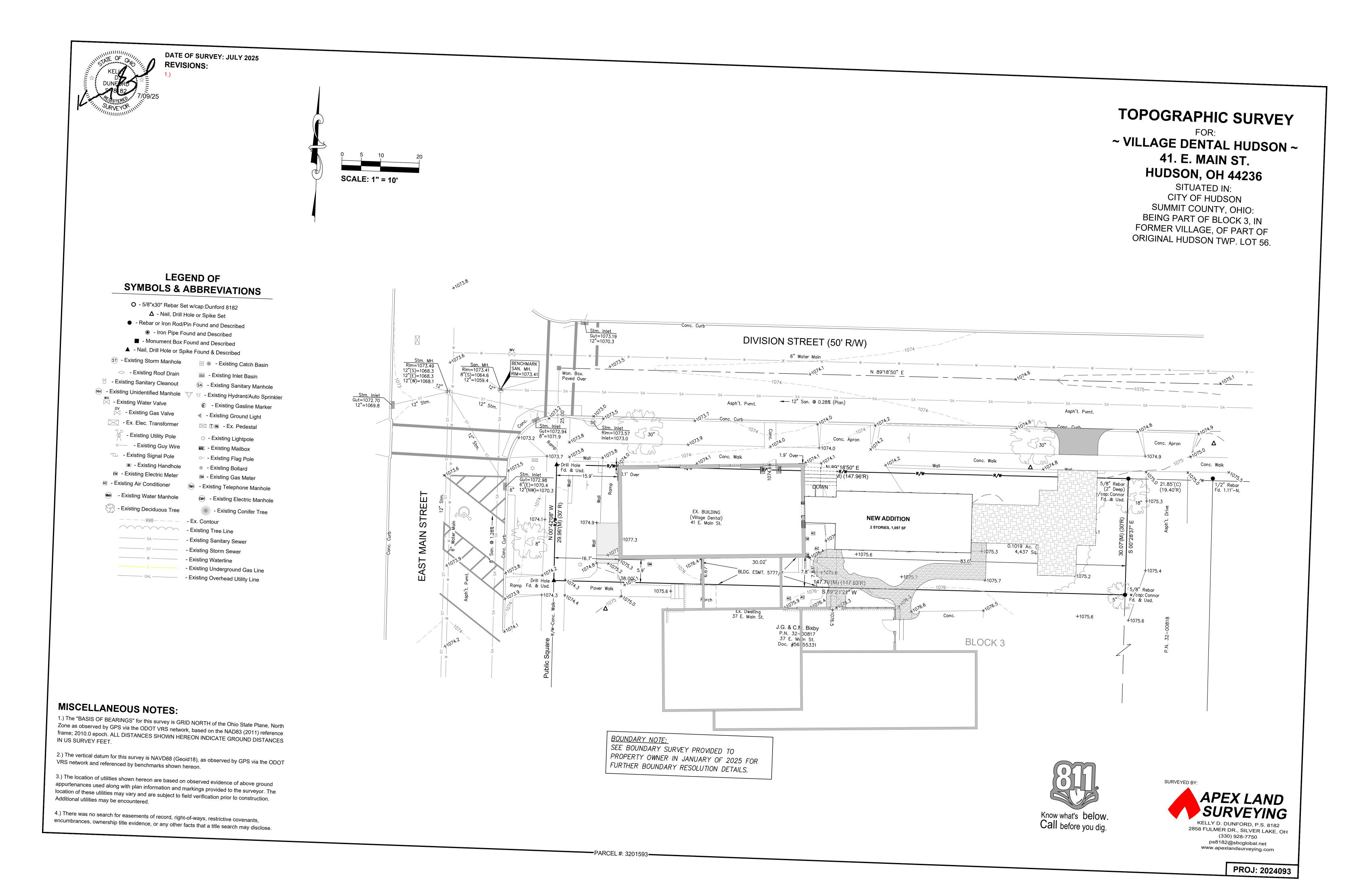
MEP ENGINEER: **DENK ASSOCIATES** 

**P** 216.531.8880

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**COVER SHEET** 

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PROGRESS NOT FOR CONSTRUCTION 9/16/2025

PROJECT TEAM:

PENINSULA ARCHITECTS

CIVIL ENGINEER:
GUTOSKEY AND ASSOCIATES
P 406.543.6900

STRUCTURAL ENGINEER:
ORAVEC DESIGN BUILD
P 330.552.8211

MEP ENGINEER:

**DENK ASSOCIATES P** 216.531.8880

VILLAGE DENTAL 41 E. MAIN STREET, HUDSON, OH 44236

PROJECT #: 2501

ISSUE:

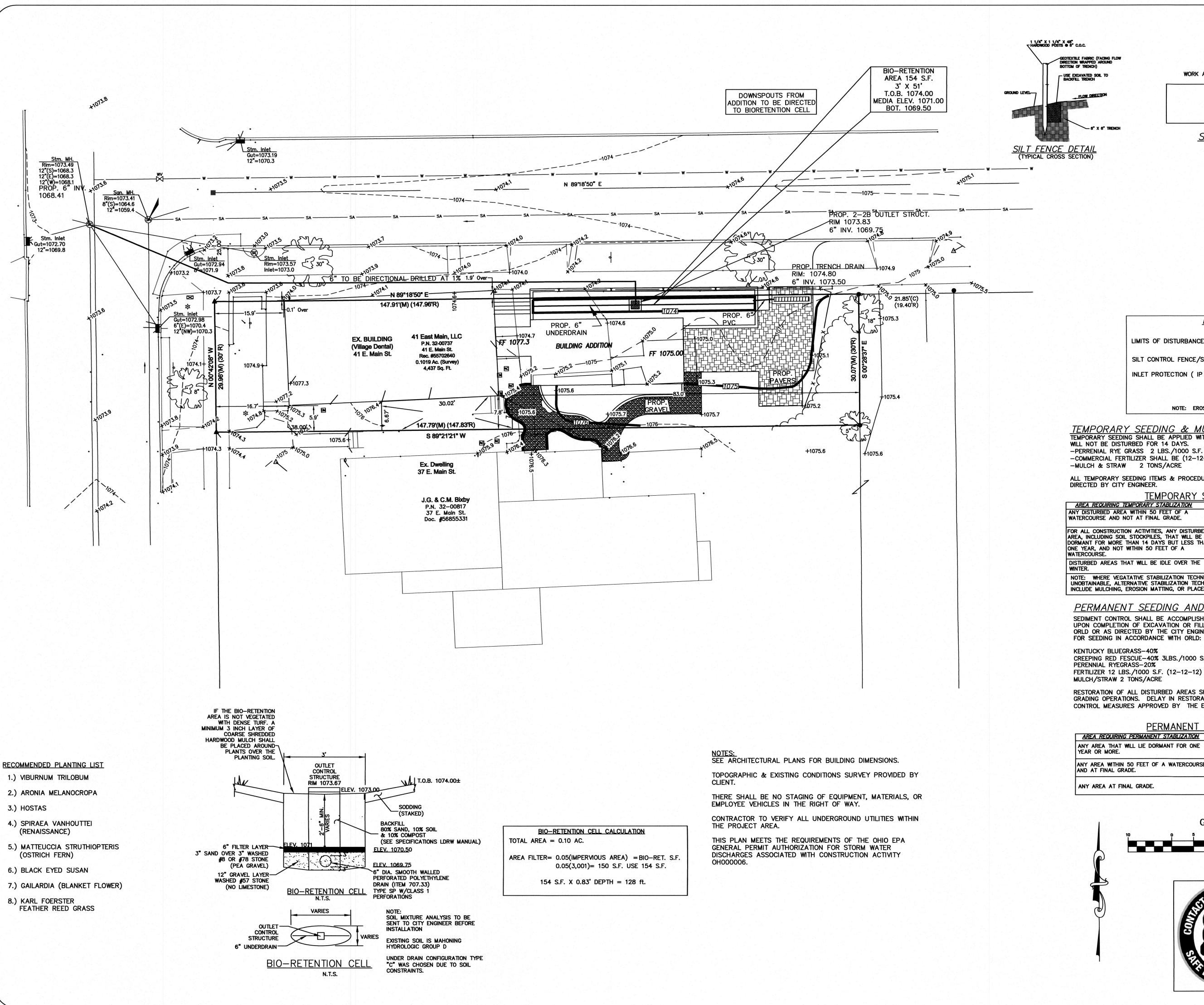
AHBR REVIEW 04-01-2025

VARIANCE SET 04-17-2025

PLANNING COMMISSION09-15-2025

SITE PLAN

C1.00



STAKES PLACED 10' ON FILTER SOCK (8",9",OR 12" TYPICAL) **PROTECTED** 

SILT SOCK DETAIL (TYPICAL CROSS SECTION)

<u>LEGEND</u>  $\sim$ LIMITS OF DISTURBANCE SILT CONTROL FENCE/SOCK ( SF ) <del>x x x x x x x</del> IP INLET PROTECTION ( IP )

NOTE: EROSION MEASURES ARE NOT SHOWN TO SCALE

TEMPORARY SEEDING & MULCHING (SEED MIX NO. 1)

TEMPORARY SEEDING SHALL BE APPLIED WITHIN SEVEN (7) DAYS ON ALL BARE AREAS THAT WILL NOT BE DISTURBED FOR 14 DAYS. -PERRENIAL RYE GRASS 2 LBS./1000 S.F.

-COMMERCIAL FERTILIZER SHALL BE (12-12-12) AND CONFORM TO ORLD 10 LBS./1000 S.F. -MULCH & STRAW 2 TONS/ACRE

ALL TEMPORARY SEEDING ITEMS & PROCEDURES SHALL CONFORM TO ORLD UNLESS OTHERWISE DIRECTED BY CITY ENGINEER.

TEMPORARY STABLIZATION

AREA REQUIRING TEMPORARY STABLIZATION	TIME FRAME TO APPLY EROSION CONTROLS
ANY DISTURBED AREA WITHIN 50 FEET OF A WATERCOURSE AND NOT AT FINAL GRADE.	WITHIN 2 DAYS OF THE MOST RECENT DISTURBANCE, IF THAT AREA WILL REMAIN IDLE FOR MORE THAN 14 DAYS.
FOR ALL CONSTRUCTION ACTIVITIES, ANY DISTURBED AREA, INCLUDING SOIL STOCKPILES, THAT WILL BE DORMANT FOR MORE THAN 14 DAYS BUT LESS THAN ONE YEAR, AND NOT WITHIN 50 FEET OF A WATERCOURSE.	WITHIN 7 DAYS OF OF THE MOST RECENT DISTURBANCE WITHIN THAT AREA.
DISTURBED AREAS THAT WILL BE IDLE OVER THE WINTER.	PRIOR TO NOVEMBER 1.
NOTE: WHERE VEGATATIVE STABILIZATION TECHNIQUE UNOBTAINABLE, ALTERNATIVE STABILIZATION TECHNIQUE INCLUDE MULCHING. EROSION MATTING. OR PLACEMEN	

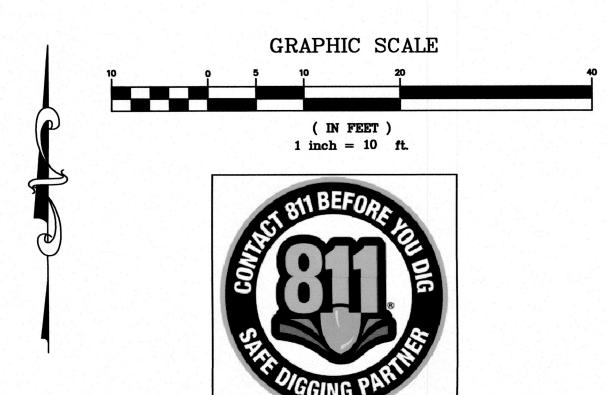
PERMANENT SEEDING AND MULCHING (SEED MIX NO. 2): SEDIMENT CONTROL SHALL BE ACCOMPLISHED BY SEEDING AND MULCHING IMMEDIATELY UPON COMPLETION OF EXCAVATION OR FILL AND FINISHED GRADING IN ACCORDANCE WITH ORLD OR AS DIRECTED BY THE CITY ENGINEER. THE FOLLOWING MIXTURES SHALL BE USED

KENTUCKY BLUEGRASS-40% CREEPING RED FESCUE-40% 3LBS./1000 S.F. PERENNIAL RYEGRASS-20% FERTILIZER 12 LBS./1000 S.F. (12-12-12) MULCH/STRAW 2 TONS/ACRE

RESTORATION OF ALL DISTURBED AREAS SHALL IMMEDIATELY FOLLOW EXCAVATION AND GRADING OPERATIONS. DELAY IN RESTORATION SHALL NECESSITATE TEMPORARY EROSION CONTROL MEASURES APPROVED BY THE ENGINEER AND AT THE CONTRACTOR'S COST.

#### PERMANENT STABLIZATION

AREA REQUIRING PERMANENT STABLIZATION	TIME FRAME TO APPLY EROSION CONTROLS
ANY AREA THAT WILL LIE DORMANT FOR ONE YEAR OR MORE.	WITHIN 7 DAYS OF OF THE MOST RECENT DISTURBANCE WITHIN THAT AREA.
ANY AREA WITHIN 50 FEET OF A WATERCOURSE AND AT FINAL GRADE.	WITHIN 2 DAYS OF REACHING FINAL GRADE.
ANY AREA AT FINAL GRADE.	WITHIN 7 DAYS OF REACHING FINAL GRADE WITHIN THAT AREA.





Revisions:

1 9/15/25

Date: <u>8/8/25</u> Scale: Hor. 1' = 10' Vert. \_\_\_\_\_ Filename: \_\_\_ Checked By:\_\_\_\_

F.B. No.:\_\_\_ Sheet

> CONTRACT No. 25 - 4246

Return Period: 25 Year

Monday, 09 / 15 / 2025

JOB VILLAGE CENTAL

U.S. Department of Agriculture Natural Resources Conservation Service

0 120 240 360 480 600 720 840 960 1080 1200 1320 1440 1560

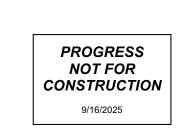
Hyd No. 1

FL-ENG-21A 06/04

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Description

1775 Main Street Peninsula, Ohio 44264



PROJECT TEAM:

PENINSULA ARCHITECTS

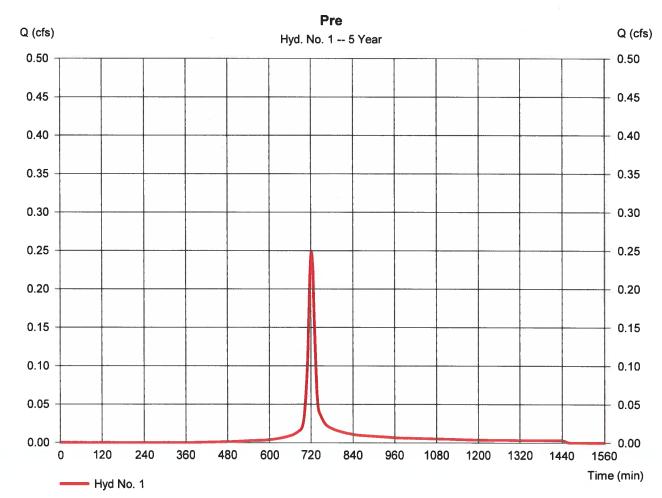
**GUTOSKEY AND ASSOCIATES** STRUCTURAL ENGINEER

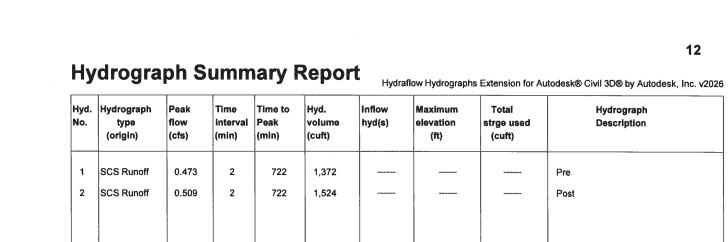
CIVIL ENGINEER: **P** 406.543.6900

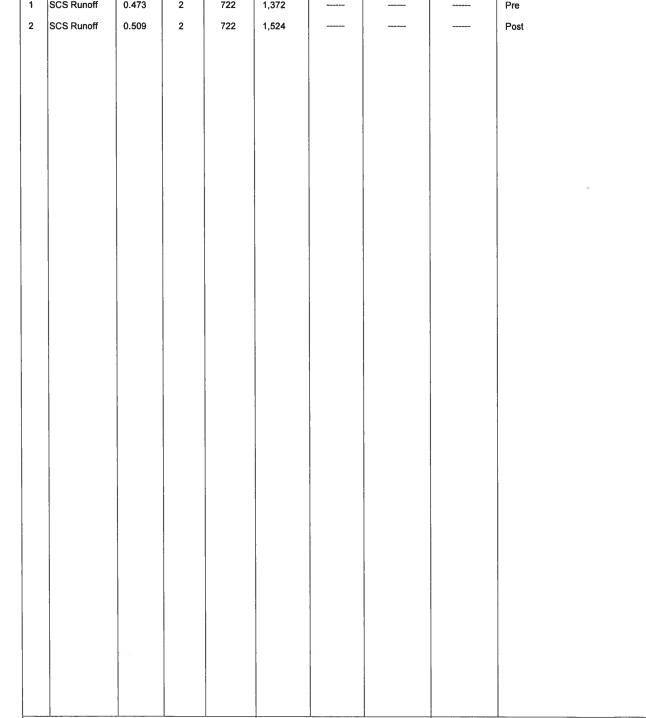
**ORAVEC DESIGN BUILD P** 330.552.8211 MEP ENGINEER: **DENK ASSOCIATES P** 216.531.8880

Monday, 09 / 15 / 2025 = 0.250 cfsPeak discharge = 722 min = 704 cuft Hyd. volume Curve number = 89 Hydraulic length = 0 ftTime of conc. (Tc) = 15.00 min Distribution Shape factor = 484

Monday, 09 / 15 / 2025







Return Period: 50 Year

Monday, 09 / 15 / 2025

0 120 240 360 480 600 720 840 960 1080 1200 1320 1440 1560

Hyd No. 1

PROJECT #: 2501 ISSUE: AHBR REVIEW 04-01-2025 VARIANCE SET 04-17-2025 PLANNING COMMISSION09-15-2025

**CALCULATIONS** 

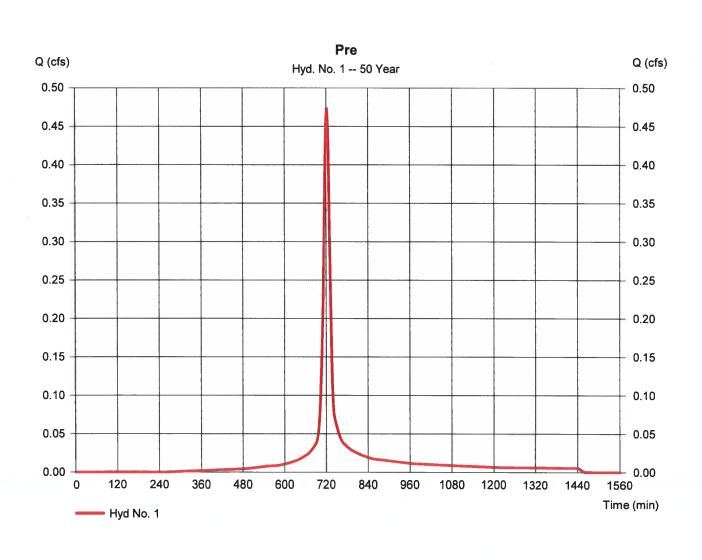
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Return Period: 10 Year

Monday, 09 / 15 / 2025

U.S. Department of Agriculture Natural Resources Conservation Service

Hydraflow Hydrographs Extensi	on for Autodesk® Civil 3D® by Autodesk, Inc	c. v2026	Monday, 09 / 15 / 202
Hyd. No. 1			
Pre			
Hydrograph type	= SCS Runoff	Peak discharge	= 0.473 cfs
Storm frequency	= 50 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 1,372 cuft
Drainage area	= 0.100 ac	Curve number	= 89
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 15.00 min
Total precip.	= 5.11 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description	
1	SCS Runoff	0.560	2	722	1,638				Pre	
2	SCS Runoff	0.594	2	722	1,796			_	Post	
		:								
									3	

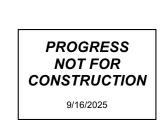
draflow Hydrographs Extensi	on for Autodesk® Civil 3D® by Autodesk, In	c. v2026	Monday, 09 / 15 / 202
yd. No. 1			
re			
ydrograph type torm frequency ime interval rainage area asin Slope c method otal precip. torm duration	= SCS Runoff = 100 yrs = 2 min = 0.100 ac = 0.0 % = User = 5.89 in = 24 hrs	Peak discharge Time to peak Hyd. volume Curve number Hydraulic length Time of conc. (Tc) Distribution Shape factor	= 0.560 cfs = 722 min = 1,638 cuft = 89 = 0 ft = 15.00 min = Type II = 484
	p	- 41	

Q (cfs)	Hyd. No. 1 100 Year	
1.00		
0.90		
0.80		
0.70		
0.70		
0.60		
0.50		
0.40		
0.30		
0.20		
0.10		
0.00		
0 120 2	240 360 480 600 720 840 960 1080 1200 1320	1440 150
Hyd No.	1	Tim

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PROJECT TEAM:

PENINSULA ARCHITECTS

CIVIL ENGINEER: GUTOSKEY AND ASSOCIATES P 406.543.6900

STRUCTURAL ENGINEER: ORAVEC DESIGN BUILD P 330.552.8211 MEP ENGINEER: **DENK ASSOCIATES P** 216.531.8880

PROJECT #: 2501 

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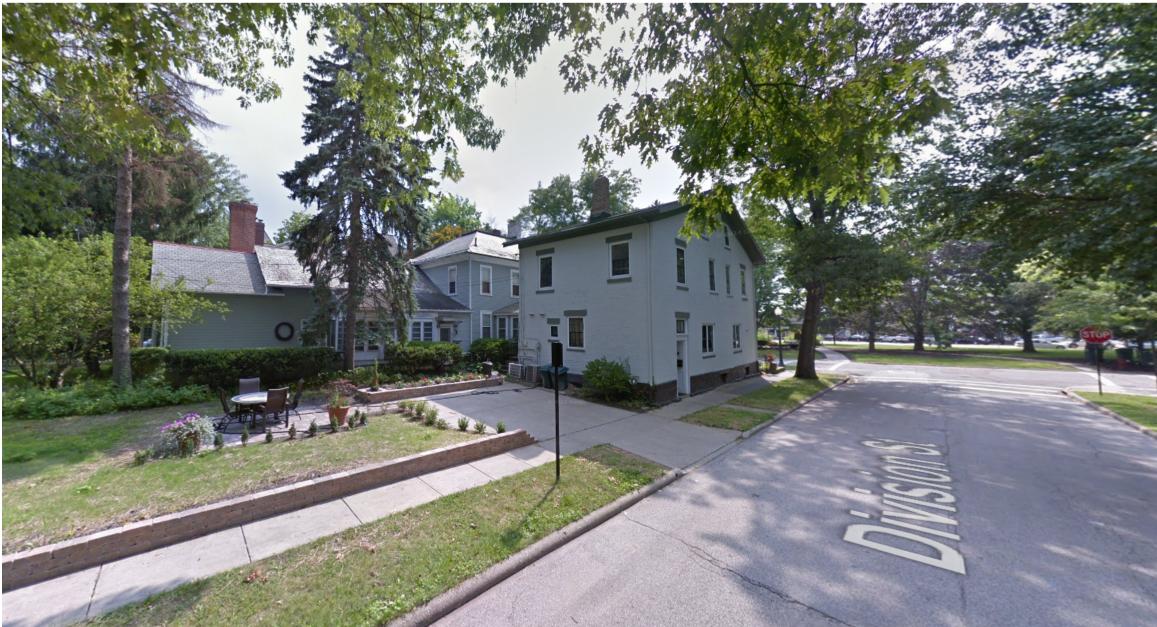
 VARIANCE SET
 04-17-2025

 PLANNING COMMISSION09-15-2025

CALCULATIONS



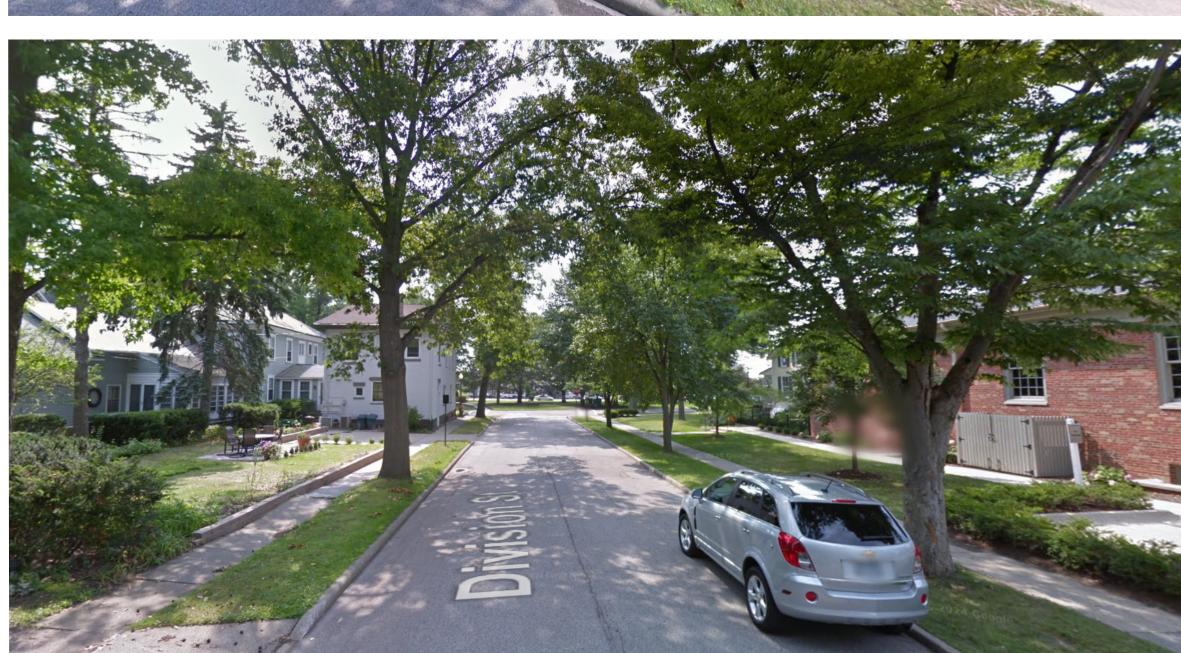


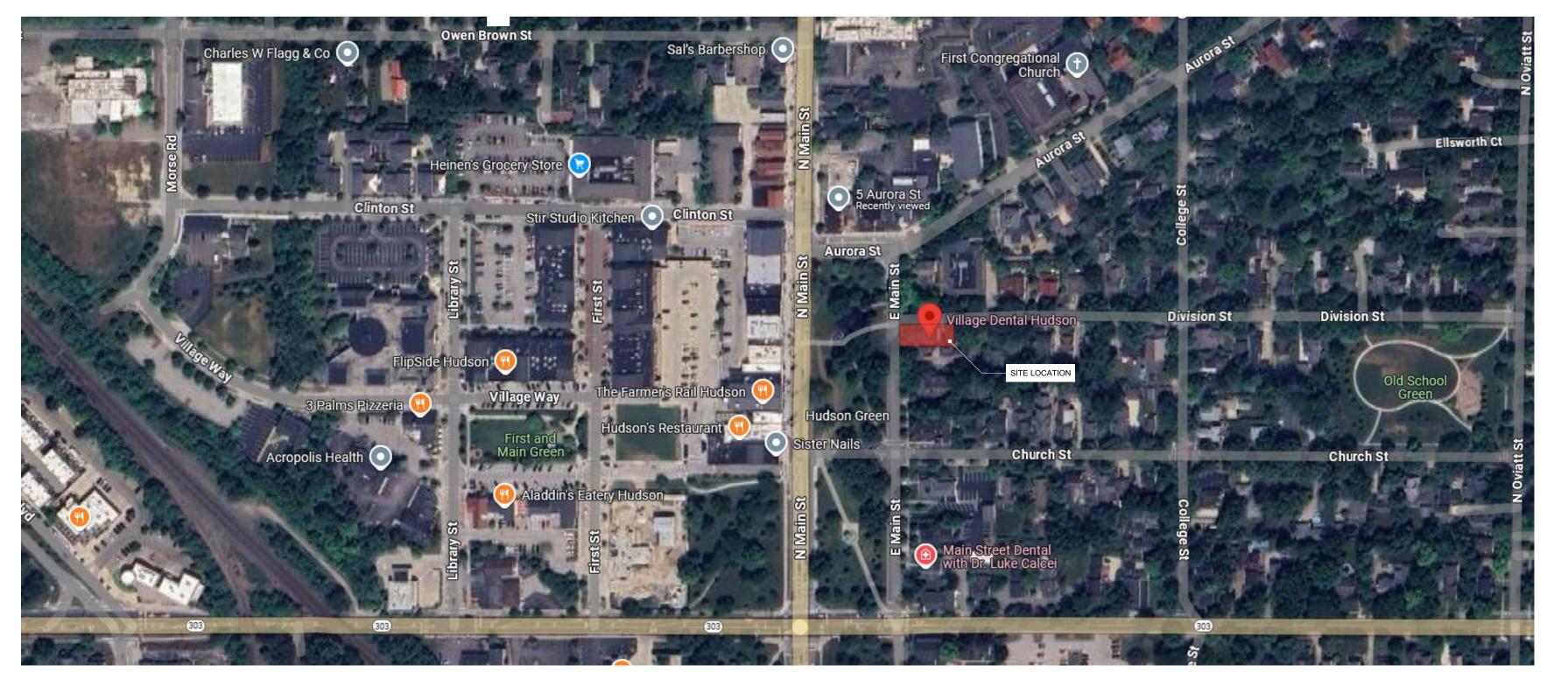












1 VICINITY MAP

NOT TO SCALE

ISSUE:

AHBR REVIEW 04-01-2025

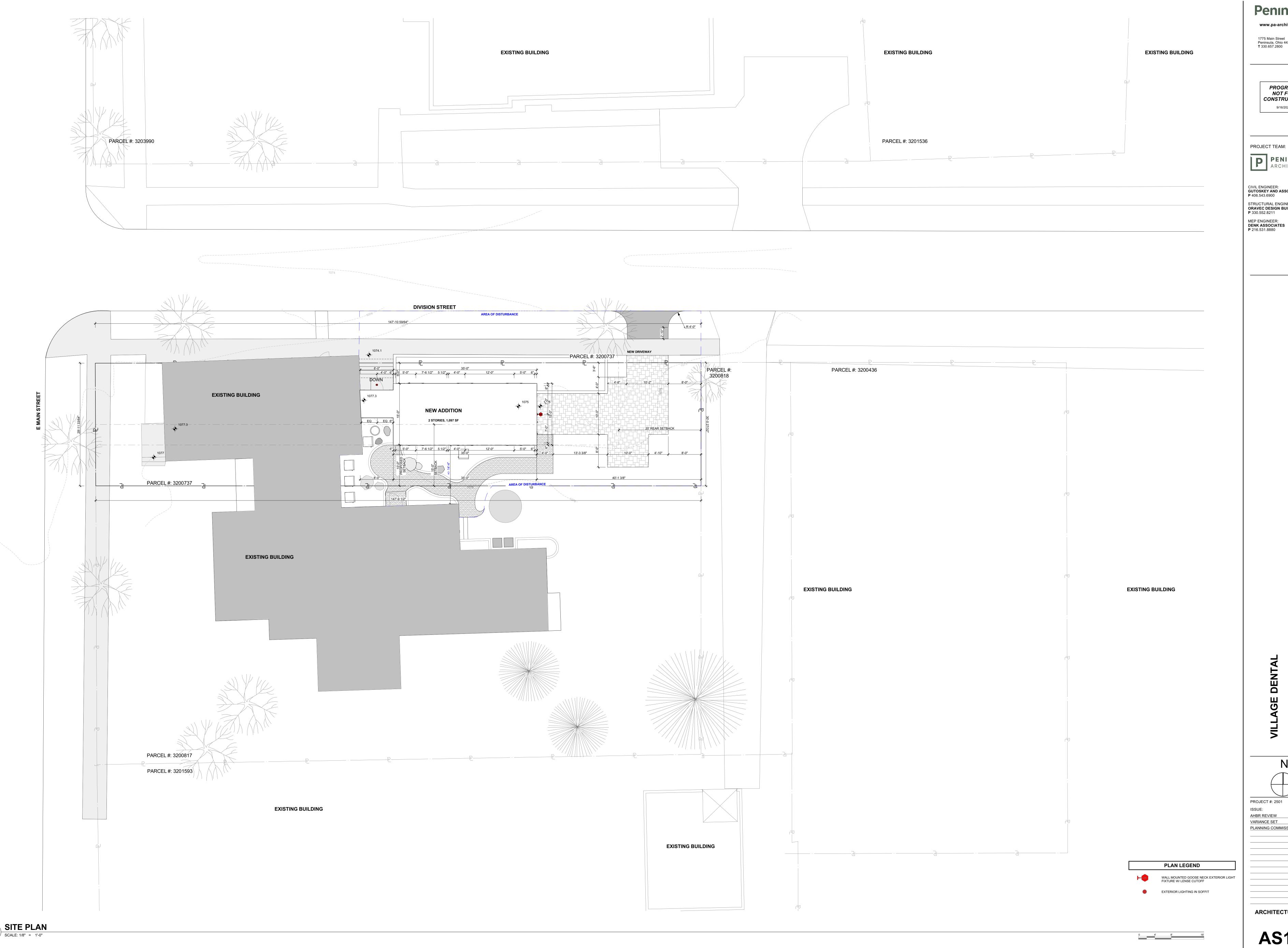
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SITE PHOTOS

AS1.00

0 1/2" 1" 2"



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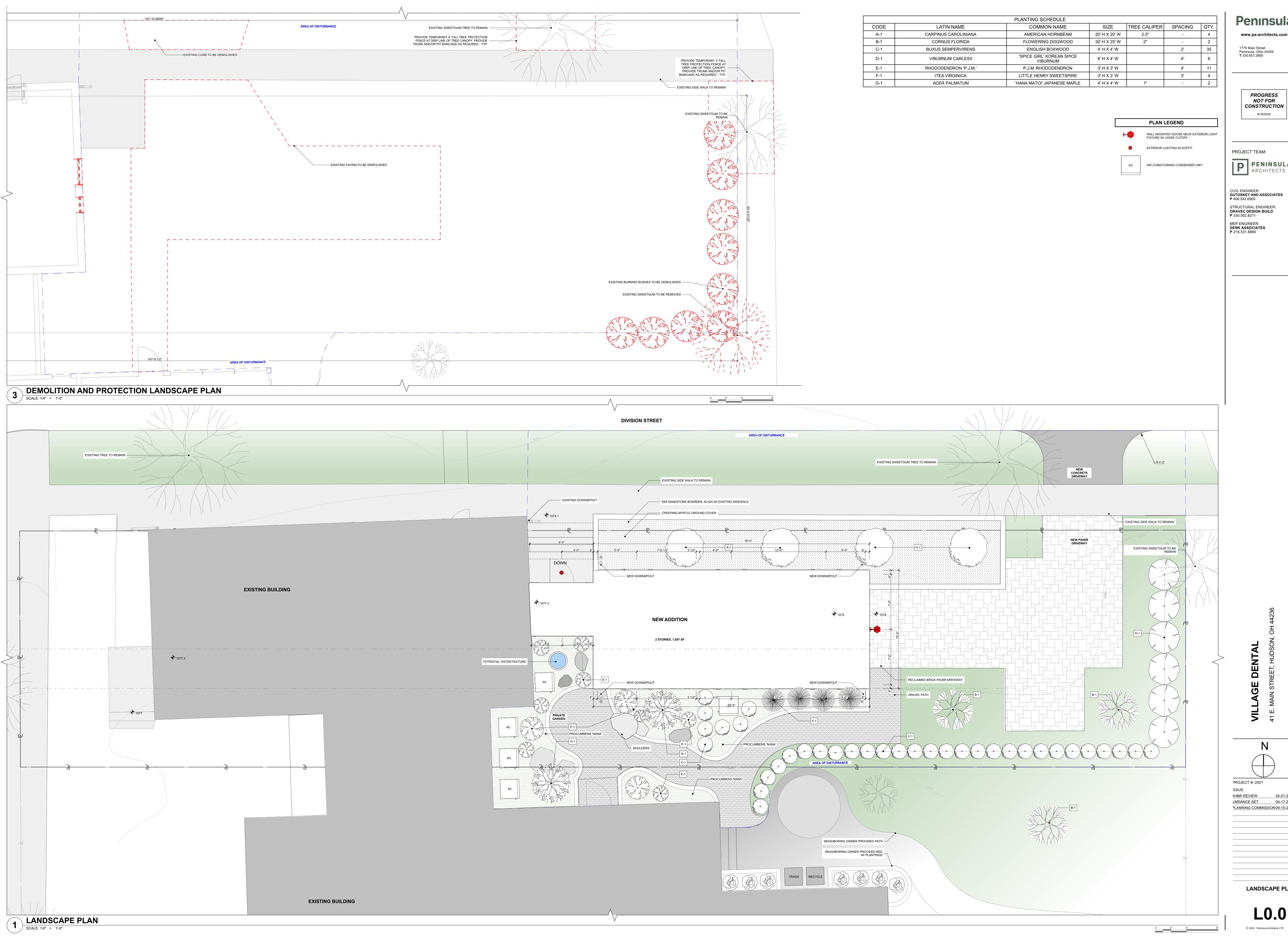
PROJECT TEAM:

PENINSULA ARCHITECTS

CIVIL ENGINEER: GUTOSKEY AND ASSOCIATES P 406.543.6900 STRUCTURAL ENGINEER: ORAVEC DESIGN BUILD P 330.552.8211

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ARCHITECTURAL SITE PLAN



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CIVIL ENGINEER: **GUTOSKEY AND ASSOCIATES** STRUCTURAL ENGINEER: ORAVEC DESIGN BUILD **P** 330.552.8211 MEP ENGINEER: **DENK ASSOCIATES** 

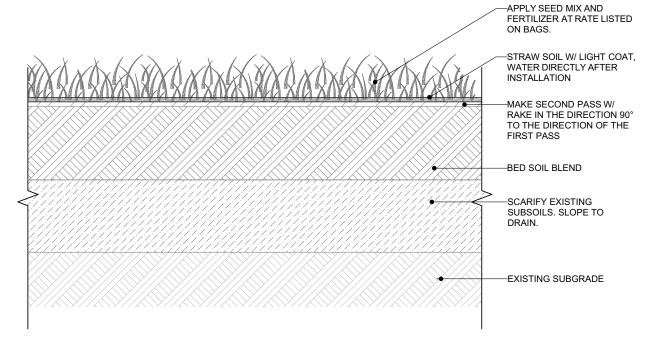
PROJECT #: 2501 
 AHBR REVIEW
 04-01-2025

 VARIANCE SET
 04-17-2025
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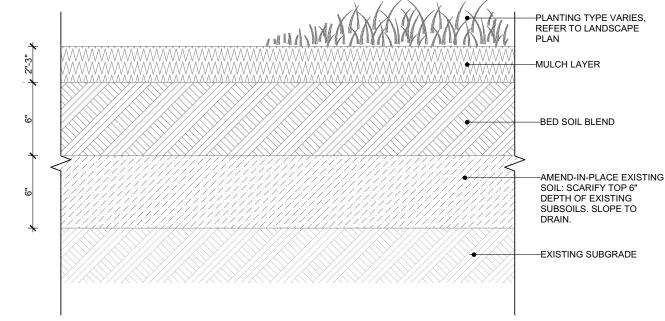
LANDSCAPE PLAN

L0.01

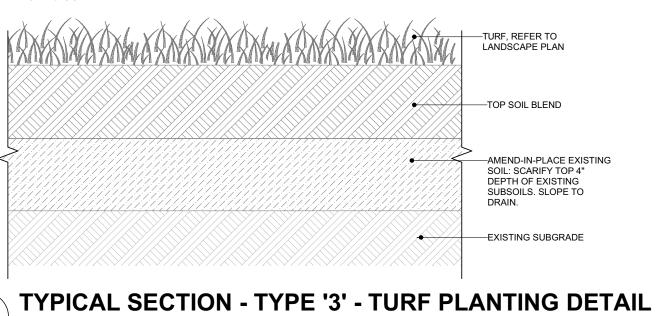
WALL MOUNT
(SEE MOUNTING PAGES FOR MORE OPTIONS & DIMENSIONS.)



## **TYPICAL SECTION - SEEDING LAWN DETAIL**



# **TYPICAL SECTION - TYPE '2' - PLANTING BED DETAIL**



CP at 0° (Nadir): 171

0° 10° 20°

55° 182 0° - 90° 905 99% 14.0°

WAREHOUSE SHADE

WILDLIFE FRIENDLY

1. CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS/BED PRIOR TO INSTALLATION. 2. IF PLANT IS SHIPPED W/A WIRE BASKET AROUND THE ROOTBALL, CUT THE WIRE BASKET IN FOUR PLACES AND FOLD DOWN (1/3 OR ROOTBALL HEIGHT) INTO PLANTING HOLE. 3. THE AMOUNT OF PRUNING SHALL BE LIMITED TO 1/3 OF THE BRANCHES TO COMPENSATE FOR LOSS OF ROOTS FROM TRANSPLANTING REMOVE DEAD AND INJURED LIMBS. REMOVE BURLAP AND WIRE OR TWINE FROM TOP AND SIDES OF BALL. CENTER SHRUB IN HOLE. SET

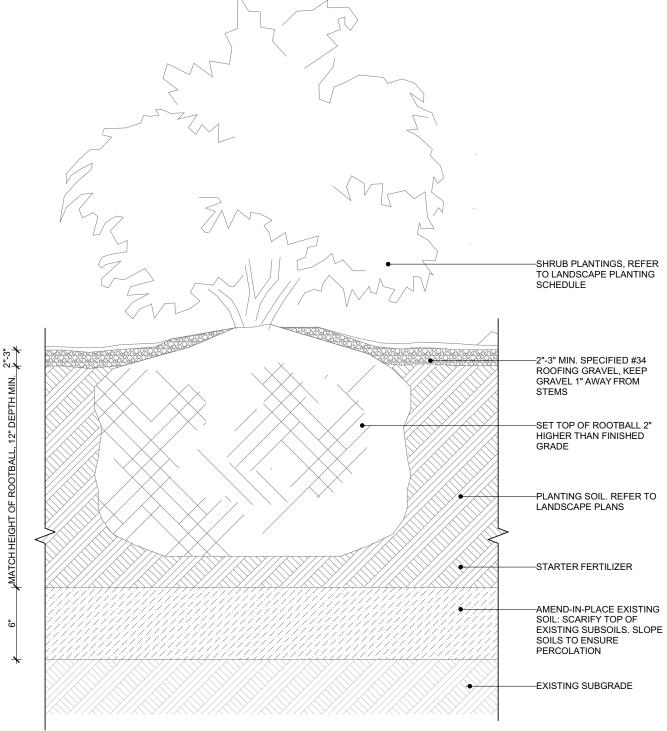
TOP OF BALL 1'-3" ABOVE FINISH GRADE.

NOT TO SCALE

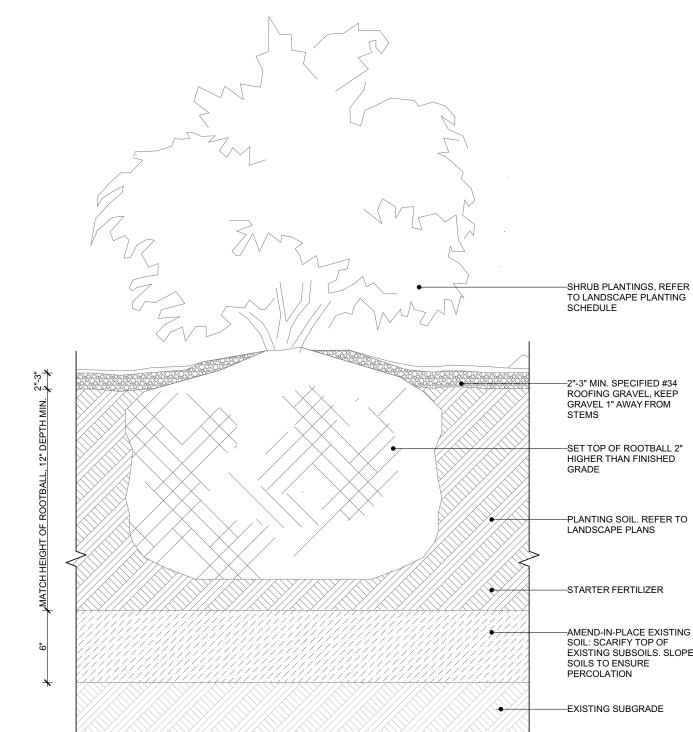
WS1611 TD10L 30K xx MF2 MWI

WS1611 TA5L AMB xx MF2 MWI

Delivered Lumens: 533 Luminaire Watts: 13.5







TYPICAL SECTION - SHRUB PLANTING DETAIL

WILDLIFE FRIENDLY / PHOTOMETRIC DATA

| Destance | Destance

WILDLIFE FRIENDLY LUMINAIRES

Beam Angle: 134° Spacing Ratio: 1.31

CRI: N/A, Amber



1. CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.

6. REMOVE ALL TWINE, ROPE, WIRE, AND BURLAP FROM THE TOP HALF OF THE ROOTBALL.

3. DO NOT HEAVILY PRUNE THE TREE AT PLANTING. PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS, AND BROKEDN OR DEAD BRANCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED, HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF

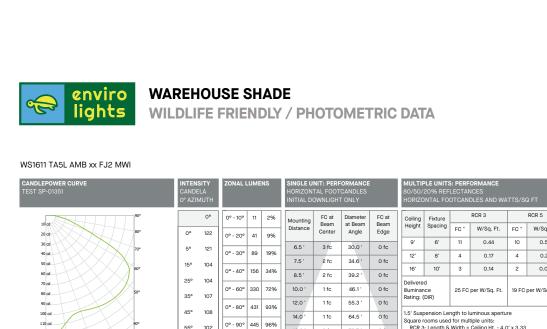
4. MARK THE NORTH SIDE OF THE TREE IN THE NURSERY, AND ROTATE THE TREE TO FACE NORTH AT THE SITE WHENEVER POSSIBLE. 5. IF PLANT IS SHIPPED W/ A WIRE BASKET AROUND THE ROOT BALL, CUT THE WIRE BASKET IN FOUR PLACES AND FOLD FOWN (8") INTO

7. SET TREE FLUME IN FLANTING FIT.

8. EACH TREE MUST BE PLANTED SUCH THAT THE TRUNK FLARE IS VISIBLE AT THE TOP OF THE ROOT BALL.TREES WHERE THE TRUNK
FLARE IS NOT VISIBLE SHALL BE REJECTED. DO NOT COVER THE TOP OF THE ROOT BALL WITH SOIL.

2. FINAL TREE STAKING PLACEMENT TO BE APPROVED BY OWNER.

THE PLANTING HOLE.



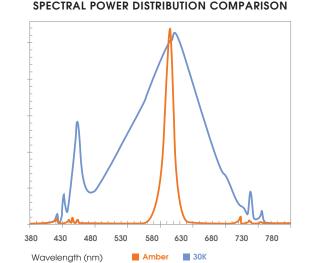
WS1611 TD10L 30K xx FJ2 MWI										
CANDLEPOWER CURVE TEST SP-01354	INTENS CANDE O° AZIM	LA	ZONAL I	LUME	:NS	SINGLE U HORIZON INITIAL DO	TAL FOOT			N 8 H
90°		0°	0° - 10°	20	3%	Mounting	FC at Beam	Diameter at Beam	FC at Beam	
25lcd 80°	0°	220	0° - 20°	71	10%	Distance	Center	Angle	Edge	II.
50 cd 70°	5°	214	0° - 30°	152	21%	6.5 '	5 fc	28.5 '	0 fc	Iŀ
75 cd.	15°	180				7.5 '	4 fc	32.8	0 fc	H
	25°	175	0° - 40°	264	36%	8.5 '	3 fc	37.2 '	0 fc	H
125 cd 50°			0° - 60°	546	74%	10.0 '	2 fc	43.8 '	0 fc	ľ
150 cd	35°	178	0° - 80°	707	95%	12.0 '	2 fc	52.6 '	0 fc	ľ
175 cd 60°	45°	176	-			14.0 '	1 fc	61.3 '	0 fc	1
200 cd	55°	164	0° - 90°	726	98%	16.0 '	1 fc	70.1 '	0 fc	11
0° 10° 20° 30°	90°	8	Total	741	100%	20.0	1 fc	87.6	0 fc	H.



These products comply with the Florida Fish and Wildlife Conservation Commission guidelines and feature Amber LEDS, which are monochromatic with a narrow spectral bandwidth that only emits wavelengths between 560 and 625 nanometers. These products also comply with IDA Dark Sky approved criteria with employing warm tones and full shielding. They feature a static amber illumination or an optional 2-circuit led system. Circuit 1 produces 3000 Kelvin at 1000 lumens using white light 3-step MacAdam ellipse binning with 80+ cri and the second circuit is amber only at 500 lumens.



conscious products were an official selection for the 2020 IES progress report.





The use of a dual circuit system allows for optional use of the amber light. For example with sea turtle nesting areas, amber light is not necessary for the entire year and can be switched from white light to amber light during nesting season for deep night illumination.

PROPRIETARY 2-CIRCUIT LED SYSTEM

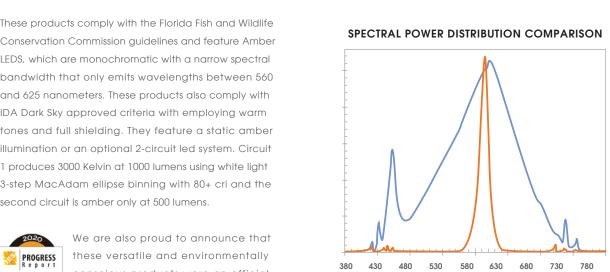


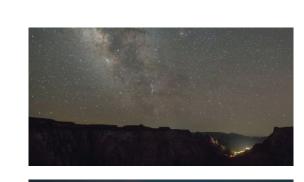
1 Circuit - Static The base products are offered with a static (590 nm) (17K) LED system for constant amber illumination. more consistent amber.

The second and more advanced option has a dual programmable control systems.

DLEPOWER CURVE I SP-01351	CA	INTENSITY CANDELA O° AZIMUTH		ZONAL LUMENS			SINGLE UNIT: PERFORMANCE HORIZONTAL FOOTCANDLES INITIAL DOWNLIGHT ONLY				MULTIPLE UNITS: PERFORMANCE 80/50/20% REFLECTANCES HORIZONTAL FOOTCANDLES AND WATTS/SQ FT					
90		0°	0° - 10°	11	2%	Mounting	FC at	Diameter	FC at	Ceiling			RCR 3		RCR 5	
10 cd 80		0° 122	0° - 20°	41	9%	Distance	Beam Center	at Beam Angle	Beam Edge	Height	Spacing	FC +	W/Sq. Ft.	FC +	W/Sq. I	
30 cd		5° 121			-	6.5 '	3 fc	30.0 '	0 fc	9,	6'	11	0.44	10	0.54	
40 cd			0° - 30°	89	19%	7.5 '	2 fc	34.6 '	0 fc	12'	8'	4	0.17	4	0.21	
50 cd 60 cd	,	5° 104	0° - 40°	156	34%	8.5	2 fc	39.2	0 fc	16'	10'	3	0.14	2	0.09	
70 cd		.5° 104	0° - 60°	330	72%	10.0 '	1 fc	46.1	0 fc	Delivere		25.50	per W/Sq. Ft.	10.50	per W/Sq.	
80 cd 50°	3	5° 107		000	7270	12.0 '	1 fc	55.3	0 fc	Rating: (		25 FG	per w/oq. rt.	19 FC	per w/oq.	
90 cd	4	5° 108	0° - 80°	431	93%					1.5' Suspension Length to luminous aperture						
110 cd 40°	۔ ا	5° 102	0° - 90°	445	96%	14.0 '	1 fc	64.5 '	0 fc	Square rooms used for multiple units:  RCR 3: Length & Width = Ceiling Ht 4.0' x 3.33  RCR 5: Length & Width = Ceiling Ht 4.0' x 2.00						
120 cd	l °	102				16.0 '	0 fc	73.7 '	0 fc							
0° 10° 20° 30°	9	0° 8	Total	462	100%	20.0 '	0 fc	92.2 '	0 fc	+ Avera	ge Initial F	ootcand	les at 2.5' Abov	e Floor		
Delivered Lumens: 462	CP at 0° (Na	adir): 122			F	Beam Angle:	133°		Lumen	Multiplier:	N/A					
Luminaire Watts: 13.5						acing Ratio:				Multiplier:						
LER: 34.22		CRI: N/A	Amber													

ANDLEPOWER CURVE IST SP-01354	CAND	INTENSITY CANDELA O° AZIMUTH		ZONAL LUMENS			SINGLE UNIT: PERFORMANCE HORIZONTAL FOOTCANDLES INITIAL DOWNLIGHT ONLY				MULTIPLE UNITS: PERFORMANCE 80/50/20% REFLECTANCES HORIZONTAL FOOTCANDLES AND WATTS/SQ FT					
90°		0° 0° - 10° 20 3% Mountin		Mounting	FC at	Diameter	FC at	Ceiling	Fixture		RCR 3		RCR 5			
25 cd 80°	0°	220	0° - 20°	71	10%	Distance	Beam Center	at Beam Angle	Beam Edge	Height	Spacing	FC +	W/Sq. Ft.	FC +	W/S	
50 cd 70°	5°	214	0 -20		10 /0	6.5 '	5 fc	28.5 '	0 fc	9'	6'	18	0.44	17	0.	
75 cd	50	214	0° - 30°	152	21%	7.5 '	4 fc	32.8	0 fc	12'	8'	7	0.17	7	0.	
100 cd	15°	180	0° - 40°	264	36%					16'	10'	6	0.14	3	0.	
125 cd 50°	25°	175	0 -40	204	30 /0	8.5 '	3 fc	37.2 '	0 fc	Delivere	alivarad					
			0° - 60°	546	74%	10.0 '	2 fc	43.8 '	0 fc	Illuminan	ice	41 FC per W/Sq. Ft. 31 FC		31 FC	1 FC per W/S	
150 cd	35°	178	0° - 80°	707	95%	12.0 '	2 fc	52.6 '	0 fc	Rating: (	DIR)					
175 cd 40°	45°	176	080-	707	95%	14.0	1 fc	61.3	0 fc	1.5' Suspension Length to luminous aperture				ıre		
200 cd	55°	164	0° - 90°	726	98%	16.0	1 fc	70.1	O fc		ooms used : Length &		tiple units: Ceiling Ht 4.	0' x 3.33	3	
225 cd			-			16.0	TIC	70.1	O IC	RCR 5: Length & Width = Ceiling Ht 4.0' x 2.00						
0° 10° 20° 30°	90°	90° 8 Total 741 100		741	100%	20.0 '	1 fc	87.6 '	0 fc	+ Avera	ge Initial Fo	ootcandles at 2.5' Above Floor				







This looks like classic high pressure sodium but with a 2 Circuit - Dynamic/Switchable

LANDSCAPE PLANTING **DETAILS** 

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PROJECT #: 2501

AHBR REVIEW

VARIANCE SET 04-17-2025

PLANNING COMMISSION09-15-2025

04-01-2025

ISSUE:

Peninsula

www.pa-architects.com

**PROGRESS** NOT FOR

CONSTRUCTION

9/16/2025

PENINSULA ARCHITECTS

**GUTOSKEY AND ASSOCIATES** 

STRUCTURAL ENGINEER **ORAVEC DESIGN BUILD** 

ARCHITECTS

1775 Main Street

**T** 330.657.2800

PROJECT TEAM:

CIVIL ENGINEER:

**P** 406.543.6900

**P** 330.552.8211

MEP ENGINEER:

**P** 216.531.8880

-ROOTBALL (SIZE VARIES)

REFER TO PLANTING

SCHEDULE

STARTER FERTILIZER

-COMPACTED FILL SOIL MIX, DEPTH VARIES BASED ON

—AMEND-IN-PLACE EXISTING SOIL: SCARIFY TOP 6" DEPTH OF EXISTING

SUBSOILS. SLOP TO DRAIN.

ROOT BALL DEPTH

----EXISTING SUBGRADE,

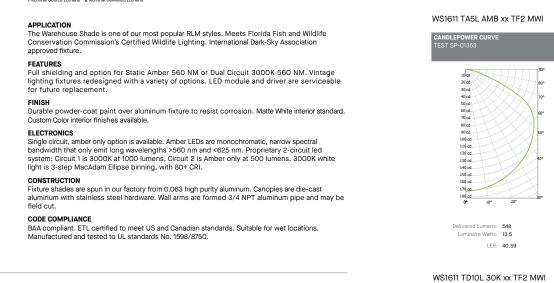
BED INSTALLATION

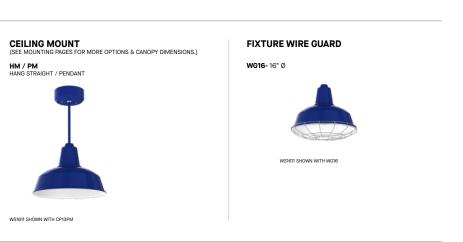
BED SOIL BLEND

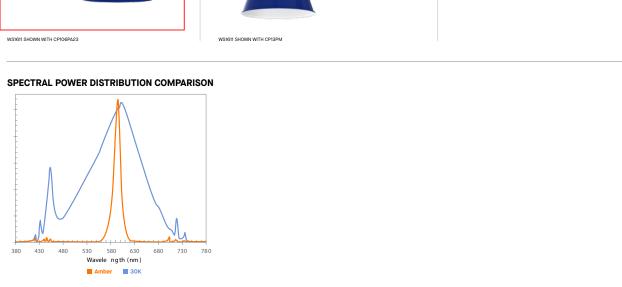
**DENK ASSOCIATES** 

Peninsula, Ohio 44264

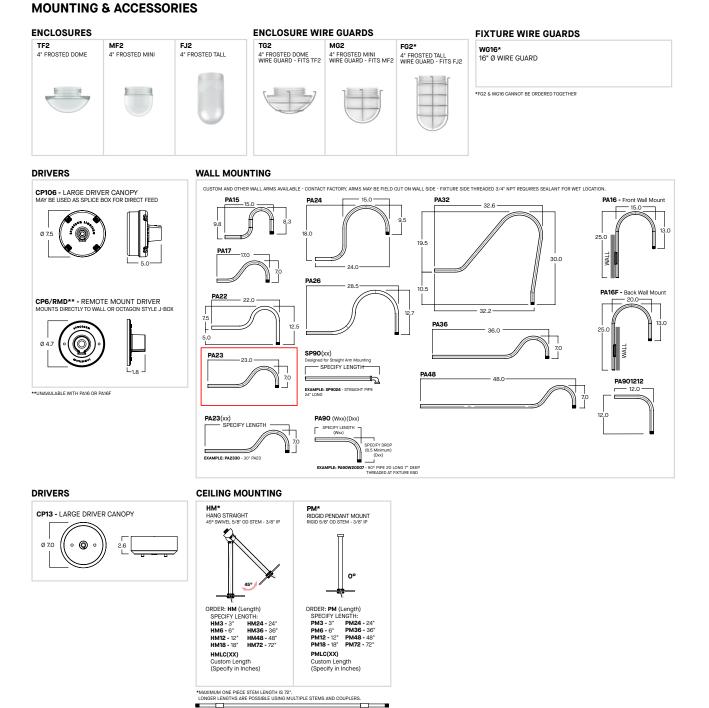
NOT TO SCALE WAREHOUSE SHADE WILDLIFE FRIENDLY / PHOTOMETRIC DATA 1 Nominal Source Lumens 2 Nominal Delivered Lumens WS1611 TA5L AMB xx TF2 MWI **APPLICATION**The Warehouse Shade is one of our most popular RLM styles. Meets Florida Fish and Wildlife Conservation Commission's Certified Wildlife Lighting. International Dark-Sky Association approved fixture. HOUSING DIMENSIONS 







■ Amber ■ 30K		TF2 4" FROSTED DOME	MF2 4" FROSTED MINI	FJ2 4* FROSTED TALL	4" FRO WIRE G
	Spectrum Lighting				
SPECLIGHT.COM · 994 JEFFERSON ST. FALL RIVER, MA 02721 · 508.678.2303	ILLUMINATING WHAT'S POSSIBLE.				
Dimensions and values shown are nominal. Spectrum Lighting continually works to improve products and reserves the right to make changes which	may alter the performance or appearance of products. 83-50106_RE				
		DRIVERS		WALL MO	UNTING
		CP106 - LARGE DRI MAY BE USED AS SPLICE		CUSTOM AND O	OTHER WALL ARMS



SPECLIGHT.COM · 994 JEFFERSON ST. FALL RIVER, MA 02721 · 508.678.2303 ILLUMINATING WHAT'S POSSIBLE Dimensions and values shown are nominal. Spectrum Lighting continually works to improve products and reserves the right to make changes which may alter the performance or appearance of products.

eggs are laid in the summer on warm sandy beaches. When the eggs hatch, the baby sea turtles all rise from the sand during a very specific time frame between 9pm and 5am. The reason sea turtles hatch at night is to not only avoid predators but so they can use the moons reflections in the water to guide them to the sea where they will spend the rest of their lives. Using artificial light near these nesting areas causes



Another similar case is that of birds that hunt or

migrate at night and use the moon and stars to

navigate. Artificial light can cause disorientation

leading birds off course and possibly cause early

or late migrations disrupting nesting and foraging.

Consistently every year, many birds also die simply

by crashing into buildings or structures that are

For this reason we at Spectrum Lighting are proud

to present our all new Envirolights product group.

Our team has worked hard over the last few years

to provide lighting solutions to aid places around

the country like Florida and its significant marine

turtle conservation effort or places like Grand

Canyon National Park which was officially certified

as an International Dark Sky Park in 2019.

unnecessarily lit or overly lit.

these hatchlings to get confused about whether to follow the artificial light or the moon light causing some to be led away from the ocean possibly causing them to die.

The invention of artificial lighting introduced endless

possibilities for the future of our planet. The issue

with artificial lighting, however is that in some cases

it can have a big environmental impact on the

natural world and the environment. Many animals

are disoriented or unnecessarily drawn to artificial

light, even plants and insects can be negatively

affected. Light pollution is also caused by excessive

or inefficient artificial light. Our new wildlife and dark

sky friendly Envirolights product group was designed

One specific case is sea turtle hatchlings. Sea turtle

to help resolve these issues.

WAREHOUSE SHADE

WILDLIFE FRIENDLY

WS1611 MWI - Matte White BL - Blue Streak

**TA5L** 500 Lm **AMB** >560 NM

TD10L CIR 1 1000 Lm | 30K 3000K

EXAMPLE: WS1611TD10L30KDX/TF2/CP13PM36/MWIPT

SPECLIGHT.COM · 994 JEFFERSON ST. FALL RIVER, MA 02721 · 508.678.2303

Amber Only

at 3000K

CIR 2 500 Lm Amber Only

RIES LUMENS<sup>1</sup> CCT DRIVER / DIMMING<sup>3</sup> ACCESSORIES MOUNTING<sup>5</sup> INTERIOR<sup>10</sup> FINISH<sup>10</sup>

FJ2 4" Frosted Tall

FG2 4" Tall Wire Guard

See 2<sup>nd</sup> Page for

Nominal Source Luments 2 I I I / Luka Circuit Option Requires Dedicated on site Controls by Others, Controls by Others, and Allow Both circuits to be ±nergized similarineously, Consult Factory for More formation 3 Contract Factory for Additional Options 4 Standard Enclosure 5 See Mounting Page of I validable Arm Options 7 Specify ength in Inches: See Mounting Page for Available Lengths 8 Intended for Outdoor Covered Celling Applications Only 9 Not for Use in Locations with Wind Exposure 10 Reference Color Sheet Located on roduct Webpage for Full List of Available Colors/Consult Factory for Special Finishes 1 Standard Finishes

Dimensions and values shown are nominal. Spectrum Lighting continually works to improve products and reserves the right to make changes which may alter the performance or appearance of products.

WALL MOUNT

CEILING MOUNT

CP13 Large Driver Canopy

PM<sup>7/8</sup> Rigid Pendant Mount

DS2W1 ELV/MLV, 120V TG2 4" Dome Wire Guard CP6/RMD Remote Mount Driver FCI Fixture Color PT" Platinum Silver

MG2 4" Short Wire Guard PA\_6 Mounting Arm Style

FIXTURE WIRE GUARDS HM<sup>7/8/9</sup> Hang Straight

TF2<sup>4</sup> 4" Frosted Dome CP106 Large Driver Canopy CCI Custom Color MB" Matte Black

ILLUMINATING WHAT'S POSSIBLE.

circuit where circuit 1 is 30K white light and circuit 2 is amber. Switching can be done via manual switch, electronic time clock, Bluetooth switch or other easily

2. Placement of Soil Mix('s) and Amendments. 3. Fine Grading of Turfgrass and Planting Area Soil Surfaces A. ASTM- ASTM International: D 1557 - Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort. B. EPA – Environmental Protection Agency: Method 8015. Method 8020. C. SSSA – Soil Science Society of America, Inc. 1. Methods of Soil Analysis Part 1 – Physical and Mineralogical Methods, 1986. 2. Methods of Soil Analysis Part 3 - Chemical Methods, 1996. D. USDA – United States Department of Agriculture: 1. Texture Triangle Classification 2. Handbook No. 60. 1.04 DEFINITIONS A. Acceptance, Acceptable, or Accepted: Acceptance by the Architect in writing. B. Aesthetic Acceptance of Grades: Acceptance by the Architect in writing of the aesthetic correctness of the contours. Aesthetic acceptance does not address whether areas drain properly, are at the correct elevations, or whether the soil has been compacted properly. C. Backfill: Soil material or controlled low-strength material used to fill an excavation.

D. Debris or Deleterious Materials: Elements including, but not limited to, concrete, concrete masonry, wood, excavated rock and rock fragments, rubble, overburden soils, abandoned utility structures, trash, refuse, and litter. E. Excessive Compaction: Planting area soil or soil compaction greater than 75 percent maximum dry density as determined by ASTM D 1557. F. Finished Grades: The required final soil surface elevations and contours indicated on the

G. Planting Soil Mix: A specified profile of soil system components, such as, soil, sand and compost homogeneously blended to produce a specified planting soil mix.

FINISH GRADING 2501 – Village Dental 31 22 19 - 1

E. Verify placement locations and depths for each specified soil mix and type. F. Place the specified planting soil or mix in 6-inch lifts over the Transition Layer to the depths

specified on the drawings. G. Carefully settle soils to eliminate air pockets and to minimize future settling. Lightly scarify previously placed lift surfaces prior to placing subsequent lifts. H. Compact each lift by applying enough water to achieve optimum moisture allowing consolidation

1. A vibratory plate compactor, or other suitable method, shall be used to achieve greater than 80 to 85 percent maximum dry density as determined by the Standard Proctor Test ASTM D698-12. Moisture content and compaction shall be verified using ASTM D6938-15.

2. After any additional settlement has occurred, restore areas to finished grade prior to additional work within the area commencing. I. For Lawn Areas, roll the whole surface of lawn bed with a hand roller weighing approximately one hundred pounds (100 lb.) per foot (12") of roller width. Fill all depressions caused by compaction operations with additional soil and re-grade. Lightly roll and rake until the surface presents a

smooth, even, uniform in finish and to grade. J. Backfill for Trees: Unless noted otherwise or approved in writing by Architect, the excavated tree pit soil <u>is not</u> acceptable backfill material for trees. Remove excavated soil from site and use specified soil mix in this section. Install as specified in Section 32 93 00 "Plants" and per drawing details. Placing, shoring, or anchoring is the responsibility of the Contractor as shown on the

K. Protect areas where soil has been placed and prepared against construction activity with site protection fence. See Section 32 92 00 Turf Grass and Sod for additional protection. 3.05 FINISH GRADING

A. Perform grading within contract limits, including adjacent transition areas, to new elevations, levels, profiles, and contours indicated. Provide subgrade surfaces parallel to finished surface grades. Provide uniform levels and slopes between new elevations and existing grades.

Uniformly grade areas to a smooth uniform surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations

2. Provide a smooth transition between adjacent existing grades and new grades. 3. Cut out soft spots, fill low spots, and trim high spots to comply with required surface

4. Slope finish grades to drain surface water away from buildings, walks, paving, and other structures unless indicated otherwise.

5. Slope finish grades to drain surface water to drainage swales, catch basins, area drains, or trench drains as shown on the Drawings. 6. Grade soil surface smooth to be free of high and low areas which will inhibit surface

7. Grade the soil surface at the edges of lawn areas, along paving areas, and curbs to an

elevation 1 inch below the finished surface of adjacent paving and curbs, unless indicated 8. Hand-rake soil surface using screed boards, string lines, and laser levels to achieve smooth surfaces acceptable to the Architect

2501 - Village Dental

FINISH GRADING 31 22 19 - 6

e. Variations more than 1/2 inch in 10 feet measured from the straight edge to the extreme A. Stabilized Sand for Joints: Gator Supersand Bond by Alliance Designer Products Inc., 225

2501 – Village Dental

stability and batter.

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Boulevard Bellerose West, Laval Quebec H7L 6A1. 1. Color: To be selected from manufacturer's full range. B. Herbicide: Commercial chemical for weed control, registered with the EPA. Provide in granular, liquid, or wettable powder form. using a brush to scrub off the residue.

**PART 3 - EXECUTION** 3.01 GENERAL EXCAVATION AND EMBANKMENT

2501 – Village Dental

2.05 SAND JOINT FILLERS

A. Excavate to the line and grade specified in the contract documents. Minimize over-excavation. B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698: 1. Under structures, building slabs, and pavements, scarify and recompact top 12 inches of

existing subgrade and each layer of backfill or fill soil material at 98 percent. 2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each

layer of backfill or fill soil material at 98 percent. D. Subbase: Install aggregate subbase to a compacted depth of 8 to 12-inches minimum. Install the subbase in multiple 3 to 4-inch lifts, and compact to a minimum 95% Standard Proctor Density (ASTM D698).

3.02 STONE RETAINING AND FREE-STANDING WALLS

A. Stone walls shall be placed at locations as shown on the drawings and installed with the following

1. Stone "retaining" stacked walls shall be constructed to the dimensions shown on the drawings and shall be constructed with a vertical batter on the front and back face as shown on the drawings.

2. Stone "Freestanding" walls to be vertical with no batter unless noted on drawings.

3. All walls to be dry laid. 4. The stone of the wall shall be laid to form substantial masonry presenting a neat, finished

Face Stones:

a. Face stones shall be laid to break joints. 1) Minimum overlap: 12-inches unless noted on drawings.

2) Freestanding wall to overlap 50/50 with joints in middle to adjacent stone course. b. Rock shall be hand finished as needed to keep regular face profiles and batter.

c. All face stones shall be pitched to a string line on straight walls or laid to batter stakes. Where batter is required, batter to be consistent with respect to all parts of the wall and shall meet the minimum requirements set forth in the detail.

d. The degree of roughness on the exposed face shall be measured with a six-foot (6') straightedge supported between adjacent projections and stone face.

LANDSCAPE STONEWORK

31 37 19 - 3

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the I. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or soil materials.

J. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically soil; but in disturbed areas such as urban environments, the surface soil can be subsoil. K. Transition Layer: The specified planting soil mix for a planting area is homogeneously blended

into the existing (ripped) native soil substrate to create a "transition" layer between the subgrade

and specified planting soil mix. Transition layers vary pending specified soil mix for each planting L. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.05 SUBMITTALS A. Equipment Data: Submit descriptive information with ground pressure load data for each proposed item of equipment to be used. Equipment data will be evaluated for compost mix compaction potential. All equipment used in placing the compost shall have a ground pressure level of 4.5 psi or lower.

1. Large earth moving equipment (D4, D6 dozers) must have rubberized base tracks with low ground pressure.

1.06 QUALITY ASSURANCE

A. Qualifications: 1. Installation and mixing foreman on the job shall be competent English-speaking supervisor(s), experienced in planting soil preparation for lawn and planting installations. Supervisor shall remain on the site during the entire installation process.

2. Equipment with metal cleats will not be permitted.

2. Perform work with personnel totally familiar with planting and lawn soil preparation and planting installations under the supervision of a foreman experienced with landscape work. 3. Testing Laboratory: Experienced person(s) employed by public or private testing laboratory, qualified and capable of performing tests, making soil recommendations, and issuing reports

specified testing. The Testing Laboratory shall be as approved by the Architect. 4. It shall be the responsibility of the Contractor to see that the specifications are being adhered to. Failure of the Architect to immediately reject unsatisfactory workmanship or to notify the Contractor of his/her deviation from the specifications shall not relieve the Contractor of his/her responsibility to repair and/or replace unsatisfactory work.

as specified. The Testing Laboratory shall submit a Statement of Qualifications regarding the

B. Pre-Installation Conferences: Person(s) responsible for soil preparation and mixes of this Section shall attend Pre-Installation Conference(s) to coordinate with work of other sections.

C. Testing and Inspection Service: A qualified independent geotechnical testing and inspection laboratory shall perform soil testing and inspection services under the supervision of a registered professional engineer during earthwork and finish grading operations. D. Finished Grading Smoothness Mock-Up:

1. Prepare a 20-foot by 20-foot area of finished graded soil representing the finished graded surface of the planting areas. 2. Locate mockup on site in an area easily referenced during fine grading operations.

FINISH GRADING 2501 – Village Dental 31 22 19 - 2

C. Equipment: Use equipment and hand tools of appropriate size and type to achieve the profiles, and a smooth soil surface free of high areas, depressions, equipment tracks, and excessive

D. Depressions and Loose Material: Fill any depressions and remove loose material to finish surface true to line and grade, presenting a smooth and unyielding surface. E. Excessive Compaction:

1. Take precautions to prevent finished graded surfaces from becoming excessively 2. Protect finished graded surfaces from excessive compaction from vehicular, equipment, and

foot traffic by laying down planks, plywood, or other accepted protective devices 3. Do not store or stockpile materials on finished graded surfaces

4. Mechanically loosen excessively compacted soil areas to full depth. 3.06 TOLERANCES

A. Planting Areas:

1. Grade soil surface to within 0.05-foot of grades indicated on the Drawings, except bring soil surface grades along paving, curbs, and other structures to within 0.01-foot of grades 2. Transition soil surface grades along paving, curbs, and other structures to areas of less strict tolerance over a 5-foot distance.

B. Allowances: Make proper allowances for settlement.

3.07 ADJUSTING A. Soil Finished Grade

1. Provide allowance for 32 hours of adjustment grading work with a 4-person hand-grading crew to smooth and shape the soil surfaces using hand rakes, shovels, and other hand tools.

2. After the soil surface elevations have been graded to be within the specified tolerances, perform adjustment grading Work under the direction of the Architect in the field. 3. Do not rely on adjustment grading to bring finished grade elevations to within specified

3.08 FIELD QUALITY CONTROL A. Aesthetic Acceptance of Grades:

1. Upon completion of finish grading Work, schedule a review by the Architect to obtain aesthetic acceptance.

2. Provide 3 days advance written notification. 3. Do not commence seeding, sodding, or other planting Work until receiving aesthetic acceptance in writing.

B. Test for Excessive Compaction: 1. Where excessive compaction is suspected by Architect, have a Geotechnical Engineer

perform nuclear density field tests. 2. Correct excessively compacted soil areas to the depth of the excessive compaction by means and methods acceptable to the Architect prior to installing plant material.

3.09 PROTECTION

LANDSCAPE STONEWORK

31 37 19 - 4

FINISH GRADING

31 22 19 - 7

depression in the stone, will not be permitted. f. Rear faces shall present approximately plane surfaces and shall in general conform to

g. Clean and wash face and top of walls such that the visual surfaces of the rocks are free of soil and staining to provide a clean natural appearance. If washing does not clean off unwanted residue, then Contractor shall wash off residue with muriatic acid and water,

6. Backfill retaining wall as detailed. Fill each course as wall is assembled to maintain structural

**END OF SECTION 31 37 19** 

SECTION 32 13 13 - CONCRETE PAVING

**PART 1 - GENERAL** 

2501 - Village Dental

1.01 SUMMARY A. Section Includes exterior cement concrete pavement for the following:

 Pedestrian Concrete Pavement. Curbs and Gutters. Steps and Ramps

4. Sub-base Slabs-on-Grade for Unit Pavements. Job-Built Concrete Edge Restraints.

Curing and/or Sealing.

1.02 DEFINITIONS A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, and ground granulated blast-furnace slag.

3. Protect accepted mockup from physical damage and erosion until date of Final Completion

E. The Architect reserves the right to inspect and test grading operations at any time and as deemed

necessary for verification of conformance to specification requirements. Any subsurface or

grading conditions not meeting the requirements of the Specifications to be corrected by the

conditions. Discontinue work until notification to resume work is provided by the Construction

1. Do not work soil when moisture content is so great that excessive compaction will occur, nor

when it is so dry that dust will form in the air or that clouds will not break readily.

2. Apply water, if necessary, to bring soil to optimum moisture content for fine grading

3. Do not perform fine grading work when subgrade and/or soils are muddy or frozen.

1. Locate existing underground utilities in areas of work. If utilities are indicated to remain in

place, provide adequate means of support and protection during fine grading operations.

consult utility owner immediately for directions. Cooperate with Owner and utility companies

occupied hours, except when permitted in writing by Construction Manager and then only

2. If uncharted, or incorrectly charted, piping, or other utilities are encountered during the Work,

in keeping respective services and facilities in operation. Repair damaged utilities to

3. Do not interrupt existing utilities serving facilities occupied by Owner or others, during

4. Provide minimum 48-hour notice to Construction Manager and receive written notice to

A. Soil Placement: To prevent excessive soil compaction, avoid placing soil in areas subject to

A. Protecting Fine Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of

B. Repair and reestablish grades to specified tolerances where, completed or partially completed

surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent

C. Scarify or remove and replace soil material to depth as directed by Soils Engineer; reshape and

A. Promptly remove soil and debris created by soil work from paved areas. Clean wheels of vehicles

B. Legally dispose of off-site all refuse and debris from these operations. Do not dump or burn

C. Maintain the site in an orderly condition during the progress of the Work. Continuously and

promptly remove excess waste materials; keep lawn areas, walks, and roads clear. Store

**END OF SECTION 31 22 19** 

materials and equipment where directed. Promptly remove equipment, surplus materials, and

debris and trash resulting from operations under this Contract upon completion and prior to initial

E. During construction, maintain temporary soil erosion and sedimentation control measures in

place. Inspect, repair, and replace damaged or missing items as work progresses.

before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

acceptance or Work. Leave the site in a neat, order condition "broom clean".

construction vehicle and equipment traffic. Coordinate work of this section with other project work

**FINISH GRADING** 

FINISH GRADING

CONCRETE PAVING

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after acceptable temporary utility services have been provided.

5. Contact the Local Utilities Protection Service before commencement.

as contained in all other Sections of the project specifications.

A. Refer to Sections 32 91 00 through 32 91 50 for Soil Mixes.

proceed before interrupting any utility.

Contractor before continuing with any further operation of the project and at no cost to the project.

4. The accepted mockup shall be the standard by which finish grading will be judged.

A. Examination: Promptly notify Construction Manager and Architect of unexpected subsurface

1.07 PROJECT CONDITIONS

1.08 SEQUENCING

PART 2 - PRODUCTS

PART 3 - EXECUTION

A. General:

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3.01 FIELD ENGINEERING

trash and debris.

3.10 DISPOSAL AND CLEAN UP

materials on site.

construction operations or weather conditions.

D. Repair erosion that occurs before and during plant or lawn installation.

2.01 SOILS

B. Environmental Requirements:

B. Construction Joint: Joint produced when one pour is placed up against an existing one (cold joint) C. Contraction Joint: Joint produced that isolates the crack (control joint). D. Isolation Joint: Joint containing expansion material and/or caulking material to allow the joint to "flex" based on air temperature (expansion joint). Cementitious Materials: Portland cement alone

or in combination with one or more of blended hydraulic cement, fly ash, slag cement, and other pozzolans.

E. W/C Ratio: The ratio by weight of water to cementitious materials.

1.03 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site. 1. Review methods and procedures related to concrete paving, including but not limited to, the

a. Concrete mixture design

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b. Quality control of concrete materials and concrete paving construction practices.

2. Require representatives of each entity directly concerned with concrete paving to attend, including the following:

 Contractor's superintendent. b. Independent testing agency responsible for concrete design mixtures.

 c. Ready-mix concrete manufacturer. d. Concrete paving Subcontractor. e. Manufacturer's representative of stamped concrete paving system used for stamped

detectable warnings. 1.04 ACTION SUBMITTALS A. Product Data: For each type of product

 d. Completed project photos 2501 – Village Dental

1. Provide all layout work required. Establish extent of fine grading by area and elevation;

B. Swale Flow Lines, Bottom of Slopes, Top of slopes and Grade breaks: Install grade stakes at

A. Examine areas and conditions under which work is to be performed. Obtain and examine the

C. Confirm subgrade is clear of all construction debris, trash, rubble, and any foreign material. If

D. Confirm subgrade is at the proper elevation, parallel to the finished grade and compacted as

excavation with approved fill and compact to the required subgrade compaction.

F. Excessive Compaction: Verify subgrade in planting area is not excessively compacted.

G. Soil Preparation: Verify off-site soil preparation is complete and ready for transporting to site.

A. Review soil analysis testing results and requirements needed for each specified soil mix and

amendment. Testing Agency recommendations may vary and require contractor to provide

1. Protect structures, utilities, sidewalks, pavements, irrigation systems, paving, plant materials,

and other facilities from damage caused by settlement, lateral movement, undermining,

2. Provide barricades, fences, or other barriers to protect existing conditions to remain from

3. Use every possible precaution to prevent excessive compaction of planting area soil within

4. Do not store material or equipment, permit burning, or operate or park equipment under the

5. Submit written notification of conditions damaged during construction immediately to the

A. The work shall consist of furnishing and installing natural landscape stone, such as ledge rock

and/or boulders, constructed and in conformance with the details shown on the contract

a. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using

B. Boulders: Shall be granite, limestone, sandstone (as indicated on the drawings), of an approved

C. Ledge Rock: Irregular naturally flat pieces of limestone or sandstone protruding to form a ledge.

D. Flagstone: Irregular naturally flat pieces of limestone or sandstone used for walkways, patios, and

size, shape, and type. Boulder dimensions shall be as shown on the contract drawings.

A. Contractor shall cooperate with Architect in obtaining and providing samples of all specified

B. Contractor shall submit certified laboratory test certificates for all items required in this section.

1. Prior to the construction of the dry stacked stonework, Contractor shall show Architect an

example of similar rock features equal to or better that they had constructed previously.

2. After acceptance of this previous work, Contractor shall construct approximately 3 full step

3. If the construction is approved, Contractor shall construct the rest of the steps. If the

B. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when

C. Jointing Plan: Shop drawings indicating locations for all Construction, Contraction, and

characteristics of materials, Project conditions, weather, test results, or other circumstances

A. Qualification Data: For qualified Installer, ready-mix concrete manufacturer and testing agency.

Material Test Reports: From a qualified testing agency indicating and interpreting test results for

compliance of the following with requirements indicated, based on comprehensive testing of

A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete

B. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing

Grade 1, according to ACI CP-1 or an equivalent certification program.

Aggregates: Include service-record data indicating absence of deleterious expansion of

mixed concrete products and that complies with ASTM C 94 requirements for production facilities

Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").

1. Personnel conducting field tests shall be qualified as ACI Concrete Field-Testing Technician,

1. Minimum of five (5) years' experience installing finished concrete paving in climates that

exposed/seeded aggregate special finish concrete paving and cite five (5) successfu

installations in climates within the same climate region as the project. At least one project

2. Installer shall demonstrate minimum of five (5) years successful experience installing

shall be 3,000 sf minimum. For each project, include the following information:

Architect to obtain approval and construct the remainder of the steps as approved.

risers as shown on the drawings and 3 courses of stone wall by 6 ft length (of each wall

construction is not approved, Contractor shall make any changes required by Owner and

LANDSCAPE STONEWORK

**CONCRETE PAVING** 

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H. Notify Architect of any unacceptable sub-grade conditions. Do not start the installation of the soil

High Points and Low Points: Install grade stakes at high points and low points including top of

required lines, levels, and elevations.

berms, catch basins and area drain rims.

which may affect the work under this Section.

mix until sub-grade conditions have been corrected.

additional testing or preparations prior to placement of soils.

washout, and other hazards created by fine grading operations.

must be coordinated with the Contractor

maximum 20 feet on center.

shown on the drawings.

B. Protection of Existing Conditions:

damage during construction.

**SECTION 31 37 19 – LANDSCAPE STONEWORK** 

B. Stonework shall consist of the following:

ASTM International (ASTM):

drawings, and/or as directed by the Architect.

2. Dry - Stacked Sandstone Retaining Wall

Dry – Stacked Sandstone Free Standing Wall

A. The following is a list of standards which may be referenced in this section:

Standard Effort (12 400 ft-lbf/ft3 (600 kN-m/m3)).

A. Terms "boulders," and "rock", may be used interchangeably in this section.

Typically used along stream beds, irregular wall structures and steps.

flooring. Dimensions vary with each piece approximately 4 sq. ft or larger.

or adjacent to the areas of Work

branches of existing trees to remain.

3.02 EXAMINATION

3.03 PREPARATION

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**PART 1 - GENERAL** 

1.01 SUMMARY

1.02 REFERENCES

1.03 DEFINITIONS

1.04 SUBMITTALS

A. Mock-up:

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Isolation/Expansion joints.

1.05 INFORMATIONAL SUBMITTALS

Cementitious materials.

Curing and Sealing compounds.

Bonding agent or epoxy adhesive.

Admixtures.

Joint fillers.

D. Field quality-control reports.

Installer Qualifications:

a. Project description

c. Date of installation

b. Project location

1.06 QUALITY ASSURANCE

E. Minutes of Preinstallation conference.

B. Material Certificates: For the following, from manufacturer:

2. Steel reinforcement and reinforcement accessories

concrete due to alkali-aggregate reactivity.

experience seasonal freeze-thaw cycles.

1.05 QUALITY ASSURANCE

type) for approval by Architect.

designate and identify datum elevation and project engineering reference points. Set

2. Provide as many grade stakes and string lines as required to achieve smooth finish grades

acceptable to the Architect. Mark each stake to indicate design finished grade indicated.

records and drawings of adjacent work and of existing utilities and their connections for conditions

B. Verify all work requiring access through or adjacent to areas where each planting soil mix is to be

fuels, oils, concrete washout silts or other material harmful to plants have been spilled into the

subgrade material, excavate the soil sufficiently to remove the harmful material. Fill any over

E. Verify that conditions are suitable to receive Work and that no defects or errors are present which

would cause defective installation of products or cause latent defects in workmanship and

placed has been completed and no further access will be required. If access will be required, this

indicated on the drawings. Respray areas still exhibiting grass, weed, or other plant growth. Follow manufacturer's recommendation for allowing grass and weed control to properly kill vegetation prior to amending soils. D. De-compact sub-grade soils and in situ soils by soil ripping.

1. Prior to placing each specified soil mix or, rip areas to receive the specified soil on the same day soil mix is placed. 2. Rip subgrade to a depth of 6 inches. Place ripping tines at 18 inches on center.

Assure all grass and weed growth has been extinguished prior to placing the specified soil mix as

3. Make second ripping pass in the direction 90 degrees to the direction of the first ripping 4. Do not rip closer than 24 inches to installed underground utility lines and structures.

5. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so soil material will bond with existing material.

6. Once the subgrade is ripped, only equipment with a ground pressure not to exceed 4.5 p.s.i. shall be used, ex. padded, wide-tracked LGP rated dozers and/or excavators, small to medium tractors with turf tires, etc. E. Transition Layer:

1. Uniformly place 3 inches or as designated by the drawings, the specified soil over the ripped areas. Using mechanical equipment, blend the specified soil into the ripped subgrade approx. 2-4 inches in depth or as designated on the drawings. a. For 32 91 30 - HSCS Soil Mix, uniformly place 3 inches (or as designated by the

drawings) HSCS Base Mix soil over the ripped areas. Using mechanical equipment, blend the Base Mix soil into the ripped subgrade approx. 2-4 inches in depth or as designated on the drawings. 2. Do not place final lifts of specified soil until the Transition Layer has been blended.

that has been worked to the surface of the transition zone. Tree Root Protection

3. Remove any debris (see Definitions) greater than 1 inch in diameter or 2 inches in length

a. All work infringing on root systems of existing plant material shall be reviewed and

approved by the Architect prior to beginning work.

b. Protect tree root systems from damage adjacent to soil work where ripping is required. c. Soil ripping may not be conducted when existing roots are in the immediate vicinity. All work infringing on root systems of existing plant material shall be reviewed and

d. Where tree roots are present within the designated soils zone, carefully blend native soils with the Compost using hand tools. Uniformly moisten or aerate Transition Layer before compaction to within 2 percent of optimum

approved by the Architect prior to beginning work.

3.04 PLACEMENT OF SOIL MIXES

A. Verify proper placement and blending of Transitions Layer has been completed.

B. Lightly scarify Transition Layer prior to placing the specified soil mix. C. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice. D. Remove and replace or scarify and air dry otherwise satisfactory soil material that exceeds

optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight. 2501 – Village Dental FINISH GRADING

2.01 MANUFACTURERS

FINISH GRADING

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A. Source Limitations: Obtain each type of paver, joint material, and setting material from single source with resources to provide materials and products of consistent quality in appearance and physical properties

2.02 NATIVE STONE WALLS - BARN STONE A. Native sandstone by:

 Basis of Design Manufacturer The Briar Hill Stone Company 12470 State Rt. 520 P.O. Box 457

**PART 2 - PRODUCTS** 

Glenmont, OH 44628 Ph. No. 330 – 377-5110 www.briarhillstone.com Wall Type 2a and 2b:

a. Match stone type and finish as per Architecture (Ph. No. 440-543-8300) b. Size: 8" x 8" x 30"

2.03 SUB-BASE AND SUB-SLABS

A. Compacted Aggregate Base Course (without concrete sub-slabs): Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve unless noted otherwise drawings.

2.04 GEOTEXTILES

A. Separation Geotextile: Woven geotextile fabric, manufactured for separation applications, made from polyolefins or polyesters; with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: Class 2; AASHTO M 288. Survivability: As follows: a. Grab Tensile Strength: 247 lbf; ASTM D 4632.

b. Sewn Seam Strength: 222 lbf; ASTM D 4632. c. Tear Strength: 90 lbf; ASTM D 4533. d. Puncture Strength: 90 lbf; ASTM D 4833.

3. Apparent Opening Size: No. 60sieve, maximum; ASTM D 4751 4. Permittivity: 0.02 per second, minimum; ASTM D 4491.

5. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355. 6. Manufacturer: Subject to compliance with requirements, provide products by one of the

a. Mirafi 140N nonwoven drainage fabric manufactured by Mirafi, Inc., Charlotte, NC

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evaluation tests and to design concrete mixtures.

D. Concrete Testing Service: Engage a qualified independent testing agency to perform material

Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution. 1. Build mockups of full-thickness sections of concrete paving to demonstrate typical joints; surface finish, texture, and color; curing; and standard of workmanship and as indicated in

the pre-construction meeting. 2. Where concrete is called to be sealed, seal one half of the mockup area for color and finish review by Architect

3. Notify Architect as soon as possible in advance of dates and times when mockups will be

4. Obtain Architect's approval of mockups before starting construction. 5. Maintain approved mockups during construction in an undisturbed condition as a standard for judging the completed pavement.

Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in

7. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.07 PRECONSTRUCTION TESTING

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A. Preconstruction Testing Service: Engage a qualified independent testing agency to perform preconstruction testing on concrete paving mixtures. 1.08 FIELD CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other B. Cold-Weather Concrete Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and

1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.

2. Do not use frozen materials or materials containing ice or snow. 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical

accelerators unless otherwise specified and approved in design mixtures. Hot-Weather Concrete Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

Cover steel reinforcement with water-soaked burlap, so steel temperature will not exceed ambient air temperature immediately before embedding in concrete. 3. Fog-spray forms and subgrade just before placing concrete. Keep subgrade moisture

uniform without standing water, soft spots, or dry areas.

**SPECIFICATIONS** 

PROJECT #: 2501

AHBR REVIEW

VARIANCE SET

PLANNING COMMISSION09-15-2025

ISSUE:

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**LANDSCAPE** 

04-01-2025

04-17-2025

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1775 Main Street Peninsula, Ohio 44264 **T** 330.657.2800

www.pa-architects.com

9/16/2025 PROJECT TEAM:

**PENINSULA** 

**PROGRESS** 

NOT FOR

CONSTRUCTION

CIVIL ENGINEER: **GUTOSKEY AND ASSOCIATES P** 406.543.6900 STRUCTURAL ENGINEER **ORAVEC DESIGN BUILD P** 330.552.8211

MEP ENGINEER

**P** 216.531.8880

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**DENK ASSOCIATES** 

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete

- B. Steel Bar Mats: ASTM A184; with ASTM A615, Grade 60 deformed bars; assembled with clips. Joint Dowel Bars: ASTM A615, Grade 60 plain-steel bars. Cut bars true to length with ends
- square and free of burrs. 1. Sleeves for Round Dowels: "Speed Dowel", size to fit dowel, as available from Greenstreak,
- D. Tie Bars: ASTM A615, Grade 60; deformed. E. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening

#### 2.04 CONCRETE MATERIALS

- A. Cementitious Materials: Use the following cementitious materials, of same type, brand, and source throughout Project:
  - a. Type III High early strength may be used with written approval and at the contractor's
- 2. Fly Ash: ASTM C618, Class C or Class F. 3. Slag Cement: ASTM C989, Grade 100 or 120.
- B. Normal-Weight Aggregates: ASTM C33, Class 4S, uniformly graded. Provide aggregates from a single source throughout entire project. Provide aggregates free of iron pyrite.
- 1. Maximum Coarse-Aggregate Size: 3/4-inch nominal. 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Air-Entraining Admixture: ASTM C260. D. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other
- admixtures and to contain no more than 0.1 percent water-soluble chloride ions by mass of cementitious material. 1. Water-Reducing Admixture: ASTM C494, Type A.
- CONCRETE PAVING 2501 – Village Dental
- square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement dowels and joint devices.
- H. Screed paving surface with a straightedge and strike off. I. Commence initial floating using bull floats or darbies to impart an open-textured and uniform
- surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments. J. Curbs, Gutters, and Edge Restraints: If automatic machine placement is used for curb, gutter, and edge restraint placement, submit revised mix design and laboratory test results that meet or exceed requirements. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing as specified for formed concrete. If results are not approved, remove, and replace
- K. When adjoining pavements are placed in separate pours, do not operate equipment on concrete until pavement has attained 85 percent of its 28-day compressive strength. Do not drive vehicles on pavement until the full 28-day strength is attained.
- Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.
- 3.07 SUB-BASE SLABS FOR UNIT PAVING
- A. General: Comply with ACI 301 for formwork, placement, and screeding of concrete. B. Deposit and consolidate concrete for sub-base slabs in a continuous operation, within limits of
- construction joints, until placement of a panel or section is complete. 1. Consolidate concrete during placement and screed slab surfaces with a straightedge and
- 2. Slope surfaces uniformly to drains where required.
- C. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane before excess bleed water appears on the surface. Do not further disturb slab surfaces before
- 1. Class B Finish: Finished concrete surface for subbases shall be wood floated to a slightly rough surface. Surface shall not deviate more than 1/4 in. in 10 ft.
- 3.08 INSTALLATION OF MISCELLANEOUS CONCRETE ITEMS
- A. Curbs and Edge Restraints: Provide monolithic finish by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

### 3.09 FLOAT FINISHING

- A. General: Do not add water to concrete surfaces during finishing operations.
- B. Bull Float Finish: After striking off initial pour of concrete, begin the second floating operation when bleed water sheen has disappeared, and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

- A. Monolithic Broom Finish: After bull floating concrete surface and prior to applying curing compound or curing and sealing compounds, provide a monolithic broom finished concrete
- 1. Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface, perpendicular to line of traffic, to provide a uniform, fine-line texture.
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- a. Available Products:
- 1) Sika Corporation; Sikaflex 2c NS.
- 2) 'DynaTred' by Pecora, Harleysville, PA; (800) 523-6688, (215) 723-6051; www.pecora.com
- b. Color: To be selected by Architect from manufacturer's "Color Pack" system.

### 2.04 JOINT-SEALANT BACKER MATERIALS

- A. Joint-Sealant Backer Materials: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by joint-sealant manufacturer, based on field experience and laboratory testing
- and density required to control sealant depth and prevent bottom-side adhesion of sealant. C. Round Backer Rods for Cold-Applied Joint Sealants: ASTM D 5249, Type 3, of diameter and
- density required to control joint-sealant depth and prevent bottom-side adhesion of sealant.

B. Round Backer Rods for Cold- and Hot-Applied Joint Sealants: ASTM D 5249, Type 1, of diameter

- D. Backer Strips for Cold- and Hot-Applied Joint Sealants: ASTM D 5249; Type 2; of thickness and
- width required to control joint-sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant. 2.05 PRIMERS
- A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

### **PART 3 - EXECUTION**

3.01 EXAMINATION

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- A. Examine joints to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance. 1. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. Surface Cleaning of Joints: Before installing joint sealants, clean out joints immediately to comply with joint-sealant manufacturer's written instructions. 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint
- sealant, including dust, old joint sealants, oil, grease, waterproofing, water repellents, water, B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-
- sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

### 3.03 INSTALLATION OF JOINT SEALANTS

- A. Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.
- B. Joint-Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions.

- 2. Retarding Admixture: ASTM C494, Type B.
- 3. Water-Reducing and Retarding Admixture: ASTM C494, Type D. 4. High-Range, Water-Reducing Admixture: ASTM C494, Type F.
- 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C494, Type G.
- 6. Plasticizing and Retarding Admixture: ASTM C1017, Type II. E. Water: Potable and complying with ASTM C94.
- 2.05 CURING MATERIALS
- A. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.
- B. Water: Potable.
- C. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C309, Type 1, Class B, dissipating. (Standard Broom Finishes)
- 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
- a. Dayton Superior Corporation; Day Chem Rez Cure (J-11-W).
- b. Euclid Chemical Company (The); Kurez DR VOX. c. L&M Construction Chemicals, Inc.; L&M Cure R.
- d. Meadows, W. R., Inc.; Series 1100. 2. The curing compound shall not be used as the final sealer for the concrete.

- Cork: ASTM-D1752 Type II.
- b. Typical Thickness: 1/4 inch.
- c. Joint Cap: Two-piece device with upper portion removable after curing period; width

3. For concrete indicated to be sealed, curing compound shall be compatible with sealer.

- 2. Plastic strips with a removable top for placing caulking or sealant that is designed specifically for expansion between concrete pours.
- B. Epoxy-Bonding Adhesive: ASTM C881, two-component epoxy resin capable of humid curing and bonding to damp surfaces; of class suitable for application temperature, of grade complying with
- requirements, and of the following types: 1. Types I and II, non-load bearing, for bonding hardened or freshly mixed concrete to
- C. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of
- normal-weight concrete, and as determined by either laboratory trial mixtures or field experience. 1. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
- CONCRETE PAVING 2501 – Village Dental 32 13 13 - 5

- 3.11 CONCRETE PROTECTION, CURING AND SEALING A. General: Protect freshly placed concrete from premature drying and excessive cold or hot

bull floating or darbying concrete but before float finishing.

- B. Comply with ACI 306.1 for cold-weather protection. C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and
- D. Begin curing after finishing concrete but not before free water has disappeared from concrete
- E. Curing Methods: For standard concrete work and "Float" and "Broom Finished" concrete surfaces, cure concrete by moisture-retaining-cover curing, curing compound or a combination of
- 1. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12-inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during
- installation or curing period, using cover material and waterproof tape. 2. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage
- 3.12 PAVING TOLERANCES
- A. Comply with tolerances in ACI 117 and as follows:

5. Lateral Alignment and Spacing of Dowels: 1 inch.

9. Contraction Joint Depth: Plus 1/4 inch, no minus.

- Elevation: 1/4 inch.
- 2. Thickness: Plus 3/8-inch, minus 1/4 inch. 3. Surface: Gap below 10-feet-long; unleveled straightedge not to exceed 1/4 inch.
- 4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2 inch per 12
- 6. Vertical Alignment of Dowels: 1/4 inch. 7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4 inch per 12
- 8. Joint Spacing: 3 inches.
- 10. Joint Width: Plus 1/8 inch, no minus. 3.13 FIELD QUALITY CONTROL
- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Testing Services: Testing and inspecting of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
- 1. Testing Frequency: Obtain at least one composite sample for each 100-cu. yd. or fraction thereof of each concrete mixture placed each day.
- a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
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C. Install joint-sealant backings to support joint sealants during application and at position required

- to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability. 1. Do not leave gaps between ends of joint-sealant backings.
- 2. Do not stretch, twist, puncture, or tear joint-sealant backings. 3. Remove absorbent joint-sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install joint sealants immediately following backing installation, using proven techniques that comply with the following:
- 1. Place joint sealants so they fully contact joint substrates.
- Completely fill recesses in each joint configuration. 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- or curing begins, tool sealants according to the following requirements to form smooth, uniform
- beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of 1. Remove excess joint sealant from surfaces adjacent to joints.

E. Tooling of Nonsag Joint Sealants: Immediately after joint-sealant application and before skinning

- 2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces. F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless
- otherwise indicated G. Provide recessed joint configuration for silicone sealants of recess depth and at locations
- 3.04 CLEANING AND PROTECTION
- A. Clean off excess joint sealant as the Work progresses, by methods and with cleaning materials approved in writing by joint-sealant manufacturers.
- B. Protect joint sealants, during and after curing period, from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations in repaired areas are indistinguishable from the original
- 3.05 PAVING-JOINT-SEALANT SCHEDULE A. Joint-Sealant Application: Joints within concrete paving.

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- Joint Location:
- c. Other joints as indicated.
- 3. Joint-Sealant Color: Manufacturer's standard.
- B. Joint-Sealant Application: Joints within concrete paving and between concrete and asphalt

CONCRETE PAVING JOINT SEALANTS

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- 2. When automatic machine placement is used, determine design mixtures, and obtain laboratory test results that comply with or exceed requirements.
- B. Cementitious Materials: Use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.
- 1. Fly Ash or Pozzolan: 25 percent. Slag Cement: 50 percent.
- b. Combined Fly Ash or Pozzolan, and Slag Cement: 50 percent, with fly ash or pozzolan not exceeding 25 percent.
- C. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows: 1. Air Content: 6 percent plus or minus 1-1/2 percent for 3/4-inch nominal maximum aggregate
- D. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of
- E. Chemical Admixtures: Use admixtures according to manufacturer's written instructions. 1. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
- F. Concrete Mixtures: Normal-weight concrete. 1. Compressive Strength (28 Days): 4500 psi.
- a. Job-Built Edge Restraints: 3000 psi Compressive Strength (28 days). Maximum W/C Ratio at Point of Placement: 0.45.

#### 2.08 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C94. Furnish batch certificates for each batch discharged and used in the Work. 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and
- delivery time to 60 minutes. B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to
- ASTM C94. Mix concrete materials in appropriate drum-type batch machine mixer. 1. For concrete batches of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.

2. For concrete batches larger than 1 cu. yd., increase mixing time by 15 seconds for each

3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixing time, quantity, and amount of

#### PART 3 - EXECUTION

water added.

- 3.01 EXAMINATION A. Examine exposed subgrades and subbase surfaces for compliance with requirements for
- dimensional, grading, and elevation tolerances. 1. Proceed with concrete pavement operations only after nonconforming conditions have been corrected and subgrade is ready to receive pavement.
- 2501 Village Dental **CONCRETE PAVING** 32 13 13 - 6
- than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change. 3. Air Content: ASTM C 231, pressure method; one test for each composite sample, but not

2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less

- less than one test for each day's pour of each concrete mixture. 4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when it is 80 deg F and above, and one test for each composite sample.
- 5. Compression Test Specimens: ASTM C 31; cast and laboratory cure one set of three standard cylinder specimens for each composite sample. 6. Compressive-Strength Tests: ASTM C 39; test one specimen at seven days and two
- specimens at 28 days. a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days. C. Strength of each concrete mixture will be satisfactory if average of any three consecutive
- compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi. D. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency,
- E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete. F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have
- not been met, as directed by Architect. G. Concrete paving will be considered defective if it does not pass tests and inspections. Remove and replace concrete pavement where test results indicate that it does not comply with specified
- Prepare test and inspection reports.
- 3.14 REPAIR AND PROTECTION A. Remove and replace concrete paving that is broken, damaged, or defective or that does not
- comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect. B. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or
- C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

paving not more than two days before date scheduled for Substantial Completion inspections.

D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep

### **END OF SECTION 32 13 13**

- CONCRETE PAVING 2501 - Village Dental 32 13 13 - 11
  - Joint Location:
  - Joints between concrete and asphalt paving. b. Joints between concrete curbs and asphalt paving. c. Other joints as indicated.

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- 2. Joint Sealant: Refer to Civil Asphalt Work specifications. 3.06 PROTECTION A. Protect joint sealants during and after curing period from contact with contaminating substances
- deterioration or damage at time of Substantial Completion. B. Cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations with repaired areas are indistinguishable from the original work.

**END OF SECTION 32 13 73** 

### A. Section Includes:

**SECTION 32 13 73 - CONCRETE PAVING JOINT SEALANTS** 

#### **PART 1 - GENERAL** 1.01 SUMMARY

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3. Primers.

 Cold-applied joint sealants. 2. Joint-sealant backer materials

b. Mockup requirements.

1.02 PREINSTALLATION MEETINGS A. Preinstallation Conference: Conduct conference at Project site with Architect to review methods and procedures related to joint sealants, including but not limited to, the following: a. Quality control of application and construction practices.

B. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of

1. Completely proof-roll subbase in one direction and repeat in perpendicular direction. Limit

2. Proof-roll with a pneumatic-tired and loaded, 10-wheel, tandem-axle dump truck weighing

3. Correct subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch

D. Paving thickness varies. See plans and details for each specific condition. Any concrete paving

A. Remove loose material from compacted subbase surface immediately before placing concrete.

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines,

grades, and elevations. Install forms to allow continuous progress of work and so forms can

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete

A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces

1. When joining existing paving, place transverse joints to align with previously placed joints

and at locations where paving operations are stopped for more than one-half hour unless paving

1. Continue steel reinforcement across construction joints unless otherwise indicated. Do not

Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one

**CONCRETE PAVING** 

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B. Construction Joints (Cold Joints): Set construction joints at side and end terminations of paving

continue reinforcement through sides of paving strips unless otherwise indicated.

3. Butt Joints: Use bonding agent at joint locations where fresh concrete is placed against

4. Doweled Joints: Install dowel bars and support assemblies at joints where indicated.

C. Isolation Joints (Expansion Joints): Form isolation joints of preformed joint-filler strips abutting

1. Locate expansion joints at intervals as shown, unless otherwise indicated.

concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where

perpendicular to surface plane of concrete. Construct transverse joints at right angles to

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and

according to requirements in Section 31 20 00 "Earth Moving."

thickness not shown in plan shall be 4-inch minimum thickness.

remain in place at least 24 hours after concrete placement

2. Provide tie bars at sides of paving strips where indicated.

hardened or partially hardened concrete surfaces.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

excess yielding.

3.02 PREPARATION

without damage.

3.05 JOINTS

supporting reinforcement.

vehicle speed to 3 mph.

3.03 EDGE FORMS AND SCREED CONSTRUCTION

3.04 STEEL REINFORCEMENT INSTALLATION

centerline unless otherwise indicated.

unless otherwise indicated.

terminates at isolation joints.

- 1.03 ACTION SUBMITTALS A. Product Data: For each type of product.
- B. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch-wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

C. Paving-Joint-Sealant Schedule: Include the following information:

- 1. Joint-sealant application, joint location, and designation. 2. Joint-sealant manufacturer and product name.
- 3. Joint-sealant formulation.
- 4. Joint-sealant color.
- 1.04 INFORMATIONAL SUBMITTALS A. Product Certificates: For each type of joint sealant and accessory. B. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
- Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants. 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for sealants
- 1.05 QUALITY ASSURANCE A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

C. Source Limitations: Obtain each type of joint sealant through one source from a single

B. Product Testing: Test joint sealants using a qualified testing agency.

manufacturer. 2501 - Village Dental CONCRETE PAVING JOINT SEALANTS

### **SECTION 32 14 00 - UNIT PAVING**

- **PART 1 GENERAL** 1.01 SUMMARY
- A. This Section includes all labor, materials, equipment, and testing requirements necessary to complete the installation of unit pavers as specified on the drawings: Clay Brick Pavers on concrete subbase slab with sand setting bed.

2. Steel edge restraints for retaining paver systems

A. Preinstallation Conference: Conduct conference at Project site. 1.03 REFERENCES AND STANDARDS A. Federal, State, and local laws and regulations governing this Work are hereby incorporated into

1.02 PREINSTALLATION MEETINGS

level of construction that exceeds the level of Federal, State, or local requirements, provisions of this Section take precedence. B. The following references are used herein and shall mean:

C. American Disabilities Act, Part 36, Appendix A- Standards for Accessible Design.

and made part of this Section. When this Section calls for certain materials, workmanship, or a

a. ASTM C-33 Standard Specification for Concrete Aggregates. b. ASTM C-136 Standard Method for Sieve Analysis for Fine and Coarse Aggregates 2. BIA: The Brick Institute of America

1. ASTM: American Society of Testing Materials

A. Product Data: For materials other than water and aggregates. B. Product Data: For the following: All paver types.

2. Setting bed materials

1.04 ACTION SUBMITTALS

- Joint materials. Edge restraints. Joint Sand
  - D. Samples for Initial Selection: For the following: Each type of unit paver indicated.
- 3. Exposed edge restraints involving color selection. E. Samples for Verification:
- each type of unit on suitable backing and grout joints. 2. Joint Sand Materials.

- 2. Extend joint fillers full width and depth of joint.
- 3. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated
  - 4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
- 5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
- 6. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
- D. Contraction Joints (Control Joints): Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows
- 1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction
- a. Curbs and Gutters: Provide saw cut joints at 10 ft on-center unless noted otherwise.
- Through-cut top 6 inches of straight curb. b. Walks, Walls, and Concrete Paved Surfaces: Refer to drawings for details and general

E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an

edging tool to a 1/4-inch radius. Do not re-tool edges after applying surface finishes. Eliminate

tool marks on concrete surfaces. "Picture Framing" tooling anywhere is not to be done, unless

- c. Tolerance: Ensure that sawed joints are within 3 inches either way from centers of
- Doweled Contraction Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.

- 3.06 CONCRETE PLACEMENT A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and
- items to be embedded or cast-in. Notify other trades to permit installation of their work. B. Remove snow, ice, or frost from subbase surface and reinforcement before placing concrete. Do not place concrete on frozen surfaces.
- Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and
- D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete. E. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete
- F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or
- G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping. 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal

drag concrete into place or use vibrators to move concrete into place.

- vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only 2501 – Village Dental CONCRETE PAVING
- 1. Testing will not be required if joint-sealant manufacturers submit joint preparation data that
- with, joint substrates and other materials matching those submitted. D. Mock-ups: See Sections 32 13 13 "Concrete Paving" and 03 30 00 "Concrete Paving - Site" for mock-up requirements. Provide for each type of pavement finish a minimum 4 ft continuous run of specified expansion material, full depth and color unless otherwise directed by Architect.

are based on previous testing of current sealant products for adhesion to, and compatibility

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials

B. Store and handle materials to comply with manufacturer's written instructions to prevent their

deterioration or damage due to moisture, high or low temperatures, contaminants, or other

1.07 FIELD CONDITIONS A. Do not proceed with installation of joint sealants under the following conditions

1.06 DELIVERY, STORAGE, AND HANDLING

- 1. When ambient and substrate temperature conditions are outside limits permitted by jointsealant manufacturer or are below 40 deg F
- 2. When joint substrates are wet. 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications
- 4. Where contaminants capable of interfering with adhesion have not yet been removed from ioint substrates. PART 2 - PRODUCTS
- A. Acceptable manufacturers include but are not limited to the following: Dow Chemical.

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2.01 MANUFACTURERS

WR Meadows.

- Mameco International. Sika. Sonneborn.
- 2.02 MATERIALS, GENERAL A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application,
- 2.03 COLD-APPLIED JOINT SEALANTS A. Multicomponent, non-sag, polyurethane elastomeric sealant for Concrete: Pourable, chemically curing elastomeric formulation complying with the following requirements for formulation and with
- ASTM C 920 for type, grade, class, and uses indicated: 1. Urethane Formulation: Type M; Grade NS; Class 25; Uses T, NT M, and, as applicable to

CONCRETE PAVING JOINT SEALANTS

as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

- joint substrates indicated, O.

1. Plans: Show location, laying patterns, and sizes of each type of unit paving.

2. Plans: Concrete subbase slab expansion and contraction joints.

Exposed edge restraints. F. Shop Drawings:

3. Details for edge restraint connection methods, including welding and anchor bolt locations.

a. Provide three representative 1/4-pound samples in containers of Joint Sand materials.

- 4. Details: Show detail of each type of setting assembly and interface between each type of adjoining paving.
- B. Adhesion and Compatibility Test Reports: From latex-additive manufacturer for mortar and grout containing latex additives. Material Certificates: For unit pavers. Include statements of material properties indicating compliance with requirements, including compliance with standards. Provide for each type and

D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified

testing agency, for unit pavers, indicating compliance with requirements. 1. For solid interlocking paving units, include test data for freezing and thawing according to

E. Cleaning and Maintenance Instructions:

Brick Pavers

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- 1.06 QUALITY ASSURANCE
- physical properties B. Certificates: Provide certificates as required by law for transportation and inspections of materials. Inspection and/or approval by governmental agencies does not preclude rejection of materials at

source with resources to provide materials and products of consistent quality in appearance and

2. The manufacturer shall have sufficient production capacity and established quality control procedures to produce, transport, and deliver the required number of pavers with the quality specified, without causing a delay to the work.

1. The manufacturer shall demonstrate a minimum of 5 years successful experience in the

as specified herein. D. Installer Qualifications: 1. A qualified unit paying installer. Installer's field supervisor shall have Concrete Payer Installer

- - **PROGRESS** NOT FOR CONSTRUCTION 9/16/2025

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**DENK ASSOCIATES** 

PROJECT #: 2501 ISSUE: AHBR REVIEW 04-01-2025 VARIANCE SET 04-17-2025 PLANNING COMMISSION09-15-2025

> LANDSCAPE **SPECIFICATIONS**

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CONCRETE PAVING JOINT SEALANTS

- to provide full-depth, continuous, straight, and smooth exposed surfaces.
- 1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less. Do not use notched and bent forms
- 2.03 STEEL REINFORCEMENT
- A. Reinforcing Bars: ASTM A615, Grade 60; deformed.
- Inc., St. Louis, MO (800-8325-9504), www.greenstreak.com; or equal.
- greater compressive strength than concrete specified, and as follows: 1. Equip wire bar supports with sand plates or horizontal runners where base material will not

- 1. Portland Cement: ASTM C150, Gray Portland cement Type II Type I/II.

- reinforcing bars, welded-wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of

32 13 13 - 4

- 2.06 RELATED MATERIALS

  - A. Expansion and Isolation-Joint-Filler Strips: ASTM D 1752, Provide with joint caps. 1. Basis of design: Products by WR Meadows.

a. Expansion and isolation joints in concrete paving. b. Contraction joints in concrete paving. 2. Joint Sealant: Multicomponent, nonsag, urethane, elastomeric joint sealant.

- - location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-
  - H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
  - defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive

  - and from damage resulting from construction operations or other causes so sealants are without

    - - CONCRETE PAVING JOINT SEALANTS

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C. Sieve Analyses: For aggregate setting-bed materials, according to ASTM C136. Joint materials involving color selection

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C. Paver Manufacturer's Qualifications:

UNIT PAVING

32 14 00 - 1

1. Full-size units of each type of unit paver indicated. Assemble not less than five Samples of

1.05 INFORMATIONAL SUBMITTALS A. Qualification Data: For Installer

A. Source Limitations: Obtain each type of unit paver, joint material, and setting material from one

3. The manufacturer shall have suitably experienced personnel and a management capability sufficient to produce the number of quality pavers as depicted on the contract drawings and

manufacture of interlocking pavers or clay pavers respectfully

Certification from the Interlocking Concrete Pavement Institute (ICPI) with the following a. Commercial Paver Technician Designation.

UNIT PAVING 32 14 00 - 2

 c. Radii 10 to 15 ft. cut every third paver, d. Radii 15 to 25 ft. cut every fifth paver, E. Modify paver pattern and /or provide additional cuts to adjacent pavers as necessary when the cutting of a paver will result in less than one third of a full paver. Pavers sliced longitudinally, except when being placed around utility manholes will not be accepted. All cut paver faces to be vertical, top edges shall be free from chips and pattern modification/additional cuts shall be as 1. Unit to Unit - Joint Width: 1/8" joints minimum, +1/16". Do not lay hand tight unless noted on UNIT PAVING 32 14 00 - 8

B. Manufacturer: Subject to compliance with requirements, provide products by one of the following:

C. STE-1: "Border Guard" - Landscape Steel Edging

1. Edging Size: 3/16 inch thick by 4 inches deep x 4 inches L.

2. Corners: Preformed 90 degree unless noted on drawings.

3. Accessories: Standard tapered ends, and splicers.

a. Threaded rods for anchorage of stainless-steel plates and angles: ASTM A 193, Type 304Stainless Steel, with 70,000-psi minimum tensile strength. b. Hex Nuts and coupling nuts for stainless steel threaded rod and stainless-steel bolts:

A. Verify that subgrade has been excavated to the proper depth and general layout, and area has

been compacted to min. 95% proctor. B. Place and spread aggregate subbase material as per drawings. Verify elevations are as per drawings and make necessary corrections prior to the installation of Stabilized Aggregate.

C. Pre-soak base material with water and compact to 95% determined by Test Method ASTM D 1557 prior to installing Stabilized Aggregate. Compaction testing to be provided by project owner, one test per 2,000 square feet of base.

D. Install permanent edge restraints in conjunction with other work. Secure in place ensuring displacement does not take place when Stabilized aggregate is placed and compacted. E. Ensure proper drainage of aggregate base and ensure no standing water is on or adjacent to

Stabilized Aggregate surface area. F. Before proceeding with installation, notify Owner's Representative in writing of unsuitable site/base conditions.

### 3.02 BLENDING STABILIZER

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A. Stabilizer® shall be thoroughly pre-mixed with aggregate at the rate of 15-lbs of Stabilizer® per 1ton of aggregate. Verify with manufacturer correct Stabilizer rate for your project and climate.

B. Drop spreading of Stabilizer® over pre-placed aggregate or mixing by rototilling is not acceptable. Stabilize shall be mechanically pre-mixed per manufacturer's recommendations using an approved mechanical blending unit to adequately blend Stabilizer® with aggregate (Bucket Blending is not an approved blending apparatus). 1. Always blend Stabilizer® and aggregate DRY

STABILIZED AGGREGATE

32 15 43 - 3

A. Store pavers on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp. C. Store aggregates where grading and other required characteristics can be maintained, and

contamination avoided. D. Store liquids in tightly closed containers protected from freezing.

1.09 FIELD CONDITIONS A. Cold-Weather Protection: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen subgrade or setting beds. Remove and replace unit paver work

#### PART 2 - PRODUCTS

2.01 MANUFACTURERS

damaged by frost or freezing.

A. Source Limitations: Obtain each type of unit paver, joint material, and setting material from single source with resources to provide materials and products of consistent quality in appearance and

#### 2.02 BRICK PAVERS

UNIT PAVING

32 14 00 - 3

A. Clay Brick Pavers: Reclaimed bricks. If not available, Basis of Design Manufacturer:

Pine Hall Brick Company Ph. No.: (800) 952-7425 www.pinehallbrick.com.

1. Paver Type: P3a – Pedestrian: a. Brick Pavers Light-traffic paving brick; ASTM C 902, Class SX Type R, Application PX, and ASTM C67 for Freeze/Thaw. Provide brick without frogs or cores in surfaces exposed to view in the completed Work.

b. Thickness: 2-1/4 inches

c. Face Size: 4 x 8 d. Edge: Square (no frogs) e. Color: Pathway Full Range

f. Pattern: Running Bond 2. Paver Type P3b – Heavy Duty

a. Heavy Duty traffic paying brick: ASTM C 1272, Class SX Type F, Application PX, and ASTM C67 for Freeze/Thaw. Provide brick without frogs or cores in surfaces exposed to view in the completed Work.

b. Thickness: 2-3/4 inches. c. Face Size: 4 x 8 d. Color: Rumbled Full Range

e. Pattern: Herringbone 3. Paver Type P3d – Heavy Duty

a. Heavy Duty traffic paving brick; ASTM C 1272, Class SX Type F, Application PX, and 2501 – Village Dental UNIT PAVING

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2. Maximum Variation of Finished Paving Surface from 10 Foot Straight Edge: 1/8-inch.

3. Maximum Lippage Between Paver Units: 1/32-inch. 4. No "birdbaths" or other surface irregularities will be permitted. Correct all irregularities to the satisfaction of the Architect.

G. At the end of the laying period, the pavers shall be adjusted to form straight pattern lines and

H. Protect newly laid pavers with plywood panels on which workers can stand. Advance protective panels as work progresses maintaining protection in areas subject to continued movement of additional leveling of paving is required, and before treating joints, roll paving with power roller. I. If weather conditions are such that the performance of the pavement may be compromised. laying operations shall be discontinued and all laid pavers shall be aligned and compacted prior J. On re-commencement of laying operations, the edge two courses of existing paving shall be lifted

and the setting bed rescreeded before further pavers are laid. K. At the end of each day, after the pavers have been aligned, and cut pavers incorporated at edge restraints and between lanes, the pavers shall be compacted.

L. Joint Sand Stabilizer: Install joint sand stabilizer per manufacturer's current written instructions.

A. Remove and replace unit pavers that are loose, chipped, broken, stained, or otherwise damaged

3.06 REPAIRING, POINTING, AND CLEANING

or that do not match adjoining units. Provide new units to match adjoining units and install in same manner as original units, with same joint treatment and with no evidence of replacement. B. Pointing: During tooling of joints, enlarge voids or holes and completely fill with grout. Point up joints at sealant joints to provide a neat, uniform appearance, properly prepared for sealant

C. Cleaning: Remove excess grout from exposed paver surfaces; wash and scrub clean. 1. Remove temporary protective coating from brick pavers as recommended by protective coating manufacturer and as acceptable to unit paver and grout manufacturer. Trap and

remove coating to prevent it from clogging drains. 3.07 MAINTENANCE

A. Inspection: Undertake an inspection of the paver surface with the installer, the construction manager and Architect and rectify all noted defects prior to handover. B. Repairs: Repair or replace any damaged Work to original specified condition prior to handover.

1. The Contractor shall arrange for the installer to return to the site, as directed by the Owner's Representative, to rectify any problems in the Work caused by his failure to adequately align or bond the pavers, compact the bedding material, or fill the joints. 2. Where lateral displacement of the sand set pavers has occurred adjacent to edge restraints the cut pavers shall be replaced with new pavers of the correct size to comply with the

specified joint widths and the joint sand shall be re-sanded and additional joint sand

3.08 PROTECTION

A. Provide barricades and warning devices as required to protect pavement and the public.

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A. After pre-blending, place Stabilized Aggregate directly on prepared subbase. Level to desired grade and cross section. Depth of pathways shall be 3 inches for heavy foot traffic and light vehicles. Do not place on filter fabric. Contact Stabilizer Solutions, Inc. for installation on slopes greater than 8%

B. If permanent edge restraints are installed, strike off Stabilized Aggregate and compact using hand tamp ensuring not to strike or displace steel edging. Repeat process until Stabilized aggregate is compacted to specifications and level with the steel edging.

3.04 WATERING A. Water heavily for full-depth moisture penetration of profile. Water activates Stabilizer®. Apply 25 to 45-gallons of water per 1-ton to achieve saturation. Randomly test for depth using a probing

device, which reaches full depth. B. Contractor shall wait a minimum of 6 to 72 hours or until such time that the Stabilized Aggregate is able to accept compaction from a 1 to 5-ton roller without separation, plowing or any other physical compromise of the aggregate C. If surface aggregate dries significantly quicker than subsurface material, lightly mist surface

before compaction.

3.05 COMPACTION A. Compact Stabilized Aggregate to 85% relative compaction by equipment such as: a 2 to 5-ton double drum roller making 3 to 4 passes. Do not begin compaction for 6 hours after placement and up to 72 hours. DO NOT use a vibratory plate compactor or vibration feature on roller, as vibration separates large aggregate particles. If pumping of pancaking of surface occurs, surface

is still to wet to roll. B. Take care in compacting surface when adjacent to planting and irrigation systems, use 8 inch or 10-inch hand tamp. Installation of Stabilized Aggregate more than 3 inches thick shall be installed in lifts. If 4 inch thick compacted (2) 2-inch lifts. If 5 inch thick, compact (2) 2.5-inch lifts. If Stabilized Aggregate is pre-moistened before installation entire 4 inch or 5-inch lift may be

C. Lightly spray surface area following compaction. Do not disturb aggregate surface with spray

3.06 INSPECTION

A. Finished surface of pathway shall be smooth, uniform, and solid with no evidence of chipping or cracking. Cured and compacted pathway shall be firm throughout profile with no spongy areas. B. Loose material shall not be present on the surface after installation but may appear after use and according to environmental conditions. Pathway shall remain stable underneath loose granite on top with a "natural' look.

C. Any significant irregularities in path surface shall be repaired to the uniformity of entire

3.07 MAINTENANCE

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A. Remove debris, such as paper, grass clippings, leaves or other organic material by mechanically blowing or hand raking the surface as needed. Any plowing program required during winter months shall involve the use of a rubber baffle on the plow blade or wheels on the plow that lifts the blade 1/4" off the paving surface.

B. During the first year, a minor amount of loose aggregate will appear on the paving surface (1/16 inch to 1/4 inch). If this material exceeds a 1/4 inch, redistribute the material over the entire surface. Water thoroughly to the depth of 1". Compact with power roller of no less than 1000 pounds. This process should be repeated as needed.

STABILIZED AGGREGATE

ASTM C67 for Freeze/Thaw. Provide brick without frogs or cores in surfaces exposed to view in the completed Work.

B. Chippage Limits of Installed Pavers: In addition to the requirements of ASTM C902 the following

1. Chipping: No more than 5% of all installed pavers shall be chipped on their exposed edges.

2. Individual Edges: No more than 20% of the length of any exposed edge shall be chipped.

3. Size of Chips: No individual chip shall be more than 1/2 inch long as measured along the

5. Stacked Bond Pattern Requirements: The overall measurement for outside face to outside

D. Temporary Protective Coating: Precoat exposed surfaces of brick pavers with a continuous film of

to prevent coated surfaces from contacting backs or edges of other units. If, despite these

precautions, coating does contact bonding surfaces of brick, remove coating from bonding

A. Steel Edge Restraints (Pedestrian): Manufacturer's standard weathered steel edging 3/16 inch

B. Heavy Duty (Vehicular) Steel Paving Retention Angles: Borcon TM - Weathered Steel angle.

Stainless Steel, with 70,000-psi minimum tensile strength.

1) Flat Washers: Type 304 stainless steel 1/8" thick.

C. Cover openings of structures in paving until permanent coverings are placed.

b. Threaded rods for anchorage of steel plates and angles: ASTM A 193, Type 304

B. Protect completed paving against damage during subsequent construction activities until date of

A. Review Date: Submit a written request for review for Final Acceptance at least five (5) working

**END OF SECTION 32 14 00** 

C. If cracking occurs, simply sweep fines into the cracks, water thoroughly and hand tamp with an 8

C. Pre-bend the dry required amount of Stabilizer® powder with the proper amount of aggregate in a

D. Add water to the pre-blended aggregate and Stabilizer®. Thoroughly moisten mix with 25 to 45

F. Compact with an 8 inch to 10-inch hand tamp or 250-to-300-pound roller. Keep traffic off areas for

**END OF SECTION 32 15 43** 

gallons per 1-ton of pre-blended material or to approximately 10% moisture content.

E. Apply moistened pre-blended aggregate to excavated area to finish grade.

A. Excavate damaged area to the depth of the Stabilized aggregate and square off sidewalls.

B. Completion: Work will be accepted upon satisfactory completion of all unit paving work.

c. Hex Nuts and coupling nuts for stainless steel threaded rod and stainless-steel bolts:

a temporary protective coating that is compatible with brick, mortar, and grout products and can

be removed without damaging grout or brick. Do not coat unexposed brick surfaces; handle brick

face of 24 pavers, when laid in contact in a straight line shall not vary by more than 3-1/2

4. No chip shall expose underlying material of a different color to the face of the paver.

C. Efflorescence: Brick shall be rated "not effloresced" when tested according to ASTM C67.

inches for end to end and 1-1/2 inches for sided to side width.

edge of the paver. No chip extending more than 1/8 inch from the edge of the paver shall be

b. Thickness: 2-3/4 inches.

e. Pattern: Herringbone

more than 1/8 inch deep.

surfaces before setting brick.

b. Ryerson

2.03 EDGE RESTRAINTS, CURBS AND GRATES

1. Manufacturer: Border Concepts, Inc

2.04 SAND SETTING-BED MATERIALS

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Final Completion.

3.09 FINAL ACCEPTANCE

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3.08 REPAIRS

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inch – 10-inch hand tamp plate.

B. If area is dry, moisten damaged portion lightly.

12 to 48 hours after repair has been completed.

thick by 3 inches high by 3 inch wide. Color: Weathered.

a. A.P.E. Paver Edge Restraint: 1/4" x 4" x 4"

1) Color: Borcon (Untreated)

ASTM A 194, Type 304, stainless.

shall apply at final completion:

d. Color: Rumbled Full Range

c. Face Size: 4 x 8

A. Sand for Leveling Course: Sound, sharp, washed, natural sand or crushed stone complying with gradation requirements in ASTM C 33 for fine aggregate, except that no more than 3 percent passing the No. 200 sieve.

2.05 AGGREGATE SETTING-BED MATERIALS

A. Aggregate for Leveling or Bedding Course:

1. Crushed #9 limestone grits—ASTM D 448 for size

2.06 SUB-BASE AND SUB-SLABS A. Compacted Aggregate Base Course: Section 31 20 00 Earth Moving specifications apply.

B. Concrete Sub-slabs: Section 32 13 13 Concrete Paving specifications apply. C. Geotextile Sub-Surface Drainage and Structural Fabrics: Refer to Section 31 20 00 Earth Moving. 2.07 ACCESSORIES

A. Cork Joint Filler: Preformed strips complying with ASTM D 1752, Type II. B. Compressible Foam Filler: Preformed strips complying with ASTM D 1056, Grade 2A1. C. Geotextile Fabric for Sand Stops: Soil separator shall be 12-inch square Mirafi 140N nonwoven

drainage fabric manufactured by Mirafi, Inc., Charlotte, NC 28224. 2.08 SAND JOINT FILLERS A. Stabilized Sand for Joints: Gator Supersand Bond by Alliance Designer Products Inc., 225

1. Color: To be selected from manufacturer's full range. B. Herbicide: Commercial chemical for weed control, registered with the EPA. Provide in granular liquid, or wettable powder form.

Boulevard Bellerose West, Laval Quebec H7L 6A1.

**PART 3 - EXECUTION** 

3.01 EXAMINATION

1. Manufacturer: Subject to compliance with requirements, provide products by one of the A. Examine surfaces indicated to receive unit paving, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance or cause a. A.P.E.3" - Border Concepts, Inc. latent defects in workmanship or function.

**UNIT PAVING** 

**UNIT PAVING** 

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B. Where unit paving is to be installed over waterproofing, examine waterproofing installation, with waterproofing Installer present, for protection from paving operations, including areas where waterproofing system is turned up or flashed against vertical surfaces. C. Proceed with installation only after unsatisfactory conditions have been corrected.

A. Remove substances from concrete substrates that could impair mortar bond, including curing and sealing compounds, form oil, and laitance.

B. Clean concrete substrates to remove dirt, dust, debris, and loose particles. C. Proof-roll prepared subgrade according to requirements in Section 31 20 00 "Earth Moving" to identify soft pockets and areas of excess yielding. Proceed with unit paver installation only after deficient subgrades have been corrected and are ready to receive subbase and base course for

SECTION 32 15 43 - STABILIZED AGGREGATE SURFACING (STABILIZED SOLUTIONS)

3.03 INSTALLATION, GENERAL

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**PART 1 - GENERAL** 

1.01 SUMMARY This Section includes material and labor requirements for construction with decomposed granite or crushed 3/8" or 1/4" minus aggregate pathway with Stabilizer® binder additive for the following

**UNIT PAVING** 

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2. Subgrade compaction. 3. Subbase aggregate installation and compaction.

4. Steel edging restraint on concrete footing. 1.02 PERFORMANCE REQUIREMENTS

A. Perform gradation of decomposed granite material or 3/8" or 1/4" minus crushed aggregate in accordance with ASTM C 136 - Method for Sieve Analysis for Fine and Coarse Aggregates.

1.03 SUBMITTALS

A. Manufacturer's Product Data: For each product specified. Submit a 2 lb. sample and sieve analysis for grading of decomposed granite or crushed 3/8" or 1/4" minus aggregate to be sent to Stabilizer Solutions, Inc. prior to any construction. Must be approved by Architect and Owner.

B. Shop Drawings: Show details of installation, including plans and sections. C. Maintenance Instructions: Submit copy(ies) of manufacture's written maintenance instructions.

1.04 PROJECT/SITE CONDITIONS

A. Field Measurements: Each bidder is encouraged to visit the site of the Work to verify the existing conditions. No adjustments will be made to the Contract Sum for variations in the existing

1. Where surfacing is indicated to fit with other construction, verify dimensions of other construction by field measurements before proceeding with the work. B. Environmental Limitations: Do not install stabilized aggregate paving during rainy conditions or

below 40 degrees Fahrenheit and falling. 1.05 QUALITY ASSURANCE

A. Installer Qualifications: Installer to provide evidence to indicate successful experience in providing stabilized aggregate paving containing Stabilizer binder additive.

B. Mock-ups: Install 4 ft. wide x 10 ft. long mock-up of stabilized crushed aggregate paving with Stabilizer additive at location as directed by owner's representative. C. Compaction testing to be provided by contractor, one test per 2,000 square feet of base course.

D. Manufacturer's technical representative shall visit the site at the start of an installation to ensure the installer understands the correct installation methods to use

1.06 WARRANTY

A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

STABILIZED AGGREGATE

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**SECTION 32 91 20 - ORGANIC PLANTING SOIL** 

**PART 1 - GENERAL** 

1.01 GENERAL REQUIREMENTS A. Manufactured soil mix in this section shall hereafter be referred to as Organic Planting Soil or

B. This Section applies only to the manufacturing and delivery of the planting soil mix to the site. Refer to Section 32 20 19 – Finish Grading for subgrade preparation, placement, and final

1.02 SUMMARY

A. Section Includes:

1. All labor, materials, equipment, and testing requirements necessary to provide and mix soil components, and deliver to site as specified herein, including but not necessarily limited to the following: a. Construct the specified Organic Planting Soil profile using the specified materials and

techniques as contained herein, on the drawings. 1) Imported or 'Off the shelf' products from authorized soil manufacturing facilities or

b. Test existing, in-place soils for requirements contained herein 2. Test, furnish and deliver all soil materials, including off-site borrow soils and soil amendment materials, such as composted materials, used in the OPS or per detail sections shown on the drawings.

1.03 REFERENCES AND STANDARDS A. The following references are used herein and shall mean:

1. ASTM: American Society of Testing Materials 2. NCR221: RecommSended Soil Testing Procedures for the North Central Region 3. SSSA: Soil Science of America, Methods of Soil Analysis, Part 1 & Part 3

4. TMECC: Test Methods for the Examination of Composting and Compost 5. USDA: United States Department of Agriculture 6. USEPA: United States Environmental Protection Agency B. Standard Specifications: Regional, State or Municipal Standard Specification Documentations for

the location of proposed usage.

1.04 DEFINITIONS A. Compost: An organic material that has been aerobically composted and stabilized from feedstocks such a green waste (yard debris), biosolids or other suitable organic materials.

B. Debris or Deleterious Materials: Elements including, but not limited to, concrete, concrete

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masonry, wood, excavated rock and rock fragments, rubble, overburden soils, abandoned utility structures, trash, refuse and litter C. Finish Grade: Elevation of finished surface of a Soil System after specified compaction and natural settling.

specified warranty period. Failures include, but are not limited to, the following: 1. Premature wear and tear, provide the material is maintained in accordance with manufacturer's written maintenance instructions. 2. Failure of system to meet performance requirements.

C. Warranty Period: Contractor shall provide warranty for performance of product. Contractor shall warranty installation of product for the time of one year from time when Architect has signed and authorized Substantial Completion. D. Contractor shall provide, for a period of sixty days, unconditional maintenance and repairs as

B. Special Warranty: Submit a written warranty executed by the installer agreeing to repair or

replace components of stabilized surfacing that fail in materials or workmanship within the

**PART 2 - PRODUCTS** 

2.01 STABILIZER A. Stabilizer® for Stabilized Aggregate surfaces provided by the following manufacturer:

Website: stabilizersolutions.com

Stabilizer Solutions, Inc. 33 South 28th St., Phoenix, AZ 85034 Ph. 602-225-5900

A. Manufacturer's Requirements

visible in finished work.

dust onto finish Work.

B. Fill holes with specified aggregate.

adjacent finishes.

pedestrian use.

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the laying of pavers proceeds.

that conflict with the Contract Documents.

during and after unit paver installation.

vehicular traffic or as approved by the Engineer.

C. Prior to installation, notify Architect in writing of any conflicts.

Meet requirements of paver manufacturers' current printed instructions, except requirements

B. Concrete Subbase: For system requiring concrete subbases, refer to Section 32 13 13 "Concrete

D. Provide edge restraints as indicated. Install edge restraints before placing unit pavers.

Paving" for finish specifications. Confirm finish and grade tolerances prior to paver installation.

1. Install edge restraints to comply with manufacturer's written instructions. Unless noted on

E. Temporary Edge Restraints: Install temporary edge restraints at transitions between project

phases or as needed to maintain traffic. Provide edge restraints suitable for the support of

F. Do not use unit pavers with chips, cracks, voids, discolorations, and other defects that might be

G. Cut unit pavers with motor-driven masonry saw equipment to provide clean, sharp, unchipped

neatly. Use full units without cutting where possible. Hammer cutting is not acceptable.

edges. Use a wet saw if possible. Cut units to provide pattern indicated and to fit adjoining work

otherwise soil surfaces of completed Work, either from the settling of dust or from the runoff of the

H. Locate wet saws in an area which debris from the sawing operation cannot stain, contaminate, or

I. Exercise care in handling coated brick pavers to prevent coated surfaces from contacting backs

A. Drill weep holes as indicated on drawings into concrete sub-base. Pre-drill prior to leveling course

. Place Geotextile fabric over weep holes. Tack in place so not to be displaced during leveling sand

content remains constant, and density is loose and constant until pavers are set and compacted.

be such that after compaction it forms a uniform layer nominally one inch thick. Upon

completion of the works the final surface of the pavers shall be 1/8 in. to 1/4 in. above

2. It shall be laid to a tolerance of plus or minus 3/16 in. allowing for the correct surcharge.

3. The screeded bedding sand shall not be subjected to any traffic by either mechanical or

4. Sufficient material shall be placed to ensure that no delay occurs to paver laying. Bedding

5. The voids left after the removal of screed rails shall be filled with loose bedding material as

shall be taken up and re-screeded prior to re-commencement of work.

to line and level. Screed rails shall be used at 4 ft. centers where grade changes occur.

uncompacted loose surface onto which the pavers shall be placed. The laving course shall

Where distances between screed rails exceed 12 ft. intervals an intermediate rail shall be set

aggregate that has been screeded but not covered with pavers at the end of each day's work

UNIT PAVING

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D. Place leveling course and screed to a thickness of 1 to 1-1/2 inches, ensuring that moisture

1. The bedding material shall be spread over the areas to be constructed to create an

or edges of other units. Remove coating from bonding surfaces before setting brick.

3.04 SAND OR AGGREGATE SETTING-BED APPLICATIONS (Over Concrete Base)

being installed and through entire thickness of concrete sub-base.

installation. DO NOT COVER WEEP HOLE with tape.

drawings or details, install anchors at intervals required to hold edge restraints in place

Stabilizer® Binder a. Patented, non-toxic, organic binder that is colorless and odorless concentrated powder that binds decomposed granite or crushed 3/8 inch or 1/4 inch minus aggregate

b. Product shall have 25 years' experience at same formulation. 2.02 AGGREGATE MATERIALS

A. Decomposed Granite or Stone Screenings as follows: Kafka Granite, LLC, 550 East Hwy 153

Mosinee, WI 54455

Ph. (800) 852-7415 Website: www.kafkagranite.com 1. Material: Provide pre-blended "Stabilized Pathway Mix" decomposed granite surfacing

2. Color: To be selected by Architect. No substitutions.

B. Base aggregate: Compacted crushed #304 limestone. 2.03 EXCESS MATERIALS

A. Provide owner's authorized rep. with the following excess materials for use in future Stabilized Aggregate repair: 40 to 50 lb. Bags of the Stabilized Aggregate blended with proper amount of

2.04 EDGE RETRAINTS A. Steel: Standard commercial-steel edging, fabricated in sections of standard lengths, welded to face of sections to receive anchoring bolts

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STABILIZED AGGREGATE

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D. Soil: A mineral soil from the A Horizon or B Horizon of a well-drained site and having a USDA soil

texture classification of a Clay or Clay Loam and an organic matter content of not greater than 3%

E. Soil System: Exclusive to this technical specification section, a profile consisting of the native topsoil blended with an approved composted material. 1.05 SUBMITTALS

A. Refer to and comply with specifications for submittal procedures and criteria. B. Product Data: Submit technical descriptive data for each manufactured or packaged product of this Section. Include manufacturer's product testing and analysis and installation instructions for

manufactured or processed items and materials. 1. Locations: Submit locations of material sources and suppliers.

C. Soil System Components and Soil Mix Suppliers 1. Architect shall have the right to reject any soil supplier. 2. Soil mix suppliers shall have a minimum of 5-years of experience at supplying

Manufactured" type soils. 3. Submit supplier name, address, email, telephone, and fax numbers and contact name. 4. Submit certification that accepted supplier can provide enough materials and mixes for the entire project and within the limitations of the Project Schedule.

Certificates; Submit certified analysis for each chemical soil amendment and fertilizer material specified (specimen label) and as used (product label). Including guaranteed analysis and weight or packaged materials. Soil System Testing Submittals: Engage an independent testing agency to qualify the Organic

Planting Soil (OPS) components and specified final planting mixes. The Contractor shall submit representative samples of all component materials which are intended to be used to make mixes and all final mixes to an agricultural soil testing laboratory acceptable to the Architect.

1. All soil tests shall be performed in accordance with the current methods provided by ASTM, SSSA or USEPA, unless otherwise noted. All reports prepared by the testing laboratory shall be sent to the Architect for approval. Samples of all soil materials to be brought to the site must be approved before delivery.

After reviewing the Testing Agency report and as directed by the Architect, deficiencies in the sand, organic materials, mix components or final soil mix are to be corrected by the

3. Soil Component Submittals shall include the following:

 a. Date issued. b. Project Title and names of Contractor and supplier.

c. Testing laboratory name, address and telephone number, and name(s), as applicable, of each field inspector or laboratory contact. d. Date, place, and time of sampling or test, with record of temperature and weather conditions.

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e. Location of material source. f. Type of test.

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g. Results of tests including identification of deviations from acceptable ranges. h. Soil pH and Buffer pH Test.

**SPECIFICATIONS** 

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STABILIZED AGGREGATE

www.pa-architects.com

**PROGRESS** 

NOT FOR

CONSTRUCTION

**PENINSULA** 

ARCHITECTS

9/16/2025

1775 Main Street

**T** 330.657.2800

PROJECT TEAM:

CIVIL ENGINEER:

**P** 406.543.6900

**P** 330.552.8211

MEP ENGINEER:

**DENK ASSOCIATES** 

**GUTOSKEY AND ASSOCIATES** 

STRUCTURAL ENGINEER

ORAVEC DESIGN BUILD

Peninsula, Ohio 44264

PROJECT #: 2501 ISSUE: AHBR REVIEW 04-01-2025 04-17-2025 VARIANCE SET PLANNING COMMISSION09-15-2025

LANDSCAPE

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k. Deleterious materials shall be determined by ASTM D 5286. I. Percent of organic matter by weight shall be determined by ASTM D 2974 Method C,

loss on ignition at 440°C. m. Saturated hydraulic conductivity shall be determined by ASTM F1815.

n. Analysis for nutrient levels in parts per millions or pound per acre including Nitrate Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, Iron, Manganese, Zinc, Copper, Boron, and Sodium as Exchangeable Sodium Percentage (ESP) per NCR221. o. Soluble salts shall be determined by electrical conductivity of a 1:2 soil/water slurry

p. Cation Exchange Capacity (CEC) per NCR221 using the ammonium acetate method. q. Soil analysis reports shall also show recommendations for soil additives, including organic and inorganic soil amendments, necessary to accomplish particular mix

4. Compost Component Testing Submittals

reported in millimhos per cm.

a. Report (s) of analyses from producers of composted organic materials are required. The compost shall be analyzed using the USCC STA test methods and reporting format, unless otherwise noted. Submit USCC STA Compost Technical Data Sheet for the delivered compost and dated within 9 months of delivery

b. Composted organic amendments shall be sampled according to the Ohio EPA State

1) Contact the testing laboratory to review testing and sampling requirements before sending samples.

Law / Legislation Code: OAC Chapter 3745-24-46. c. Maintain clear and concise records of testing and sampling procedures.

F. Testing Agencies: The following firms are acceptable testing agencies for the various

a. Certified Local Agencies may be used pending approval by Architect.

components. 1. Soils and mixes shall be determined by an A2LA Accredited Lab, such as Turf Diagnostics and Design, 613 E. 1st Street, Linwood, KS, 66052, tel. 855-769-4231, www.turfdiag.com or other qualified soil physical testing laboratory approved by the Architect.

2. Although the report(s) may contain the laboratory's comments or recommendations to the Architect regarding amendment requirements or procedures, the report shall not be interpreted as prescribing or dictating procedures or indicating quantities of soil materials for the work of this Contract.

3. Changing testing laboratories during the mix development phase or for quality assurance testing must be authorized by the Architect.

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G. Statement(s) of Qualifications: Submit within 45 days of notice to proceed to confirm qualifications of the selected testing agencies.

H. Submit samples of all listed materials to the Architect for approval:

1. Topsoil, each source, 5 lb. packaged. TOPSOIL - OPS ORGANIC PLANTING SOIL 2501 – Village Dental

2. Follow the OPS System Mix recommendations provided by the soil testing laboratory to achieve the target organic matter content for OPS soil. These test results, when approved will establish the standard to which all other test results must conform.

3. Provide one sample test from each 1000 cu. yds. of manufactured material using the testing as noted above. C. Adequate quantities of OPS mix shall be provided to attain all design finish grades after compaction at greater than between 80 to 85 percent Proctor. Verify quantities for placement as

specified to suit site conditions. D. Mixing of soil and compost: Add compost as recommended by the testing laboratory to achieve OPS mix unless approved by the Architect and additional tests have been conducted to verify

E. After OPS mix has been placed and where organic levels need to be higher for key areas, add and blend in 3 inches of approved composted organic material for every 2 percent increase to the "in-place" OPS mix.

### **PART 3 - EXECUTION**

3.01 GENERAL

A. Section 31 22 19 – Finish Grading applies.

type and quantity of amendment.

END OF SECTION 32 91 20

2. It shall be the responsibility of the Contractor to see that the specifications are being adhered to. Failure of the Architect to immediately reject unsatisfactory workmanship or to notify the

his/her responsibility to repair and/or replace unsatisfactory work.

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E. Pre-Installation Conferences: Person(s) responsible for soil preparation and mixes of this Section shall attend Pre-Installation Conference(s) to coordinate with work of other sections.

Contractor of his/her deviation from the specifications shall not relieve the Contractor of

### 1.07 PROJECT CONDITIONS

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A. Investigate the conditions of site and public thoroughfares and roads as to availability, clearances, loads, limits, restrictions, and other limitations affecting transportation to, ingress and egress of this work site. Conform to all governmental regulations regarding the transportation of materials to, from, and at the job site, and secure in advance such permits as may be necessary

B. Environmental Requirements for Soils, Soil System Components and Soil System Mixes: 1. Perform both off-site mixing and on-site soil work only during suitable weather conditions. Do not work soil when frozen, excessively wet, or dry, or in otherwise unsatisfactory condition.

2. HSCS mixes shall not be handled or hauled during rain or wet weather or when near or above the point where maximum compaction will occur.

When stockpiling is permitted, the Contractor shall install silt fence around the perimeter of the stockpile area and maintain the silt fence until the stockpile is removed. Soil Mix shall be kept in neat and separate piles from other excavated material.

Sequencing and Scheduling: Adjust, relate together and otherwise coordinate work of this Section with other Project work as contained in all other Sections of the Project Specifications.

### 1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Packaged Materials: Deliver packaged materials to the location where soils are to be mixed, in material composition, manufacturer's certified analysis, and the weight or the material. Retain packages for the Architect.

B. Store and handle packaged materials in strict compliance with manufacturer's instructions and

recommendations. Protect all materials from weather, damage, and theft. HSCS mixes or amendment materials stored on site temporarily in stockpiles prior to placement shall be protected from intrusion of contaminants and erosion. All temporary storage means, and

methods shall be approved by the Architect. D. After mixing, HSCS shall be covered with a tarpaulin until time of actual use and protected from contamination, excessive rainfall, excess water entering the site or erosion.

E. Stockpiling 1. On-site and Certified Mixing Facility stockpiles should be restricted to no more than the needs of what can be used in a 72-hr. period. Under no circumstances shall on-site or off-

site stored material exceed 1000 cubic yards. 2. Stockpiles should be no more than 6 feet in height to prevent anaerobic conditions within the pile. Stockpiled composts should be turned every other week (unless otherwise instructed by the Architect) to prevent anaerobic conditions, excessive water absorption and anaerobic conditions. Storage areas for topsoil shall be constructed on well drained land, away from

### **PART 2 - PRODUCTS**

the stream.

2.01 GENERAL

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A. HSCS Soil Mix profile contains the following system components:

2. Compost, each source, 5 lb. packaged.

3. Organic Planting Soil (final mix), 5 lb. packaged. I. Submit for approval at least two weeks prior to installation a written plan for mixing, transporting, and storing materials.

1.06 QUALITY ASSURANCE

A. The OPS mix is comprised of approved topsoil, additional organic amendment, and possibly other soil amendment materials, as determined by the testing laboratory. Each component of the OPS mix must meet the specification and be verified by testing as specified herein, prior to delivery to

B. Soil System Components of the OPS mix will not be accepted unless they meet all submittal, testing and certification requirements including the testing and certification reports in the format C. Inspections and Testing

1. Soil, compost, and other material testing as well as "Soil System Mix" testing required in this Section or additionally required by the Architect shall be furnished and paid for by

2. The Architect reserves the right to take and analyze at any time such additional samples of materials as deemed necessary for verification of conformance to specification requirements. Contractor shall furnish samples for this purpose upon request and shall

perform testing as requested. 3. Samples of individual components to the OPS mix shall be submitted by the Contractor for testing and analysis to the approved testing laboratory.

a. OPS soil components shall not be used until test reports from the approved testing laboratory have been received and approved by the Architect. 4. OPS Mix Components and Soil System Mix samples that do not meet the Specifications will require the Contractor to re-submit additional samples for testing. Costs for re-testing will be the responsibility of the Contractor

a. When OPS mix samples do not meet specification, make the needed adjustments to the mix per the test result recommendations. Retest new OPS mix sample and resubmit tests reports indicating amendment changes until approved.

5. Observations and periodic testing will be made by the Owner or its designated representative on materials delivered to the site, OPS mix not meeting the requirements of the Specifications shall be removed or amended by the Contractor at no cost to the project.

D. Qualifications: 1. Testing Laboratory: Experienced person (s) employed by public or private testing laboratory.

his/her responsibility to repair and/or replace unsatisfactory work.

SECTION 32 91 30 - HIGH SAND CONTENT LAWN AND PLANTING SOIL

Organic materials specific to Planting (P) areas.

as contained herein, on the drawings.

A. The following references are used herein and shall mean:

1. ASTM: American Society of Testing Materials

5. USDA: United States Department of Agriculture

6. USEPA: United States Environmental Protection Agency

"P" Planting Mixes (Plantings): Base Mix plus Compost.

2.02 BASE MIX - SOIL SYSTEM COMPONENT MATERIALS

2. The allowable particle size distribution is as follows:

U.S.D.A.

Particle

Gravel

Fine Gravel

Very Coarse Sand

Coarse Sand

Medium Sand

Very Fine Sand

a. Fineness Modulus (FM) - 2.5 to 3.2

b. Coefficient of Uniformity - 2.5 to 3.8

reports showing the following criteria are met:

a. The particle size analysis/distribution as defined above

c. The soluble salts shall be less than 0.5 mmoh/cm (NCR 221)

Fine Sand

b. The pH shall be 5.5 to 8.2

harmful to plant growth.

B. Base Mix: Soil Component

B. Soil components for HSCS Base Mix must be off-site, processed soil, (no exceptions)

1. The sand shall be a clean, sharp, natural silica sand that has been suitably washed and

Percent

Class Size (mm)

> 4.75

3.34 - 4.75

2.00 - 3.34

1.00 - 2.00

0.50 - 1.00

0.25 - 0.50

0.10 - 0.25

0.05 - 0.10

4. The sand shall meet the following specifications. Perform the following tests and submit test

d. The organic matter content shall be less than 1.0% (ASTM D 2974 Method C)

e. The material drainage rate shall be greater than 20 inches per hour and the total

5. Provide certification from the supplier that the sand does not contain any toxic substances

1. Off-site (borrow) soils meeting the specifications below may be used as the soil component

for the HSCS Base Mix. The source or location of the soil used shall be communicated to the

porosity shall be greater than 40% when compacted and tested at 85% Proctor.

3. Other Gradation Characteristics must fall within the limits specified below:

classified (sieved). Suitable sands may be referred to in commerce as a uniform, ASTM-33

concrete sand (preferred) or a coarse mason's sand. The selected sand must meet the

following U.S.D.A. particle size distribution as well as the other gradation characteristics

listed in Part 3 when tested in accordance with the ASTM D-422 using U.S.D.A. particle size

. Plans will identify areas as: HSCS - P.

qualified and capable of performing tests, making soil recommendations, and issuing reports as specified. The Testing Laboratory shall submit a Statement of Qualifications regarding the specified testing. The Testing Laboratory shall be as approved by the Architect. 2. It shall be the responsibility of the Contractor to see that the specifications are being adhered to. Failure of the Architect to immediately reject unsatisfactory workmanship or to notify the

E. Pre-Installation Conferences: Person(s) responsible for soil preparation and mixes of this Section shall attend Pre-Installation Conference(s) to coordinate with work of other sections.

Contractor of his/her deviation from the specifications shall not relieve the Contractor of

1.07 PROJECT CONDITIONS

PART 1 - GENERAL

1.02 SUMMARY

1.04 DEFINITIONS

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natural settling

A. Section Includes:

the drawings.

1.03 REFERENCES AND STANDARDS

structures, trash, refuse, and litter

Base Mix: Sand and Soil.

A. Base Mix: Sand Component

1.01 GENERAL REQUIREMENTS

 Investigate the conditions of site and public thoroughfares and roads as to availability, clearances, loads, limits, restrictions, and other limitations affecting transportation to, ingress and

TOPSOIL - OPS ORGANIC PLANTING SOIL 2501 – Village Dental 32 91 20 - 4

A. The Specified Soil Mix in this section shall be manufactured off-site and hereafter be referred to

B. This Section applies only to the manufacturing and delivery of the planting soil mix to the site.

specified herein, including but not necessarily limited to the following:

2. NCR221: Recommended Soil Testing Procedures for the North Central Region

3. SSSA: Soil Science of America, Methods of Soil Analysis, Part 1 & Part 3

4. TMECC: Test Methods for the Examination of Composting and Compost

A. Compost: An organic material that has been aerobically composted and stabilized from

B. Debris or Deleterious Materials: Elements including, but not limited to, concrete, concrete

C. Finish Grade: Elevation of finished surface of a Soil System after specified compaction and

D. High-Sand Content Soils: Homogenously blended mix of the specified sand, topsoil, and organic

TOPSOIL - HIGH SAND CONTENT SOIL

Retained

0 - 3

Gravel + Fine Gravel

10 - 25

20 - 40

20 -40

0 - 10

(Combined Silt+Clay)

Not more than 12% combined

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feedstocks such a green waste (yard debris), biosolids or other suitable organic materials.

masonry, wood, excavated rock and rock fragments, rubble, overburden soils, abandoned utility

Refer to Section 32 20 19 - Finish Grading for subgrade preparation, placement, and final

1. All labor, materials, equipment, and testing requirements necessary to complete soil system

a. Construct the specified HSCS profile('s) using the specified materials and techniques

2. Test, furnish and deliver all soil materials, including off-site borrow soils and soil amendment

materials, such as composted materials, used in the OPS or per detail sections shown on

component selection, soil preparation, mixing and placement as shown on the drawings and

1) Imported or 'Off the shelf' products from authorized soil manufacturing facilities or

as High Sand Content Soil mix or HSCS. HSCS may be blended with two different levels of

egress of this work site. Conform to all governmental regulations regarding the transportation of materials to, from, and at the job site, and secure in advance such permits as may be necessary. B. Environmental Requirements for Soils, Soil Components and Soil System Mixes: 1. Perform both off-site mixing and on-site soil work only during suitable weather conditions. Do not work or place soil when frozen, excessively wet, or dry, or in otherwise unsatisfactory

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

2. Soil Mixes shall not be handled or hauled during rain or wet weather or when near or above the point where maximum compaction will occur. 3. When stockpiling is permitted, the Contractor shall install silt fence around the perimeter of the stockpile area and maintain the silt fence until the stockpile is removed. Planting Soil

Mixes shall be kept in neat and separate piles from other excavated material. C. Sequencing and Scheduling: Adjust, relate together and otherwise coordinate work of this Section with other Project work as contained in all other Sections of the Project Specifications.

A. Packaged Materials: Deliver packaged materials to the location where soils are to be mixed, in unopened bags or containers, each bearing the name, guarantee, and trademark or the producer, material composition, manufacturer's certified analysis, and the weight or the material. Retain packages for the Architect.

B. Store and handle packaged materials in strict compliance with manufacturer's instructions and recommendations. Protect all materials from weather, damage, and theft.

C. Soil mixes or amendment materials stored on site temporarily in stockpiles prior to placement

shall be protected from intrusion of contaminants and erosion. All temporary storage means, and methods shall be approved by the Architect D. After mixing, soil mixes shall be covered with a tarpaulin until time of actual use and protected from contamination, excessive rainfall, excess water entering the site or erosion.

1. On-site and Certified Mixing Facility stockpiles should be restricted to no more than the needs of what can be used in a 72-hr. period. Under no circumstances shall on-site or offsite stored material exceed 1000 cubic yards.

2. Stockpiles should be no more than 6 feet in height to prevent anaerobic conditions within the pile. Stockpiled composts should be turned every other week (unless otherwise instructed by the Architect) to prevent anaerobic conditions excessive water absorption and anaerobic conditions. Storage areas for topsoil, soil components or planting system mixes shall be constructed on well drained land, away from the stream.

#### PART 2 - PRODUCTS

2.01 GENERAL A. All Organic Planting Soil components shall fulfill the requirements as specified.

B. Site salvaged topsoil will not be permitted for use as an OPS "Soil System Mix" component. C. For the purposes of this specification, all OPS mix is mixed off site, tested, approved, and

2.02 SOIL SYSTEM MIX – COMPONENT MATERIALS

imported from a certified facility.

A. Soil Component

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E. Sand: A naturally occurring mineral that has been processed to remove coarse gravel, silt and clay and sized to meet the specifications.

texture classification of a Clay or Clay Loam and an organic matter content of not greater than 3% by weight as specified below G. Soil System: Exclusive to this technical specification section, a profile consisting of native soil

F. Soil: A mineral soil from the A Horizon or B Horizon of a well-drained site and having a USDA soil

blended with the specified sand and organic (Compost) to approved and specified levels. H. Subgrade: Surface or elevation of subsoil remaining after completing excavation or backfill of soils or other materials immediately beneath a planting mix or other soil mix.

Transition Layer: The specified soil mix (in this case = HSCS "Lawn or Plant") is homogeneously blended into the existing native soil substrate to create a conversion layer between the native and specified soil mix (HSCS). Transition mixes and depths vary pending specified soil mix and plantings. Refer to drawings for depths.

#### 1.05 SUBMITTALS

A. Refer to and comply with specifications for submittal procedures and criteria.

B. Product Data: Submit technical descriptive data for each manufactured or packaged product of this Section. Include manufacturer's product testing and analysis and installation instructions for manufactured or processed items and materials

1. Locations: Submit locations of material sources and suppliers. C. Soil System Components and Soil Mix Suppliers.

Architect shall have the right to reject any soil supplier.

2. Soil mix suppliers shall have a minimum of 5-years of experience at supplying custom mixes. 3. Submit supplier name, address, email, telephone, and fax numbers and contact name.

4. Submit certification that accepted supplier can provide enough materials and mixes for the entire project and within the limitations of the Project Schedule. D. Certificates: Submit certified analysis for each chemical soil amendment and fertilizer material specified (specimen label) and as used (product label). Including guaranteed analysis and weight

for packaged materials E. Soil System Testing Submittals: Engage an independent testing agency to qualify HSCS components and specified soil mix types. The Contractor shall submit representative samples of all component materials which are intended to be used to make mixes and all final mixes to an

agricultural soil testing laboratory acceptable to the Architect 1. All tests shall be performed in accordance with the current methods provided by ASTM, SSSA or USEPA, unless otherwise noted. All reports prepared by the testing laboratory shall be sent to the Architect for approval.

2. After reviewing the Testing Agency report and as directed by the Architect, deficiencies in the sand, organic materials, mix components or final soil mix are to be corrected by the

3. Sand and Soil Component Test reports shall include the following:

 Date issued. b. Project Title and names of Contractor and supplier.

c. Testing laboratory name, address and telephone number, and name(s), as applicable, of each field inspector or laboratory contact.

d. Date, place, and time of sampling or test, with record of temperature and weather

2. Soils shall be clean, loamy, friable mineral soil essentially free from heavy or stiff clay lumps

3. Soils shall be essentially free of stones, cinders, concrete, brick, roots, sticks brush, litter,

The soil shall be free of herbicides, petroleum-based materials, manures, or other

4. The soil shall be free of noxious weeds, seeds or vegetative parts of weedy plants that

Size (mm)

2.00 - 4.75

0.05 - 2.00

0.002 - 0.05

minus 0.002

6. Perform the following tests and submit test reports showing the following criteria are met:

e. Certified test results of bulk soils stored by certified suppliers must be within the last 12

7. Representative samples shall be taken for each 500 cu. yds. of stockpiled soil and submitted

to the soil physical testing laboratory for qualification to the specification above.

8. Provide certification from the supplier that the soil does not contain any toxic substances

1. For bidding, the Base Mix shall substantially conform to a mix of 4 parts approved Sand and

2. At least six weeks prior to mixing at a certified mixing facility, submit to the physical soil

1 part (vol./vol.) approved Soil. The actual Sand to Soil ratio will be determined by the soil

testing laboratory a 4-gallon volume (minimum) of the approved Sand and a 3-gallon volume

physical testing laboratory to meet the required performance specification shown below.

3. Instruct the laboratory to develop a Sand to Soil mix ratio that results in a saturated hydraulic

representative sample, of not less than 5 pounds, to the soil physical testing laboratory for

Gravel/Sand Classifications using the same particle size classifications shown for the

manufacture another 10 to 20 cu. yds. following the new recommendations provided by the

conductivity (ASTM F 1815) of 6 to 12 inches per hour at approximately 85% Proctor.

4. Manufacture 10 to 20 cu. yds. of Base Mix using the Sand to Soil ratio specified by the

laboratory using a mechanical soil blender designed for such purpose. Submit a

a. Soil physical testing laboratory to verify its USDA Soil Texture Analysis with

5. If the manufactured Base Mix results do not substantially match the laboratory test mix,

comparison to the test mix prepared by the soil physical testing laboratory.

5. The soil shall be taken from the A Horizon or B Horizon of a well-drained site and have a

USDA soil texture classification of a Clay or Clay Loam. The soil shall have the following

substances of a hazardous or toxic nature which may inhibit plant growth.

cannot be selectively controlled in the planting.

The particle size analysis as defined above.

b. The pH shall be approx. 5.5 to 7.5 (NCR 221)

c. The soluble salts shall be less than 1.5 mmoh/cm (NCR 221)

(minimum) of the approved processed and screened Soil.

Sand component in Part 2.02, A.

d. The organic matter content shall be 4.0% (ASTM D 2974 Method C)

particle size distribution:

Particle Name

harmful to plant growth.

C. Base Mix Preparation

U.S.D.A.

Gravel

(3/4" max dia.). Once qualified for HSCS use, soil shall be processed and screened to meet

plastics, metals, refuse or other deleterious materials in accordance with ASTM D 5286-92.

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Allowable Limit

Less than 10%

25 – 40 %

25 – 45 %

30 – 50 %

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TOPSOIL - HIGH SAND CONTENT SOIL 32 91 30 - 3

a. These test results and criteria, when approved by the Architect, shall establish the standard to which all subsequent HSCS Base Mix tests must conform. 6. The Base Mix shall have one sample tested from each 500 cu. yds. of manufactured

soil physical testing laboratory. Repeat as necessary until the test results substantially

1. A clean, loamy, friable mineral soil free from heavy or stiff clay lumps (3/4" max dia.), stones,

2. The soil shall be free of herbicides, petroleum-based materials, manures, or other

3. The soil shall be free of noxious weeds, seeds or vegetative parts of weedy plants that

2.00 - 4.75

0.05 - 2.00

0.002 - 0.05

minus 0.002

d. The organic matter content shall be 3.0 to 6.0% (ASTM D 2974 Method C)

5. Perform the following tests and submit test reports showing the following criteria are met:

e. Certified test results of bulk topsoil stored by certified suppliers must be within the last

6. Provide certification from the supplier that the topsoil does not contain any toxic substances

a. The organic amendment shall be stable, mature aerobically composted vard debris

peat, peat-humus, and mushroom compost products are not acceptable.

(green waste) compost. Leaf humus compost, manure composts, biosolids compost,

b. Compost Component Testing submittal results, per the Quality Assurance requirements

2) The compost shall have a man-made foreign material (hard plastics, metal, glass,

3) The compost shall be screened such that a minimum of 90% passes a U.S. Std.

5) The compost shall have a soluble salts content less than 6.0 millimhos per cm.

3/4" sieve and that no more than 10% passes a U.S. Std. No.10 sieve on a dry

TOPSOIL – OPS ORGANIC PLANTING SOIL

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etc.) content less than 1.5% as material retained on a U.S. Std.No.5 (4 mm) sieve

1) The compost shall be a homogeneous material essentially free of soil clods,

4. The soil shall be taken from the A Horizon or B Horizon of a well-drained site and have a

USDA soil texture classification of a Clay Loam or Loam. The soil shall have the following

Allowable Limit

Less than 10%

25 – 40 %

10 – 45 %

30 – 50 %

substances of a hazardous or toxic nature which may inhibit plant growth.

materials in accordance with ASTM D 5286-92

cannot be selectively controlled in the planting.

The particle size analysis as defined above

b. The pH shall be approx. 5.5 to 7.8 (NCR 221)

12 months from the date of bid opening.

1. Organic Component – Non-proprietary Requirements:

shall meet the following characteristics:

4) The compost shall have a pH of 7.2 to 8.0.

when determined on a 1:5 compost/water slurry.

g. Results of tests including identification of deviations from acceptable ranges.

k. Deleterious materials shall be determined by ASTM D 5286.

delivered compost and dated within 9 months of delivery

Law / Legislation Code: OAC Chapter 3745-24-46.

m. Saturated hydraulic conductivity shall be determined by ASTM F1815.

i. Analysis for levels of heavy metals to include arsenic, cadmium, chromium, copper,

lead, mercury, nickel, selenium, and zinc. Test results shall be cited in milligrams per

kilogram dry weight with comparisons to USEPA 40 CFR Table 3 of 503.13 Pollutant

Particle size analysis shall be performed and compared to the LISDA Soil Classification

System per ASTM D422 (hydrometer test). The USDA sand and gravel classifications

shall be determined on material retained on the #270 sieve following a wet washing

Percent of organic matter by weight shall be determined by ASTM D 2974 Method C,

n. Analysis for nutrient levels in parts per millions or pound per acre including Nitrate

Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, Iron, Manganese, Zinc,

o. Soluble salts shall be determined by electrical conductivity of a 1:2 soil/water slurry

p. Cation Exchange Capacity (CEC) per NCR221 using the ammonium acetate method.

q. Soil analysis reports shall also show recommendations for soil additives, including

Copper, Boron and Sodium as Exchangeable Sodium Percentage (ESP) per NCR221.

organic and inorganic soil amendments, necessary to accomplish mix objectives noted.

a. Report(s) of analyses from producers of composted organic materials are required. The

compost shall be analyzed using the USCC STA test methods and reporting format.

unless otherwise noted. Submit USCC STA Compost Technical Data Sheet for the

1) Contact the testing laboratory to review testing and sampling requirements before

b. Composted organic amendments shall be sampled according to the Ohio EPA State

1. HSCS physical analysis on all components and mixes including particle size analysis shall

Street, Linwood, KS, 66052, tel. 855-769-4231, www.turfdiag.com or other qualified soil

Although the report(s) may contain the laboratory's comments or recommendations to the

Owner's Representative regarding amendment requirements or procedures, the report shall

be determined by an A2LA Accredited Lab, such as Turf Diagnostics and Design, 613 E. 1st

a. Spectrum Analytic, 1087 Jamison Rd. NW, Washington Court House, OH 43160-8748,

c. Maintain clear and concise records of testing and sampling procedures.

F. Testing Agencies: The following firms are acceptable testing agencies for the various

physical testing laboratory approved by the Owner's Representative.

tel. 800-321-1562 740-335-1562, www.spectrumanalytic.com.

2. Certified Local Agencies may be used pending approval by Owner's Representative.

lumps, roots, and stones.

weight basis.

e. Location of material source.

h. Soil pH and Buffer pH Test.

loss on ignition at 440°C.

reported in millimhos per cm

4. Compost Component Submittals

Concentrations.

f. Type of test.

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c. The soluble salts shall be less than 1.5 mmoh/cm (NCR 221)

particle size distribution:

harmful to plant growth.

B. Composted Organic Mix Component

U.S.D.A.

Sand

Particle Name

cinders, concrete, brick, roots, sticks brush, litter, plastics, metals, refuse or other deleterious

material using the testing methods specified. 7. Handling of Base Mix - Before the Base Mix is mixed with the Organic Amendment, handle and pile the Base Mix in the following manner:

a. Homogenize to make a uniform mix, free of soil lenses and other irregularities. b. Aerate the Base Mix to make a friable planting medium. c. Separate out and remove all clay lumps, stones, roots, and other debris

8. Restrict stockpiling of Base Mix on-site, off-site, and at the source to no more than the needs of what can be used in a 72-hr. period. 2.03 HSCS LAWN AND PLANTING MIXES: SOIL SYSTEM COMPONENT MATERIALS

A. Base Mix Component – Use HSCS Base Mix as described above in "Base Mix – Preparation". B. Compost Component

1. Organic Component – Non-proprietary Requirements:

shall meet the following characteristics:

a. The organic amendment shall be stable, mature aerobically composted yard debris (green waste) compost. Leaf humus compost, manure composts, biosolids compost, peat, peat-humus, and mushroom compost products are not acceptable b. Compost Component Testing submittal results, per the Quality Assurance requirements

The compost shall be a homogeneous material essentially free of soil clods, lumps, roots, and stones. 2) The compost shall have a man-made foreign material (hard plastics, metal, glass, etc.) content less than 1.5% as material retained on a U.S. Std.No.5 (4 mm) sieve

(TMECC 03.06) 3) The compost shall be screened such that a minimum of 90% passes a U.S.Std. 3/4" sieve and that no more than 10% passes a U.S. Std. No.10 sieve on a dry

5) The compost shall have a soluble salts content less than 6.0 millimhos per cm.

when determined on a 1:5 compost/water slurry 6) The compost shall have an organic matter content of not less than 35% by weight determined by ASTM D2974-87 Method C on material passing a U.S. Std.1/4"

4) The compost shall have a pH of 7.2 to 8.0.

centimeter (q/cc).

7) The compost shall have a carbon to nitrogen (C:N) ratio less than 36:1. 8) The compost shall have a Solvita® Maturity Index between 6 and 7. 9) The compost shall have a moisture content of 35% to 65%. 10) The compost shall have a dry bulk density of 0.17 to 0.35 grams per cubic

11) The compost shall be tested for nitrate nitrogen, phosphorus, potassium, calcium, magnesium, iron, manganese, zinc, copper, boron, and sodium using the SME-DTPA extraction method (NCR-221)

6) The compost shall have an organic matter content of not less than 35% by weight determined by ASTM D2974-87 Method C on material passing a U.S. Std.1/4"

7) The compost shall have a carbon to nitrogen (C:N) ratio less than 36:1.

8) The compost shall have a Solvita® Maturity Index between 6 and 7.

9) The compost shall have a moisture content of 35% to 65%

10) The compost shall have a dry bulk density of 0.17 to 0.35 grams per cubic centimeter (g/cc).

11) The compost shall be tested for nitrate nitrogen, phosphorus, potassium, calcium, magnesium, iron, manganese, zinc, copper, boron, and sodium using the SME-DTPA extraction method (NCR-221)

12) The heavy metal content as determined by TMECC 04.06 shall not exceed the following limits:

	· ·	Concentration Limits
_	Element	(mg/Kg d.w.)
	Arsenic	41
	Cadmium	39
	Chromium	1200
	Copper	1500
	Lead	300
	Mercury	17
	Molybdenum	50
	Nickel	420
	Selenium	36
	Zinc	2800

13) The compost shall meet all applicable state regulations based on the feedstock

14) All compost testing shall be done in conformance with the U.S. Compost Council's publication Test Methods for the Examination of Composting and Compost (TMECC) unless otherwise specified above.

#### 2.03 ORGANIC PLANTING SOIL MIX (OPS):

A. OPS "Soil System" Mix – Non-proprietary Requirements: 1. For the purpose of bidding, the OPS Mix shall substantially conform to a mix of 4 parts of the approved Soil and 1 part (vol./vol.) of the approved Compost. The actual Soil: Compost ratio will be determined by the soil physical testing laboratory to meet the required performance

a. Organic Matter Content: 5 to 8 percent b. pH Level: 5.5 to 7.8 percent The controlling factor will be the percent (%) organic matter by weight specified for OPS mix.

Note that the intended volume ratios of the Organic Amendment (compost) components will

be, in large part, determined by the organic matter content of the compost. B. Uniformly mix components using a mechanical soil blender designed for such purpose. 1. Perform initial tests to confirm compliance with the OPS mixes organic matter content specifications.

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not be interpreted as prescribing or dictating procedures or indicating quantities of soil

materials for the work of this Contract. 4. Changing testing laboratories during the mix development phase or for quality assurance testing must be authorized by the Architect.

G. Statement(s) of Qualifications: Submit within 45 days of notice to proceed to confirm qualifications

of the selected testing agencies. H. Submit samples of all listed materials to the Architect for approval:

1. Sand, each source, 2-4 lb. packaged. 2. Native Soil, each source, 2-4 lb. packaged.

Compost, each source, 2-4 lb. packaged.

HSCS Base Mix, 2-4 lb., packaged HSCS Planting Mix, 2-4 lb., packaged.

Submit for approval at least two weeks prior to installation a written plan for mixing, transporting, storing, placing, and settling installed materials.

1.06 QUALITY ASSURANCE A. Prior to manufacturing the specified soil mix, each Soil System Component of the HSCS as

defined, must meet the specification, and be verified by testing as specified herein. B. Submit testing and certification reports in the format specified.

C. Inspections and Testing 1. Testing required in this Section or required by the Architect for the Soil System Components

such as, sands, soils, composts, and HSCS Mix Types for Lawn and Planting mixes, shall be furnished and paid for by Contractor. 2. The Architect reserves the right to take and analyze at any time such additional samples of materials as deemed necessary for verification of conformance to specification

requirements. Contractor shall furnish samples for this purpose upon request and shall perform testing as requested

Samples of individual components for the HSCS Mixes shall be submitted by the Contractor for testing and analysis to the approved testing laboratory. a. HSCS Soil System Components shall not be used until test reports from the approved testing laboratory have been received and approved by the Architect.

b. HSCS Soil System Components or HSCS Mix samples that do not meet the Specifications will require the Contractor to re-submit additional samples for testing. Costs for re-testing will be the responsibility of the Contractor. When HSCS Mixes do not meet specification, make the needed adjustments per the

amended mix until mix meets specifications. Submit final results. 4. Observations and periodic testing will be made by the Owner or its designated representative on materials delivered to the site. HSCS Mix not meeting the requirements of the Specifications shall be removed by the Contractor at no cost to the project.

test results recommendations, mix new batch and retest. Retest, amend and test

D. Qualifications: Testing Laboratory: Experienced person (s) employed by public or private testing laboratory, qualified and capable of performing tests, making soil recommendations, and issuing reports as specified. The Testing Laboratory shall submit a Statement of Qualifications regarding the specified testing. The Testing Laboratory shall be as approved by the Architect.

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12) The heavy metal content as determined by TMECC 04.06 shall not exceed the

,	following limits:	zetermined by Time et al. 100 endir het e.	,,,	
	Concentration Limits			
	Element	(mg/Kg d.w.)		
	Arsenic	41		
	Cadmium	39		
	Chromium	1200		
	Copper	1500		
	Lead	300		
	Mercury	17		
	Molybdenum	50		
	Nickel	420		
	Selenium	36		

13) The compost shall meet all applicable state regulations based on the feedstock

14) All compost testing shall be done in conformance with the U.S. Compost Council's

publication Test Methods for the Examination of Composting and Compost

(TMECC) unless otherwise specified above. 2.04 HSCS PLANTING MIX (HSCS-P)

A. For bidding, the Planting Mix shall substantially conform to a mix of 3 parts approved Base Mix and 1 part (vol./vol.) approved Compost. The actual Base Mix to Compost ratio will be determined by the soil mix type specified and the physical testing laboratory to meet the required performance specifications shown below.

B. At least six weeks prior to mixing at a certified mixing facility, submit to the physical soil testing laboratory a 4-gallon volume (minimum) of the approved Base Mix and a 4-gallon volume (minimum) of the approved Compost. C. Instruct the laboratory to determine the Base Mix to Compost ratio that results in an organic

matter content to the following percentages on material passing a U.S. Std. 1/4-inch sieve using ASTM 2974 Method C 1. Planting Installations – Soil Mix Type HSCS-P: Organic content level of 5 to 8%. a. 7.5 to 8.0 pH.

D. Manufacture 10 to 20 cu. yds of the of each specified Planting Mix Type using the Base Mix and the Compost in the ratio specified by the laboratory using a mechanical soil blender designed for such purpose. Submit a representative sample, of not less than 5 pounds, to the soil physical testing laboratory for comparison to the test mix prepared by the soil physical testing laboratory. 1. The manufactured Planting Mix shall have a granular consistency essentially free of soil lumps larger than 1 inch.

E. If the manufactured Planting Mix results do not substantially match the laboratory test mix, manufacture another 10 to 20 cu. yds. following the new recommendations provided by the soil physical testing laboratory. Repeat as necessary until the test results substantially match. 1. The final test results and criteria, when approved by the Architect, shall establish the standard for each Soil Mix Type to which all subsequent HSCS Planting Mix tests must

F. For each Planting Mix Type, have one sample tested from each 1000 cu. yds. of manufactured material using the testing as noted above.

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**PROGRESS** 

NOT FOR

CONSTRUCTION

9/16/2025

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PROJECT #: 2501 ISSUE: AHBR REVIEW 04-01-2025 04-17-2025 VARIANCE SET PLANNING COMMISSION09-15-2025

**LANDSCAPE SPECIFICATIONS** 

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B. Proceed with installation only after unsatisfactory conditions have been corrected. C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area. remove the soil and contamination as directed by Architect and replace with new planting soil.

3.02 PREPARATION A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations. 1. Protect grade stakes set by others until directed to remove them.

B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soilbearing water runoff or airborne dust to adjacent properties and walkways.

3.03 TURF AREA PREPARATION

A. General: Prepare planting area for soil placement, mix planting soil and finish grades according to Sections 32 91 00 – through 32 91 50 Planting Preparation specifications. B. Placing Planting Soil: Place and prepare soil mix per Specifications 31 22 19 - Finish Grading.

C. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

D. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading. 3.04 APPLICATION OF FERTILIZER

A. Fertilizers and conditioners shall be applied at the following rates:

1. Fertilizer – Apply at rates according to soil analysis testing reports. B. Mixing with planting soil: 1. Fertilizer and conditioners shall be spread over the entire lawn areas at the application rates

1. Reduce elevation of planting soil to allow for soil thickness of sod.

2. Materials shall be uniformly and thoroughly mixed into the top 4" of topsoil by discing. rototilling, or other approved method. 3.05 PREPARATION FOR EROSION-CONTROL MATERIALS

A. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material

B. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

A. Harvest, deliver, store, and lay sod within 12 hours of harvesting unless a suitable preservation method is accepted by Architect prior to delivery time. Do not lay sod if dormant or if ground is B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or

overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to soil or sod during installation. Tamp and roll lightly to ensure contact with soil, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass. 1. Lay sod across slopes exceeding 1:3.

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molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant. Some sources classify herbicides separately from pesticides. J. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.

K. Planting Area: Areas to be planted. L. Plant Spread: Measurement of main body diameter, not measurement from branch tip to branch

M. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. Soil preparations vary. See Sections 32 91 00 through 32 91 40 – Planting Prep and Soils for soil preparation and drawing designations for planting soils. 1. Planting Soil Mix: A sand/soil/compost material produced off-site by homogeneously

blending topsoil and sand with compost to produce the specified planting mix type. 2. "Planting Soil Mix" and "Planting Soil" are interchangeable terms used throughout this

N. Plant; Plants; Plant Material: These terms refer to vegetation in general, including trees, shrubs, vines, ground covers, ornamental grasses, bulbs, corms, tubers, or herbaceous vegetation.

O. Root Flare (root collar, trunk flare, root crown); The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots, the area of transition between the root system

P. Stem Girdling Roots: Roots that encircle the stems (trunks) of trees below the soil surface. Q. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

R. Subsoil: All soil beneath the topsoil layer of the soil profile and typified by the lack of organic

matter and soil organisms S. Substantial Completion Acceptance: The date at the end of the Planting, Planting Soil, and

Irrigation installation where the Architect accepts that all work in these sections is complete, and the Warranty period (aka "Contractor's Warranty Period") is to begin. This date may be different than the date of substantial completion for the other sections of the project.

T. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.

1.04 COORDINATION

A. Coordination with Turf Areas (Lawns): Plant trees, shrubs, and other plants after finish grades are established and before planting turf areas unless otherwise indicated. 1. When planting trees, shrubs, and other plants after planting turf areas, protect turf areas, and promptly repair damage caused by planting operations.

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1.05 ACTION SUBMITTALS A. Product Data: For each type of product.

1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials. 2. Plant Photographs: Include color photographs, (2) minimum per species, in digital format of each required species and size of plant material as it will be furnished to Project. Take photographs from an angle depicting true size and condition of the typical plant to be furnished. Include a scale rod or other measuring device in each photograph. For species where more than 20 plants are required, include a minimum of three photographs showing the average plant, the best quality plant, and the worst quality plant to be furnished. Identify SECTION 32 92 00 - TURF GRASS AND SOD

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Sodding.

2. Turf renovation. Erosion-control material(s).

Maintenance

1.02 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation. B. Base Mix: Homogenously blended mix of the specified topsoil and the specified sand which is

then used for mixing with the specified organic amendment to create various Planting Mixes. C. Compost: An organic material that has been aerobically composted and stabilized from feedstocks such as a green waste (yard debris) or other suitable organic materials

D. Finish Grade: Elevation of finished surface of planting soil. E. Manufactured Planting Soil Mix: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce a planting soil mix.

F. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.

G. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses. H. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. Soil

preparations vary. See Sections 329100 through 329140 – Planting Prep and Soils for soil preparation and drawing designations for planting soils. I. Sand: a naturally occurring material that has been processed to remove coarse gravel, silt and

clay and sized to meet the specifications. J. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

K. Subsoil: All soil beneath the topsoil layer of the soil profile and typified by the lack of organic matter and soil organisms. . Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In

undisturbed areas, the surface soil is typically topsoil, but in disturbed areas such as urban

1.03 PREINSTALLATION MEETINGS

environments, the surface soil can be subsoil.

A. Preinstallation Conference: Conduct conference at Project site prior to beginning seedbed preparations. Construction Manager, Owner and Architect should be notified at least one week prior to the intended meeting date.

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2. Anchor sod on slopes exceeding 1:6 with biodegradable sod stakes spaced as recommended by sod manufacturer but not less than two anchors per sod strip to prevent

water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2

D. No heavy equipment to be allowed on the amended soil during installation of sod. All equipment

C. Saturate sod with fine water spray within two hours of planting. During first week after planting,

for sodding and maintenance should be either track type or utilize high flotation turf type tires.

Renovate existing turf where indicated.

recommendations.

3.07 TURF RENOVATION

B. Renovate turf damaged by Contractor's operations, such as storage of materials or equipment and movement of vehicles

1. Reestablish turf where settlement or washouts occur or where minor regrading is required. Install new planting soil as required. C. Remove sod and vegetation from diseased or unsatisfactory turf areas; do not bury in soil.

D. Remove topsoil containing foreign materials, such as oil drippings, fuel spills, stones, gravel, and other construction materials resulting from Contractor's operations, and replace with new planting

E. Mow, dethatch, core aerate, and rake existing turf. F. Remove weeds before seeding. Where weeds are extensive, apply selective herbicides as required. Do not use pre-emergence herbicides.

G. Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and turf, and legally dispose of them off Owner's property. H. Till stripped, bare, and compacted areas thoroughly to a soil depth of 6 inches.

I. Apply soil amendments and initial fertilizer required for establishing new turf and mix thoroughly into top 4 inches of existing soil. Install new planting soil to fill low spots and meet finish grades.

1. Soil Amendment(s): Amend soil as per soil test results for specified turf grass soils. See applicable Sections 32 91 00 through 32 91 40 - Planting Prep and Soils for specified soil mix, testing, installation, and preparation. 2. Initial Fertilizer: Slow-release fertilizer applied according to manufacturer's

J. Water newly planted areas and keep moist until new turf is established.

3.08 TURF MAINTENANCE A. Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Begin maintenance immediately after each area is planted and continue until acceptable turf is established, but for not less than the following periods:

1. Sodded Turf: 30 days from date of Substantial Completion. B. Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.

2. Apply treatments as required to keep turf and soil free of pests and pathogens or disease.

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each photograph with the full scientific name of the plant, plant size, and name of the

growing nursery. 3. Tree Selection Approvals: a. Acceptable trees will meet the following health and structure requirements: single dominate leader, branching and root structure appropriate for species, caliper size or height per plans, pest, and disease free, damage free and other ANSI requirements. Acceptable trees will also meet the following aesthetic requirements straight trunk, symmetry, uniformity and fullness of branching, general form, and overall uniformity of

all trees of a species. No trees shall be delivered to the site without documentation. B. Samples for Verification: For each of the following: Organic Mulch: 1-pint volume of each organic mulch required; in sealed plastic bags labeled with composition of materials by percentage of weight and source of mulch. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of color, texture, and organic makeup

2. Weed Control Barrier: 12 by 12 inches. 3. Proprietary Root-Ball-Stabilization Device: One unit.

4. Slow-Release, Tree-Watering Device: One unit of each size required.

5. Edging Materials and Accessories: Manufacturer's standard size, to verify color selected. 1.06 INFORMATIONAL SUBMITTALS A. Qualification Data: For landscape Installer. Include a list of similar projects completed by Installer

demonstrating Installer's capabilities and experience. Include project names, addresses, and year completed, and include names and addresses of owners' contact persons. B. Product Certificates: For each type of manufactured product, from manufacturer, and complying

Manufacturer's certified analysis of standard products.

C. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to

D. Close out submittals: Submit to the Architect for approval. 1. Plant maintenance data, requirements and recommended maintenance schedules and

procedures for Owner to establish during the Warranty Period. E. Warranty period site visit record: If the client assumes maintenance responsibilities during the warranty period per the specifications, the Contractor is to submit a written record to the Architect of his/her observations visits, citing any problems, potential problems, and any recommended corrective actions needed by the client. Refer to Part 3 for Maintenance responsibilities.

1.07 QUALITY ASSURANCE

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A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful establishment of plants.

1. Professional Membership: Installer shall be a member in good standing of either the National Association of Landscape Professionals or the American Nursery and Landscape 2. Experience: Five years' experience in landscape installation.

3. Submit reference list of at least five completed representative projects indicating project name, address, telephone number, contract amount, Architect's, and Facilities Manager's 4. Landscape Contractors submitting bids shall be pre-qualified before award of contract. Each

reference shall be contacted to verify workmanship and general business practices.

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1.04 INFORMATIONAL SUBMITTALS

A. Qualification Data: For landscape Installer. 1. Professional Membership: Installer shall be a member in good standing of either the

Professional Landcare Network or the American Nursery and Landscape Association 2. Experience: Five years' experience in turf installation.

3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress. 4. Personnel Certifications: Installer's personnel assigned to the Work shall have certification in one of the following categories from the Professional Landcare Network:

a. Certified Landscape Technician - Exterior, with installation or maintenance B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of

1. Certification of each seed mixture for turfgrass sod. Include identification of source and name and telephone number of supplier. C. Product Certificates: For fertilizers, from manufacturer.

D. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project. Only use when necessary.

1.05 CLOSEOUT SUBMITTALS A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of

turf during a calendar year. Submit before expiration of required maintenance periods. 1.06 QUALITY ASSURANCE A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf

1. Professional Membership: Installer shall be a member in good standing of either the National Association of Landscape Professionals, the Ohio Nursery and Landscape Association or the American Nursery and Landscape Association. 2. Experience: Five years' experience in turf installation.

3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor

4. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the National Association of Landscape Professionals: Landscape Industry Certified Technician - Exterior.

b. Landscape Industry Certified Lawn Care Manager.

5. Pesticide Applicator: State licensed, commercial.

c. Landscape Industry Certified Lawn Care Technician

1.07 DELIVERY, STORAGE, AND HANDLING

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

B. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation"

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Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

3. Treat infestation of weeds or crabgrass by hand weeding or herbicidal control. Furnish and install weed chemical control as recommended by manufacturer. Herbicidal controls, including renovation before sodding operations, shall be acceptable to the Architect. C. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas. 2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.

D. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowing's. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowing's to maintain the following grass height:

1. Mow turf-type tall fescue to a height of 2 to 3 inches.

E. Turf Post-fertilization: Apply slow-release fertilizer after initial mowing and when grass is dry. 1. Use fertilizer that provides actual nitrogen of at least 1 lb./1000 sq. ft. to turf area.

3.09 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by Architect: 1. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, evencolored, viable turf has been established, free of weeds, open joints, bare areas, and surface

B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

A. Beneficial Occupancy: the acknowledgement by the Owner and Architect that the landscape work defined by plans and specifications is substantially complete. The Architect shall provide the Contractor with a written punch list indicating items to be corrected or completed by the contractor within a two-week period from notification:

1. Site review to be requested by the Contractor when the landscape installation meets all the requirements of the plans and specifications. B. Final Acceptance: the date of final acceptance shall be when the Architect verifies that all the

items on the punch list have been completed and / or corrected by the Contractor 1. Warranty does not commence until acceptance by the Owner 3.11 PESTICIDE APPLICATION

A. Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed

B. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

3.12 CLEANUP AND PROTECTION

requirements in ANSI Z60.1.

shrubs immediately from Project site.

1.08 DELIVERY, STORAGE, AND HANDLING

state and Federal laws if applicable.

on existing turf areas or plants.

conveyance systems, or walkways.

B. Bulk Materials:

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areas until given approval to do so by the Architect.

F. Preinstallation Conference: Conduct conference at Project.

on Project site when work is in progress.

7. Pesticide Applicator: State licensed, commercial.

3.10 OBSERVATION AND ACCEPTANCE

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5. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor

6. Personnel Certifications: Installer's field supervisor shall have certification in the following

B. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable

1. Selection of plants purchased under allowances is made by Architect, who tags plants at

1. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take

container-grown stock. Measure main body of tree or shrub for height and spread; do not

measure branches or roots tip to tip. Take caliper measurements 6 inches above the root

flare for trees up to 4-inch caliper size, and 12 inches above the root flare for larger sizes.

height measurements from or near the top of the root flare for field-grown stock and

categories from the National Association of Landscape Professionals:

a. Landscape Industry Certified Exterior Technician

b. Landscape Industry Certified Horticulture Technician

c. Landscape Industry Certified Lawn Care Technician

their place of growth before they are prepared for transplanting.

C. Measurements: Measure according to ANSI Z60.1. Do not prune to obtain required sizes.

2. Other Plants: Measure with stems, petioles, and foliage in their normal position.

D. Plant Material Observation: Architect may observe plant material either at place of growth or at

and root systems, pests, disease symptoms, injuries, and latent defects and may reject

E. Plant Quantity Verification: All scaled dimensions on the drawings are approximate. Before

quantities and shall immediately inform the Architect of any discrepancies between the

A. Packaged Materials: Deliver packaged materials in original, unopened containers showing

drawn on the plan drawings shall be deemed correct and prevail.

3. Accompany each delivery of bulk materials with appropriate certificates.

site before planting for compliance with requirements for genus, species, variety, cultivar, size,

and quality. Architect may also observe trees and shrubs further for size and condition of balls

1. Notify Architect of sources of planting materials seven days in advance of delivery to site.

proceeding with any work, the Contractor shall carefully check and verify all dimensions and

information on the drawings and the actual conditions, refraining from doing any work in said

1. In the case of a discrepancy in the plant quantities between the plan drawings and the plant

weight, certified analysis, name and address of manufacturer, and indication of compliance with

1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or

2. Provide erosion-control measures to prevent erosion or displacement of bulk materials;

discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water

call outs, list or plant schedule, the number of plants or square footage of the planting bed

unsatisfactory or defective material at any time during progress of work. Remove rejected trees or

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C. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide

D. Apply antidesiccant to trees and shrubs using power spray to provide an adequate film over trunks (before wrapping), branches, stems, twigs, and foliage to protect during digging, handling,

protective covering of plants during shipping and delivery. Do not drop plants during delivery and

sections in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod within 24 hours of

1. Do not dump or store bulk materials near structures, utilities, walkways, and pavements, or

discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water

2. Provide erosion-control measures to prevent erosion or displacement of bulk materials;

A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with

B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions

Work notification: Notify the Architect at least seven working days before installation of lawn

D. Verify location and extent of underground utilities. Protect existing utilities, irrigation, paving and

F. Restrict traffic from lawn areas until grass is established. Erect temporary signs and barriers as

Repair irrigation system components, damaged during lawn work operations, at Contractor's

A. Warranty Period: Warrant, that grasses shall be in a healthy and flourishing condition of active

B. Conditions: Established turf that is free of dead or dying patches and shows vigorous growth of

C. Delays: Delays in completion of planting operations which extend the planting and/or acceptance

of Substantial Completion into the next planting season shall extend the Warranty period

A. Turfgrass Species: Sod of grass species as follows, with not less than 85 percent germination,

A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles

B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and

C. Erect temporary fencing or barricades and warning signs as required to protect newly planted

areas from traffic. Maintain fencing and barricades throughout initial maintenance period and

A. Verify with Owner that maintenance service is required for Project. Consider deleting this article

B. Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer.

for small-scale residential projects. Generally, a maintenance period should be long enough to

Maintain as required in "Turf Maintenance" Article. Begin maintenance immediately after each

1. Sodded Turf: 30 days from date of Substantial Completion of Sod Installation operations.

**END OF SECTION 32 92 00** 

area is planted and continue until acceptable turf is established, but for not less than the following

before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

D. Remove nondegradable erosion-control measures after grass establishment period.

debris, and legally dispose of them off Owner's property.

remove after plantings are established.

ascertain the initial establishment of healthy turf.

3.13 MAINTENANCE SERVICE

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not less than 95 percent pure seed, and not more than 0.5 percent weed seed:

E. Perform lawn work only after planting and other work affecting ground surface has been

G. Locate, protect, and maintain newly installed irrigation system during lawn work operations.

H. Provide necessary hose and watering equipment as required for lawn maintenance.

growth at the end of the growing season after the date of Final Acceptance.

permit planting to be performed when beneficial and optimum results may be obtained. Apply

products during favorable weather conditions according to manufacturer's written instructions.

initial maintenance periods to provide required maintenance from date of Substantial Completion

harvesting and in time for planting promptly. Protect sod from breakage and drying.

3. Accompany each delivery of bulk materials with appropriate certificates.

C. Bulk Materials:

1.08 FIELD CONDITIONS

Insert starting time.

on existing turf areas or plants.

1. Spring Planting: April 1 to June 1.

2. Fall Planting: August 15 to October 1.

foliage of normal density, size, and color.

accordingly.

2.01 TURFGRASS SOD

**PART 2 - PRODUCTS** 

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other facilities from damage caused by lawn work operations.

conveyance systems, or walkways.

1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting. E. Wrap trees and shrubs with burlap fabric over trunks, branches, stems, twigs, and foliage to

protect from wind and other damage during digging, handling, and transportation. F. Handling Plants:

1. Handle ball and burlap plants by root ball. 2. Pad trunk and branches where hoisting cables or straps contact 3. Handle container plants by containers, not by tops, stems or trunks.

4. Do not bind or handle plants with wire or rope. G. Deliver plants after preparations for planting have been completed and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep

1. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable 2. Do not remove container-grown stock from containers before time of planting.

Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spra

Water as often as necessary to maintain root systems in a moist, but not overly wet

1.09 FIELD CONDITIONS

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A. Work notification: Notify the Architect at least seven working days before installation of plant

B. All trees must be evaluated and approved by the Architect prior to planting. C. Verify location and extent of underground utilities. Protect existing utilities, paving and other facilities from damage caused by landscaping operations.

D. Field Measurements: Verify actual grade elevations, service and utility locations, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by field measurements before proceeding with planting work. E. Interruption of Existing Services or Utilities: Do not interrupt services or utilities to facilities

occupied by the Owner or others unless permitted under the following conditions and then only after arranging to provide temporary services or utilities according to requirements indicated: 1. Do not proceed with interruption of services or utilities without Architect's written permission. F. Install plant materials during time periods indicated. Planting operations conducted at other times only at option and full responsibility of Contractor and without additional compensation, except as

G. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion. 1. Spring Planting: March 1 to June 1.

otherwise acceptable to the Architect. Do not plant in frozen ground.

1. Sun and Partial Shade: Turf-type tall fescue (90%) and Hybrid bluegrass - CV Thermal Blue Grass (10%) by:

a. Medina Turf Farms meeting a mean quality ratio of 6.3 or higher according to the National Turfgrass Evaluation Program's latest trials: http://www.ntep.org/data/tf12/tf12\_16-5/tf1216t09.txt.

b. Or local equal.

B. Sod Stakes Basis of Design by:

GreenStakes www.Greenstake.com a. Biodegradable Stakes: ASTM D6400 (in USA) & EN13432 (Europe & International) Biodegradable Standard.

2.02 FERTILIZERS A. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction. B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or

growth of weeds within planted areas at the soil level directly below the mulch layer.

Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

2.04 EROSION-CONTROL MATERIALS

2.03 PESTICIDES

A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6

B. Erosion-Control Fiber Mesh: Biodegradable burlap or spun-coir mesh, a minimum of 0.92 lb/sq. yd., with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6

PART 3 - EXECUTION

3.01 EXAMINATION A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.

Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results. 3. Uniformly moisten excessively dry soil that is not workable, or which is dusty.

TURF GRASS AND SOD 2501 – Village Dental 32 92 00 - 4

SECTION 32 93 00 - PLANTS

PART 1 - GENERAL

1.01 SUMMARY

1. Plants including trees, shrubs, groundcovers, bi-annuals, annuals and bulbs.

Landscape edgings.

Tree stabilization. Tree-watering devices.

5. Maintenance of all specified plants until the beginning of the warranty period. Plant Warranty 1.02 REFERENCES

A. American Society for Testing and Materials (ASTM). 1. ASTM D 1557- Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.

B. American Nursery & Landscape Association (ANLA). C. American National Standards Institute (ANSI)

 ANSI Z60.1 – American Standards for Nursery Stock 2. ANSI A300 Part 6 – Standard Practices for Tree, Shrub and other Woody Plant Management

1.03 DEFINITIONS A. Acceptance, Acceptable, or Accepted: Acceptance by the Architect in writing. B. Backfill: The earth used to replace or the act of replacing earth in an excavation.

C. Balled and Burlapped Stock: Plants dug with firm, natural balls of earth in which they were grown, with a ball size not less than sizes indicated; wrapped with burlap, tied, rigidly supported, and drum laced with twine with the trunk flare / root crown visible at the surface of the ball as

D. Balled and Potted Stock: Plants dug with firm, natural balls of earth in which they are grown and

E. Container-Grown Stock: Healthy, vigorous, well-rooted plants grown in a container, with a wellestablished root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for type and size of plant required.

placed, unbroken, in a container. Ball size is not less than sizes indicated

F. Debris or Deleterious Materials: Elements including, but not limited to, concrete, concrete masonry, wood, excavated rock and rock fragments, rubble, overburden soils, abandoned utility structures, trash, refuse, and litter. G. End of Warranty Final Acceptance: The date when the Architect accepts that the plants and work

in this section meet all the requirements of the warranty. It is intended that the materials and workmanship warranty for Planting, Planting Soil, and Irrigation work run concurrent with each

H. Finish Grade: Elevation of finished surface of planting soil. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a

pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and

PLANTS, TREES, GC 2501 - Village Dental

2. Fall Planting: September 1 to Nov. 15. H. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply

warranty requirements. Coordination with Turf Areas: Plant trees, shrubs, and other plants after finish grades are established and before planting turf areas unless otherwise indicated. 1. When planting trees, shrubs, and other plants after planting turf areas, protect turf areas,

products during favorable weather conditions according to manufacturer's written instructions and

1.10 ACCEPTANCE FOR SUBSTANTIAL COMPLETION A. Substantial Completion Acceptance - Acceptance of the work prior to the start of the warranty

and promptly repair damage caused by planting operations.

observe all work for Substantial Completion Acceptance upon written request of the Contractor. The request shall be received at least ten calendar days before the anticipated date of the observation Substantial Completion Acceptance by the Architect shall be for general conformance to specified size, character and quality and not relieve the Contractor of responsibility for full

1. Once the Contractor completes the installation of all items in this section, the Architect will

Any plants that are deemed defective as defined under the provisions below shall not be . The Architect will provide the Contractor with written acknowledgment of the date of Substantial

conformance to the contract documents, including correct species.

Completion Acceptance and the beginning of the warranty period and plant maintenance period (if plant maintenance is included). Acceptance in Part:

1. The work may be accepted in parts when it is deemed to be in the Owner's best interest to do so, and when permission is given to the Contractor in writing to complete the work in 2. Acceptance and use of such areas by the Owner shall not waive any other provisions of this

1.11 WARRANTY A. Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.

1. Failures include, but are not limited to, the following: a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner. 1) Inspection Reports and Maintenance Logs per "Closeout Submittals" apply.

b. Structural failures including plantings falling or blowing over. c. Faulty performance of tree stabilization and edgings. d. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

2. Warranty Periods: From date of Substantial Completion unless noted otherwise.

a. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months. b. Ground Covers, Biennials, Perennials, and Other Plants: 12 months. c. Annuals: Three months.

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**T** 330.657.2800

1775 Main Street

Peninsula, Ohio 44264

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**PROGRESS** NOT FOR CONSTRUCTION 9/16/2025

PROJECT TEAM: **PENINSULA** ARCHITECTS

CIVIL ENGINEER: **GUTOSKEY AND ASSOCIATES P** 406.543.6900 STRUCTURAL ENGINEER **ORAVEC DESIGN BUILD P** 330.552.8211 MEP ENGINEER: **DENK ASSOCIATES P** 216.531.8880

PROJECT #: 2501 ISSUE: AHBR REVIEW 04-01-2025 04-17-2025 VARIANCE SET PLANNING COMMISSION09-15-2025

**SPECIFICATIONS** 

LANDSCAPE

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32 93 00 - 2 32 93 00 - 3 32 93 00 - 4 32 93 00 - 5 a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.

b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period. c. A limit of one replacement of each plant is required except for losses or replacements

due to failure to comply with requirements.

B. End of Warranty Final Acceptance - Acceptance of plants at the end of the warranty period. 1. At the end of the warranty period, the Architect shall observe all warranted work, upon written request of the Contractor. The request shall be received at least ten calendar days before the anticipated date for final observation.

2. End of Warranty Final Acceptance will be given only when all the requirements of the work under this specification and in specification sections Planting Soil and Irrigation have been

#### **PART 2 - PRODUCTS**

#### 2.01 PLANT MATERIAL

A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, sizes, grades, and ball or container sizes and other features indicated in Plant List, Plant Schedule, or Plant Legend indicated on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs,

1. Growing Practices: Nursery grown in accordance with best horticultural industry practices. 2. Nomenclature: Plant nomenclature shall meet requirements of ICBN and ICNCP.

3. Climatic Growing Conditions: Grown under climatic conditions (same USDA hardiness zone)

4. Container Growth Limitations: Container stock shall have been grown in the containers in which delivered for at least six months, but not over two years.

5. Specimen Quality: Structurally strong, able to stand upright without stakes or guys, exceptionally heavy, symmetrical, tightly knit, so trained, or favored in development and appearance as to be superior in form, number or branches, compactness, and symmetry.

squeezed between two branches or between branch and trunk ("included bark"); crossing trunks; cut-off limbs more than 3/4 inch in diameter; or with stem girdling roots will be

7. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.

B. Substitutions: Accepted substitute plants shall be true to species and variety and shall meet

requirements of this Section except those plants larger than specified may be used, if accepted in PLANTS, TREES, GC

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outline areas, adjust locations when requested, and obtain Architect's acceptance of layout before excavating or planting. Make minor adjustments as required.

E. Lay out plants at locations directed by Architect. Stake locations of individual trees and shrubs and outline areas for multiple plantings. F. Apply antidesiccant to trees and shrubs using power spray to provide an adequate film over

trunks (before wrapping), branches, stems, twigs, and foliage to protect during digging, handling,

1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.

G. Wrap trees and shrubs with burlap fabric over trunks, branches, stems, twigs, and foliage to protect from wind and other damage during digging, handling, and transportation.

requirements of Planting Soil Mixes, Sections 32 91 00 through 32 91 40. B. Placing Planting Soil: Place and mix planting soil in-place over exposed subgrade.

C. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or

otherwise disturbed after finish grading.

D. Application of Mycorrhizal Fungi: At time directed by Architect, broadcast dry product uniformly over prepared soil at application rate according to manufacturer's written recommendations.

#### 3.04 EXCAVATION FOR TREES AND SHRUBS

A. Planting Pits and Trenches: Excavate circular planting pits.

1. Excavate planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are unacceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.

2. Excavate approximately three times as wide as ball diameter for balled and burlapped and

3. Excavate at least 12 inches wider than root spread and deep enough to accommodate

5. If area under the plant was initially dug too deep, add soil to raise it to the correct level and thoroughly tamp the added soil to prevent settling.

6. Maintain angles of repose of adjacent materials to ensure stability. Do not excavate subgrades of adjacent paving, structures, hardscapes, or other new or existing

8. Keep excavations covered or otherwise protected when unattended by Installer's personnel.

9. If drain tile is indicated on Drawings or required under planting areas, excavate to top of

unless otherwise indicated.

C. Obstructions: Notify Architect if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.

### reasonably free of weeds, grass.

3.18 SUBSTANTIAL COMPLETION ACCEPTANCE A. Upon written notice from the Contractor, the Owners Representative shall review the work and decide if the work is substantially complete.

B. The date of substantial completion of the planting shall be the date when the Architect accepts

that all work in Planting, Planting Soil, and Irrigation installation sections is complete. The Plant Warranty period begins at date of written notification of substantial completion from the Architect. The date of substantial completion may be different than the date of substantial completion for the other sections of the project.

### 3.19 MAINTENANCE DURING THE WARRANTY PERIOD (by Client / Others)

A. After Substantial Completion Acceptance, the Contractor shall make sufficient site visits to to request changes, until the date of End of Warranty Final Acceptance.

plants in a healthy condition. Such notification must be made in a timely period so that the Architect may take corrective action. a. Notification must define the maintenance needs and describe any corrective action

1. Notify the Architect in writing if maintenance, including watering, is not sufficient to maintain

2. If the Contractor fails to visit the site and or notify, in writing, the Architect of maintenance needs, lack of maintenance shall not be used as grounds for voiding or modifying the

### 3.20 END OF WARRANTY FINAL ACCEPTANCE / MAINTENANCE OBSERVATION

establish that all provisions of the contract are complete, and the work is satisfactory. 1. If the work is satisfactory, the maintenance period will end on the date of the final

2. If the work is deemed unsatisfactory, the maintenance period will continue at no additional expense to the Owner until the work has been completed, observed, and approved by the

B. FAILURE TO PASS OBSERVATION: If the work fails to pass final observation, any subsequent observations must be rescheduled as per above. The cost to the Owner for additional observations will be charged to the Contractor at the prevailing hourly rate of the Owners

### END OF SECTION 32 93 00

writing by the Architect. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Architect, with a proportionate increase in size of roots or balls.

1. Substitutions will only be accepted up to 60 days post bid submittal. Contractor is responsible to identify availability of materials and inform Architect of any stock shortages prior to the 60 day post bid submittal.

c. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which begins at root flare according to ANSI Z60.1. Root flare shall be visible before planting. D. Labeling: Label each plant of each variety, size, and caliper with a securely attached, waterproof tag bearing legible designation of common name and full scientific name, including genus and

species. Include nomenclature for hybrid, variety, or cultivar, if applicable for the plant. E. If formal arrangements or consecutive order of plants is indicated on Drawings, select stock for uniform height and spread, and number the labels to assure symmetry in planting.

#### 2.02 SHADE AND FLOWERING TREES

F. No tree wrap is to be used.

A. Shade Trees: Single-stem trees with straight trunk, well-balanced crown, and intact leader, of height and caliper indicated, complying with ANSI Z60.1 for type of trees required.

 Provide balled and burlapped or container-grown trees. 2. Branching Height: One-third to one-half of tree height.

3. Street Trees: Street trees must be limbed to 8 feet minimum. 4. Forked Trunks on trees are not acceptable; each tree must have one string central leader. B. Small Upright and Spreading Trees: Branched or pruned naturally according to species and type, with relationship of caliper, height, and branching according to ANSI Z60.1; stem form as follows:

 Stem Form: Single stem. 2. Multi-Stem: Unless noted otherwise, tree shall have 3 -5 trunks forked at or above root flair

4. Forked Trunks on trees are not acceptable; each tree must have one string central leader.

collar. Overall height determines size of tree. Provide balled and burlapped trees.

### 2.03 SHRUBS

A. Form and Size: Deciduous shrubs with not less than the minimum number of canes required by and measured according to ANSI Z60.1 for type, shape, and height of shrub.

#### Provide balled and burlapped or container-grown shrubs.

2.04 GROUND COVER / PERENNIAL / ANNUAL PLANTS A. Ground Covers / Perennials: Provide ground cover of species indicated, established, and well

rooted in pots or similar containers and complying with ANSI Z60.1. Sections 1 and 13 apply. B. Annuals and Biennials: Provide healthy, disease-free plants of species and variety shown or listed, with well-established root systems reaching to sides of the container to maintain a firm ball, but not with excessive root growth encircling the container. Provide only plants that are acclimated to outdoor conditions before delivery, and that are in bud but not yet in bloom.

#### 2.05 FERTILIZERS

percent phosphoric acid.

A. Refer to Soil Mix specifications test results and Final Grading for soil amendments. B. Bonemeal: Commercial, raw, or steamed, finely ground; a minimum of 1 percent nitrogen and 10

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1. Hardpan Layer: Drill 6-inch-diameter holes, 24 inches apart, into free-draining strata or to a depth of 10 feet, whichever is less, and backfill with free-draining material. D. Test fill each tree and planting pit with water, prior to planting to assure proper soil percolation. Pits which do not adequately drain shall be further scarified along outer edges and sides of pit. Do not disturb area supporting tree ball. Repeat test.

 Notify Architect and Owner should 2nd fill test fail for additional input and corrective action. No allowances shall be made for plant material loss due to improper drainage or if contractor fails to perform fill test. Contractor shall replace lost plant material with same size and species at no additional cost to the owner.

E. Drainage: Notify Architect if subsoil conditions evidence unexpected water seepage or retention in tree or shrub planting pits.

Fill excavations with water and allow to percolate away before positioning trees and shrubs.

3.05 TREE, SHRUB, AND VINE PLANTING A. General: Install plant material in accordance with detailed drawings and recommendations of

B. Inspection: At time of planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements. C. Root Pruning:

1. If stem girdling roots are encountered at root ball sides, notify the Architect for field review. 2. Upon Architect's acceptance, remove stem girdling roots and kinked roots by cutting cleanly; do not break. Cut roots on 4 sides of root ball 90 degrees to root ball. D. Root Ball Scarification:

1. After removing plant from container, scarify side of root ball to prevent root-bound condition. 2. Loosen root ball soil surface to depth of 1/8 inch to 1/4 inch without damaging roots or

E. Balled and Burlapped Stock: Set each plant plumb and in center of planting bed or trench with root flare 2 inches above adjacent finish grades.

Backfill: Planting soil mix as specified on drawings. 2. After placing some backfill around root ball to stabilize plant, carefully cut and remove upper 1/3 burlap (ANSI A300 – Part 6), rope, and wire baskets from tops of root balls and from

sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder

of backfill. Repeat watering until no more water is absorbed. Continue backfilling process. Water again after placing and tamping final layer of soil. F. Container-Grown Stock and Perennials in Containers: Set each plant plumb and in center of

planting bed or trench 1. Container Stock greater than 1 gallon container, place root flare 1 to 2 inches above finish

2. Perennials or plant stock in 1 gallon and less containers, place top of root ball 1 inch above

Backfill: Planting soil mix as specified on drawings.

4. Carefully remove root ball from container without damaging root ball or plant.

2501 - Village Dental PLANTS, TREES, GC 32 93 00 - 13 C. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.

D. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition: 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended by

E. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition: 1. Composition: (high phosphorus, low nitrogen ratio)

A. Organic Mulch: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of one of the following: Type: Shredded hardwood.

2. Size Range: 3 inches maximum, 1/2 inch minimum. Color: Natural.

manufacturer's written instructions.

2.07 WEED-CONTROL BARRIERS A. Composite Fabric: Woven, needle-punched polypropylene substrate bonded to a nonwoven

polypropylene fabric, 4.8 oz./sq. yd.

A. General: Pesticide registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing

by authorities having jurisdiction. B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer. C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

2.09 TREE-STABILIZATION MATERIALS

1. Upright and Guy Stakes: Rough-sawn, sound, new [hardwood] [softwood with specified wood pressure-preservative treatment], free of knots, holes, cross grain, and other defects, 2-by-2-inch nominal by length indicated, pointed at one end.

Guying Material

a. Arbortie – as manufactured by DeepRoot Green Infrastucture LLC. Or approved Equal.

b. Tree-Tie Webbing: UV-resistant polypropylene or nylon webbing with brass grommets. 3. Flags: Standard surveyor's plastic flagging tape, white, 6 inches long. B. Below Grade - Root-Ball Stabilization Materials:

and that do not encircle the trunk; sized according to manufacturer's written

1. Proprietary at or below-grade stabilization systems to secure each new planting by root ball

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recommendations unless otherwise indicated. a. Tree Anchor System: Model 68RBL Duckbill Earth Anchors by

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5. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.

6. Continue backfilling process. Water again after placing and tamping final layer of soil. G. Slopes: When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.

#### 3.06 TREE, SHRUB, AND VINE PRUNING

Manufacturer:

A. Remove only dead, dying, or broken branches. Do not prune for shape. B. Prune, thin, and shape trees, shrubs, and vines as directed by Architect.

C. Prune, thin, and shape trees, shrubs, and vines according to standard professional horticultural and arboricultural practices. Unless otherwise indicated by Architect, do not cut tree leaders; remove only injured, dying, or dead branches from trees and shrubs; and prune to retain natural

D. Do not apply pruning paint to wounds.

#### 3.07 TREE STABILIZATION

A. Upright Staking Method: Stake trees of 2-inch through 3 1/2-inch caliper. Install trunk stabilization as follows unless otherwise indicated: 1. Install wood stake vertically as per detail driving stake minimum of 18 inches into subgrade.

2. Provide two stakes for trees up to 12 feet high and 2-1/2 inches or less in caliper. a. Provide three stakes for trees greater than 12 feet high and up to 4 inches in caliper. Space stakes equally around trees.

b. Trees less than 2-1/2 inch do not require staking unless noted otherwise, 3. Support trees with bands of flexible ties at contact points with tree trunk. Allow enough slack to avoid rigid restraint of tree. Refer to Manufacturer's specifications for band height and

general installation specifications. B. Trunk Stabilization Method by Guying: Install trunk stabilization as follows unless otherwise indicated on Drawings. Guy trees more than 14 feet in height and more than 4 inches in caliper unless otherwise indicated.

1. Site-Fabricated, Guying Method: Install minimum of three stakes and guys spaced equally a. Install wooden stakes as per detail driving stake minimum 18 inches into subgrade. Adjust spacing to avoid penetrating root balls or root masses. Leave 18 inches of wood

stake exposed above finish grade. b. Support trees with bands of flexible ties providing loop around trunk of tree as recommended by manufacturers specifications. Refer to Manufacturer's specifications for band height and general installation specifications. . Attach flags to each flexible tie, 30 inches above finish grade.

C. Proprietary Root-ball Stabilization: Install stabilization system sized and positioned as recommended by manufacturer unless otherwise indicated and according to manufacturer's written instructions. 1. Proprietary Root-Ball Stabilization Device: Install root-ball stabilization system sized and

positioned as recommended by manufacturer unless otherwise indicated and according to manufacturer's written instructions.

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3.08 PLACING SOIL IN PLANTERS

A. Place a layer of drainage gravel at least 4 inches thick in bottom of planter. Cover bottom with

filter fabric and wrap filter fabric 4 inches up on all sides. Duct tape along the entire top edge of the filter fabric, to secure the filter fabric against the sides during the soil-filling process. B. Fill planter with planting soil mix as per drawings. Place soil in lightly compacted layers to an elevation of 1-1/2 inches below top of planter, allowing natural settlement.

#### 3.09 GROUND COVER AND PLANT PLANTING

A. Set out and space ground cover and plants other than trees, shrubs, and vines as indicated on Drawings in even rows with triangular spacing.

B. Use planting soil mix as per drawings for backfill.

Maclean PowerSystems

Fort Mill, SC 29715.

Arbor Stakes LLC

Border Concepts, Inc

Charlotte, NC 28226

3. Edging Size: 3/16 inch thick by 4 inches deep.

Ph. No.: 800-845-3343

7621 Little Avenue

(214) 810-6678.

1) Manufacturer:

2.10 LANDSCAPE EDGE RESTRAINTS

Manufacturer:

6. Finish: Unfinished.

2.11 TREE-WATERING DEVICES

2.12 MISCELLANEOUS PRODUCTS

2.13 SOURCE QUALITY CONTROL

A. Advanced Tree Procurement:

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manufacturer's written instructions.

1. Basis of Design: Border Guard

481 Muhn St. - Suite 300

b. Arbor Stake System: 99.9% biodegradable wooden stake with lock caps.

A. Steel Edging: Standard commercial-steel edging, fabricated in sections of standard lengths, with

loops stamped from or welded to face of sections to receive stakes.

4. Stakes: Tapered steel, a minimum of 24" long (Super Stakes)

nylon-reinforced polyethylene sheet, PVC, or HDPE plastic.

1. Color: As selected by Architect from manufacturer's full range.

polypropylene, polyolefin, or polyester fibers or combination of them.

hydrogel, and a maximum of 5.5 percent inert material.

thereof the specified plant material.

5. Accessories: Standard tapered ends, pre-formed corners, and splicers.

A. Slow-Release Watering Device: Standard product manufactured for drip irrigation of plants and

A. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and

B. Planter Drainage Gravel: Washed, sound crushed stone or gravel complying with ASTM D 448

C. Planter Filter Fabric: Nonwoven geotextile manufactured for separation applications and made of

arbuscular mycorrhizal fungi and 95 million spores per lb. of ectomycorrhizal fungi, 33 percent

1. Within 60 days of award of contract, notify Architect in writing of the availability or lack

available in the quantities, sizes, and quality specified at the time of installation.

2. Procure trees and arrange for contract growing as required to ensure that plant material is

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D. Mycorrhizal Fungi: Dry, granular inoculant containing at least 5300 spores per lb. of vesicular-

shrubs. Deliver in original, sealed, and fully labeled containers and mix according to

emptying its water contents over an extended time period; manufactured from UV-light-stabilized

C. Dig holes large enough to allow spreading of roots.

D. For rooted cutting plants supplied in flats, plant each in a manner that minimally disturbs the root system but to a depth not less than two nodes. E. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around

plants to hold water. F. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.

G. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

3.10 PLANTING AREA MULCHING

A. Mulch backfilled surfaces of planting areas and other areas indicated.

1. Trees and Treelike Shrubs in Turf Areas: Apply organic mulch ring of 3-inch average thickness, with 24-inch radius around trunks or stems. Do not place mulch within 3 inches of 2. Organic Mulch in Planting Areas: Apply 3-inch average thickness of organic mulch extending

area, and finish level with adjacent finish grades. Do not place mulch within 3 inches of 3.11 EDGING INSTALLATION A. Steel Edging: Install steel edging where indicated according to manufacturer's written

instructions. Anchor with steel stakes spaced approximately 30 inches apart, driven below top

12 inches beyond edge of individual planting pit or trench and over whole surface of planting

1. Install corners using bent edging at 1/4" or less inside radius allowing 12" minimum lengths to connection end. No cut corners will be accepted.

3.12 INSTALLING SLOW-RELEASE WATERING DEVICE A. Provide one device for each tree.

B. Place device on top of the mulch at base of tree stem and fill with water according to manufacturer's written instructions.

3.13 PLANT MAINTENANCE A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting, and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable

B. Fill in, as necessary, soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.

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3. Verify plant branching requirements with Architect prior to contract growing. 4. Architect will review advance-procured trees prior to initial purchase at the place of growth.

5. Coordinate and schedule a review by the Architect of advanced procured plant material at

the place of growth prior to delivery to the project site. 6. Review and acceptance of the advance-procured plant material at the place of growth does

not preclude rejection at the project site if damage or unacceptable conditions are found that were not detected at the place of growth. 7. Before changes or substitutions can be considered due to unavailability of plant material, the

contractor shall submit written evidence that he has advertised for at least a one-month period in a trade journal such as the "Landscape Materials Information Service", with no

response, or has undertaken other methods of locating plant material acceptable to the

B. Plant Material Review and Tagging:

1. Trees will be reviewed, photographed, and tagged using irremovable tags by the Architect at the place of growth prior to delivery to the project site.

2. At the Architect's discretion, shrubs may or may not be reviewed, photographed, and tagged at the place of growth.

3. Tagging of plant material at the place of growth does not preclude rejection of at the project

site if damage or unacceptable conditions are found that were not detected at the place of growth or in submitted photographs.

#### PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine areas to receive plants, with Installer present, for compliance with requirements and conditions affecting installation and performance of the Work.

1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area. 2. Verify that plants and vehicles loaded with plants can travel to planting locations with

adequate overhead clearance. Do not mix or place soils and soil amendments in frozen, wet, or muddy conditions.

4. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results. Uniformly moisten excessively dry soil that is not workable, or which is dusty.

B. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil. C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

adjacent to the areas of Work.

A. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations. B. Use every possible precaution to prevent excessive compaction of planting area soil within or

C. Do not store materials or equipment or operate or park vehicles under the drip line of existing or newly planted trees. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

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A. Apply pesticides and other chemical products and biological control agents according to authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before

Pre-Emergent Herbicides (Selective and Nonselective): Apply to tree, shrub, and ground-cover areas according to manufacturer's written recommendations. Do not apply to seeded areas.

Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

construction operations, in a manner approved by Architect. 1. Submit details of proposed pruning and repairs.

3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as B. Remove and replace trees that are more than 25 percent dead or in an unhealthy

1. Provide new trees of same size as those being replaced for each tree of 4 inches or smaller

A. During planting, keep adjacent paving and construction clean and work area in an orderly condition. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or

Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings

E. At time of Substantial Completion, verify that tree-watering devices are in good working order and leave them in place. Replace improperly functioning devices.

shall maintain all plants. B. Maintenance during the period prior to Substantial Completion Acceptance shall consist of pruning, watering, cultivating, weeding, mulching, removal of dead material, repairing and

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Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices, when possible, to minimize use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.

3.14 PESTICIDE APPLICATION

each application is performed.

3.15 REPAIR AND REPLACEMENT A. General: Repair or replace existing or new trees and other plants that are damaged by

2. Perform repairs of damaged trunks, branches, and roots within 24 hours, if approved.

condition before the end of the corrections period (Substantial Completion) or are damaged during construction operations that Architect determines are incapable of restoring to normal

2. Species of Replacement Trees: Species selected by Architect. 3.16 CLEANING AND PROTECTION

B. Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off Owner's property.

D. After installation and before Substantial Completion, remove nursery tags, nursery stakes, tie tape, labels, wire, burlap, and other debris from plant material, planting areas, and Project site.

3.17 PLANT MAINTENANCE PRIOR TO SUBSTANTIAL COMPLETION ACCEPTANCE A. During the project work period and prior to Substantial Completion Acceptance, the Contractor

replacing of tree stakes, tightening and repairing of guys, repairing and replacing of damaged tree

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4. Include the following remedial actions as a minimum:

d. Provide extended warranty for period equal to original warranty period, for replaced

plant material.

larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

of the like those of the project and within 150 miles of the project site for at least two years unless otherwise accepted by Architect.

6. Trees with damaged, crooked, or multiple leaders; tight vertical branches where bark is

8. Pruning: Do not prune, thin, or shape plants before delivery without acceptance by the

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D. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations,

3.03 PLANTING AREA ESTABLISHMENT A. General: Prepare planting area for soil placement and mix planting soil according to the

vertical roots for bare-root stock. 4. Do not excavate deeper than depth of the root ball, measured from the root flare to the

7. Maintain supervision of excavations during working hours.

B. Backfill Soil: Subsoil and topsoil removed from excavations may not be used as backfill soil

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wrap material, resetting plants to proper grades and upright position, and furnishing and applying

provisions of the warranty.

such sprays as are necessary to keep plantings reasonably free of damaging insects and disease, and in healthy condition. The threshold for applying insecticides and herbicide shall follow established Integrated Pest Management (IPM) procedures. Mulch areas shall be kept

Notification shall be at least 7 days prior to the date the contractor is requesting the review.

observe the Owner's maintenance and become aware of problems with the maintenance in time

A. At the end of the Warranty and Maintenance period the Architect shall observe the work and

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**PROGRESS** 

**NOT FOR** 

CONSTRUCTION

9/16/2025

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PROJECT #: 2501 ISSUE: AHBR REVIEW 04-01-2025

> LANDSCAPE **SPECIFICATIONS**

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