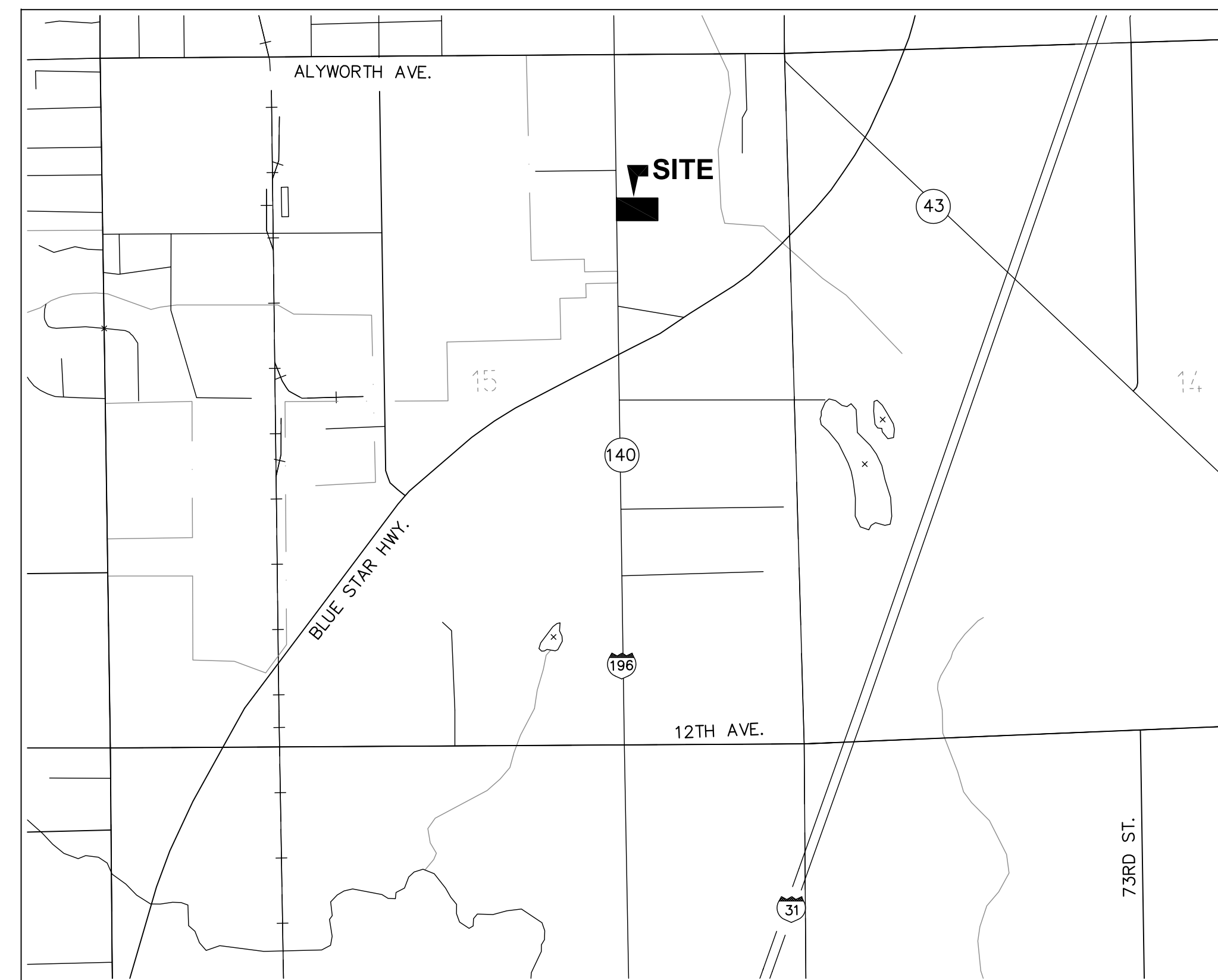


# PROPOSED SITE IMPROVEMENTS FOR Sunset Grove at South Haven

(PER WARRANTY DEED LIBER 1758, PAGE 368)

Beginning at a point found by commencing at the Northeast corner of Section 15, Town 1 South, Range 17 West; thence North 89 degrees 21 minutes 13 seconds West on the North section line, 1316.14 feet to the West line of the West 1/2 of the Northeast 1/4 of the Northeast 1/4; thence South 00 degrees 00 minutes 21 seconds East on same, 909.06 feet to the place of beginning of this description; thence South 89 degrees 21 minutes 13 seconds East 342.08 feet; thence South 00 degrees 00 minutes 21 seconds East 200.01 feet; thence North 89 degrees 21 minutes 13 seconds West 342.08 feet to the West line of the West 1/2 of the Northeast 1/4 of the Northeast 1/4; thence North 00 degrees 00 minutes 21 seconds West on same, 200.01 feet to the place of beginning.

80-53-272-002-00



 **LOCATION MAP**  
NOT TO SCALE

## SHEET INDEX

- C: COVER SHEET**
- C0: EXISTING CONDITIONS PLAN**
- C1: SITE LAYOUT PLAN**
- C2: SITE GRADING & SESC PLAN**
- C3: SITE UTILITY PLAN**
- C4: STORM WATER DETENTION DETAILS**
- 1 of 1: SITE LIGHTING PLAN**
- A01: BUILDING FLOOR PLANS**
- A02: BUILDING FLOOR PLANS**
- A03: BUILDING ELEVATIONS**
- A04: BUILDING RENDERINGS**

**PROPERTY OWNER**

**PROPERTY OWNER**  
Samaritas Affordable Living Sunset Grove LDHA LP  
8131 East Jefferson Ave.  
Detroit, MI 48214



**NOT FOR CONSTRUCTION**


Proposed Site Improvements For:

**Sunset Grove at South Haven**

For: Pinnacle Construction Group  
1000 Front Ave. NW  
Grand Rapids, MI 49504  
Ph. 616.451.0500

08729 M-140 HWY  
SOUTH HAVEN TOWNSHIP, VAN BUREN COUNTY, MICHIGAN

NO.	REVISIONS	DATE
1	For SLU and Site Plan Approval	07/18/23
2	Rev. Parking Calcs & Sewer Easement	07/23/23


**VENTURE**  
 ENGINEERING, PLLC

8515 Ridgebluff Dr. SW  
Byron Center, MI 49315  
616-490-0329  
venturecivil.com

Drawn By: JAC	Date: 12/2024	Chk'd By: JMB	DATE 12/2024	Sheet: 60
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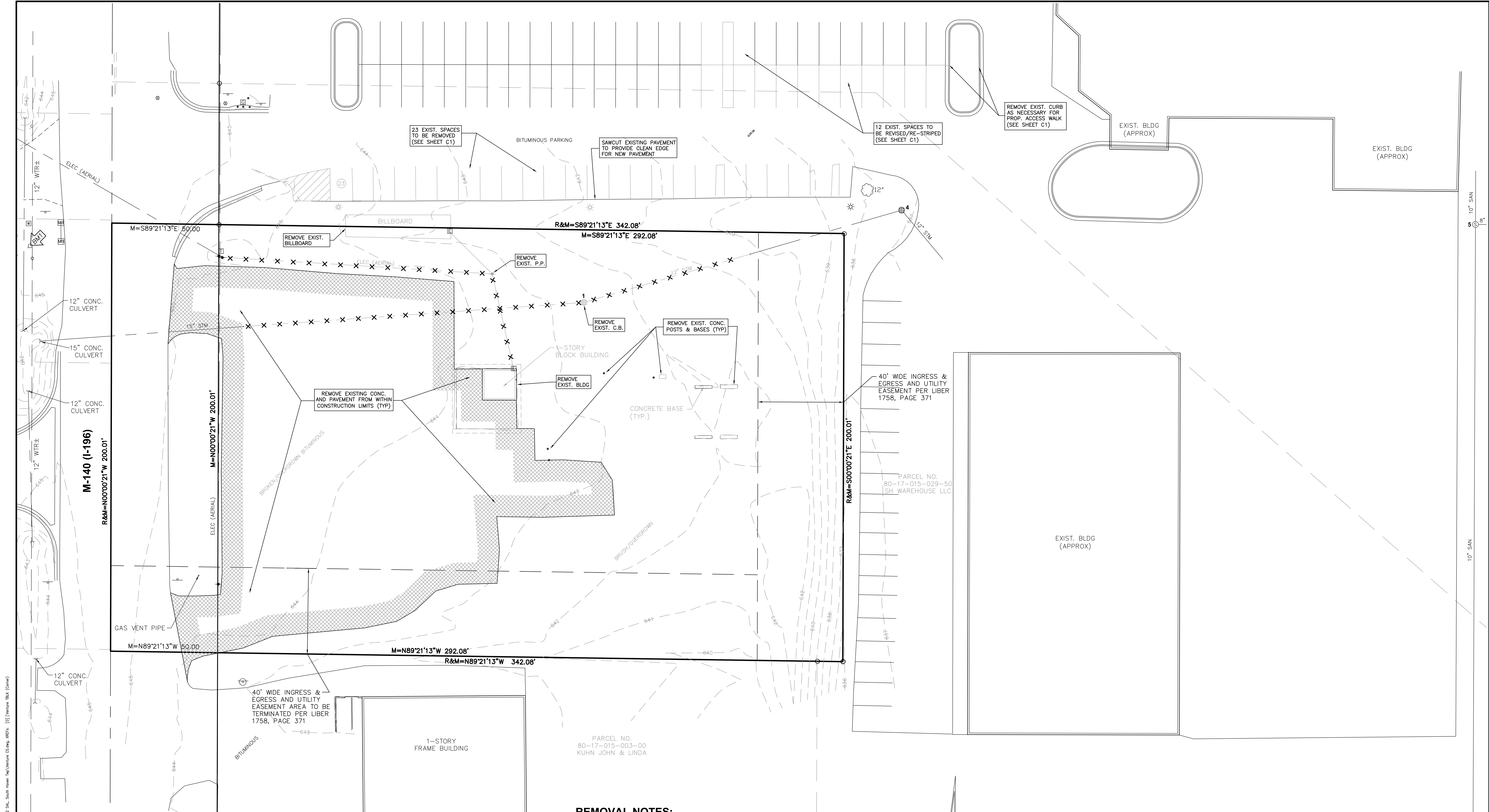


Know what's **below**.  
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COVER SHEET

60


Jul 23, 2025 - 1:22pm C:\Users\jph\OneDrive\Documents\Venture Projects\2024 Projects\24132 SHL South Haven Way Venture Co. Inc. XREFs: [0] Venture TBA (Corner)  
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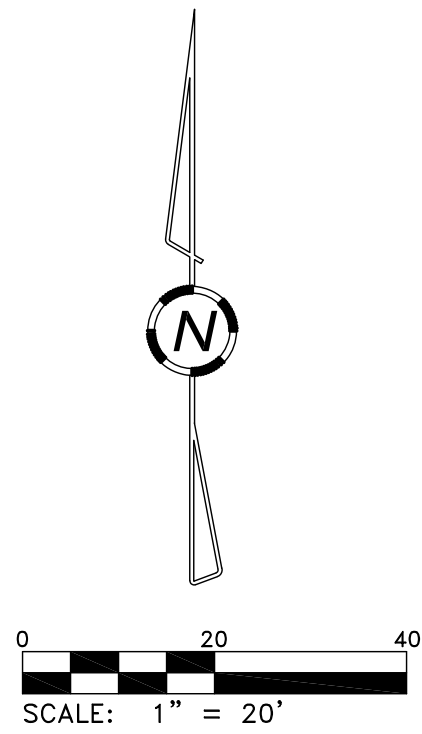


**REMOVAL NOTES:**

1. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES IN PLACE UNLESS NOTED FOR REMOVAL.
2. ALL CONCRETE SIDEWALK & CURB REMOVALS SHALL BE TO THE NEAREST JOINT.
3. BITUMINOUS PAVEMENT REMOVAL LIMITS SHALL BE BY SAW CUT.
4. ALL UTILITY SERVICE REMOVALS SHALL BE TO THE MAIN LINE UNLESS OTHERWISE INDICATED BY THE SERVICE PROVIDER OR IF THEY WILL BE UTILIZED TO SERVE PROPOSED BUILDING.
5. CONTRACTOR SHALL COORDINATE ALL UTILITY SHUT-OFFS AND REMOVALS WITH THE APPROPRIATE UTILITY PROVIDERS.
6. EXISTING UTILITIES SHOWN ARE FROM RECORD PLANS AND EVIDENCE IN THE FIELD. NO GUARANTEE IS MADE FOR ACCURACY OR THAT THE UTILITIES SHOWN ARE THE ONLY IN THE AREA.
7. CONTRACTOR SHALL OBTAIN NECESSARY PERMITS & MAINTAIN PROPER TRAFFIC CONTROL MEASURES FOR ALL WORK WITHIN THE PUBLIC R/W.

**REMOVAL LEGEND**

PAVEMENT REMOVAL -   
UTILITY REMOVAL - X X X X X



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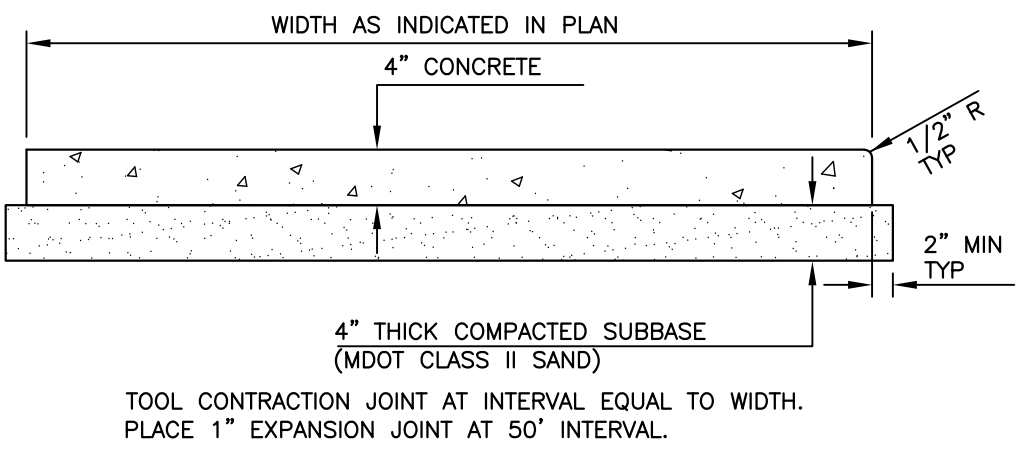
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Byron Center, MI 49315  
616-490-0329  
venturecivil.com

Drawn By: JAC Date: 12/2024 Ch'd By: JMB DATE: 12/2024 Sheet: **C0**  
Project No. **24132**

**EXISTING CONDITIONS / REMOVAL SHEET**

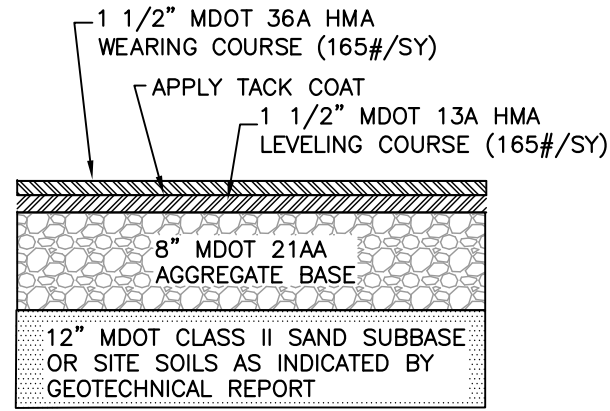
SITE NOTES

1. SITE AREA: 58,414 SF (1.34 ACRES)(EXCL. R/W)
2. CURRENT ZONING: COMMUNITY SERVICE COMMERCIAL (CSC)
3. SETBACKS REQUIRED: 50' FRONT, 10' SIDE (25' TOTAL SIDE), 50' REAR
4. PARKING REQUIREMENTS:
- DWELLINGS - MULTIPLE FAMILY: TWO (2) PARKING SPACES PER DWELLING UNIT, PLUS ONE (1) ADDITIONAL SPACE FOR EACH FOUR (4) DWELLING UNITS AND ONE (1) SPACE FOR EACH EMPLOYEE WORKING DURING MAXIMUM EMPLOYMENT HOURS.
- $(42 \text{ UNITS} \times 2 = 84) + (42 \text{ UNITS} / 4 = 11) + 2 \text{ (EMPLOYEES)} = 97 \text{ SPACES REQUIRED}$
- 47 SPACES PROVIDED ON SITE (INCLUDING 2 B.F.)
- 50 OFF-SITE PARKING SPACES TO BE PROVIDED
5. CONTRACTOR SHALL CONTACT "MISS DIG" 1-800-482-7171 (72) HOURS PRIOR TO CONSTRUCTION TO ALLOW FOR ACCURATE LOCATION OF ALL UNDERGROUND UTILITIES.
6. EXISTING UTILITIES SHOWN ARE FROM RECORD PLANS AND EVIDENCE IN THE FIELD. NO GUARANTEE IS MADE FOR ACCURACY OR THAT THE UTILITIES SHOWN ARE THE ONLY IN THE AREA. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
7. ALL CONSTRUCTION METHODS & MATERIALS SHALL COMPLY WITH CURRENT SOUTH HAVEN TOWNSHIP, VAN BUREN COUNTY & MDOT STANDARDS AND SPECIFICATIONS FOR CONSTRUCTION. NO CONSTRUCTION SHALL COMMENCE UNTIL ALL REQUIRED PERMITS HAVE BEEN ISSUED.
8. THE PROPOSED DEVELOPMENT WILL UTILIZE EXISTING AVAILABLE INFRASTRUCTURE INCLUDING ROADS, SEWAGE DISPOSAL, WATER SUPPLY AND STORM WATER MANAGEMENT. NO UNANTICIPATED DEMAND WILL BE PLACED ON TOWNSHIP SERVICES.
9. SITE LIGHTING WILL CONSIST OF DOWNWARD DIRECTED, CUTOFF STYLE FIXTURES AND SHALL COMPLY WITH REQUIRED ILLUMINATION LEVELS.
10. TRASH ENCLOSURE SHALL HAVE 6' HIGH OPAQUE WALLS AND GATES. IT SHALL BE CONSTRUCTED OF MATERIALS THAT ARE SIMILAR TO THE PROPOSED BUILDING.
11. SITE SIGNAGE SHALL CONFORM TO SOUTH HAVEN REQUIREMENTS.
12. BARRIER-FREE RAMPS SHALL BE 6 FT LONG WITH A MAXIMUM SLOPE OF 1:12 AND SHALL HAVE A NON-SLIP SURFACE.
13. BARRIER-FREE SIGNAGE SHALL BE 6'-8" TO BOTTOM OF SIGN. 1 SHALL BE A "VAN" SIGN.
14. COORDINATE ALL UTILITY CONNECTIONS WITH THE APPROPRIATE UTILITY PROVIDERS PRIOR TO CONSTRUCTION.



STANDARD SIDEWALK

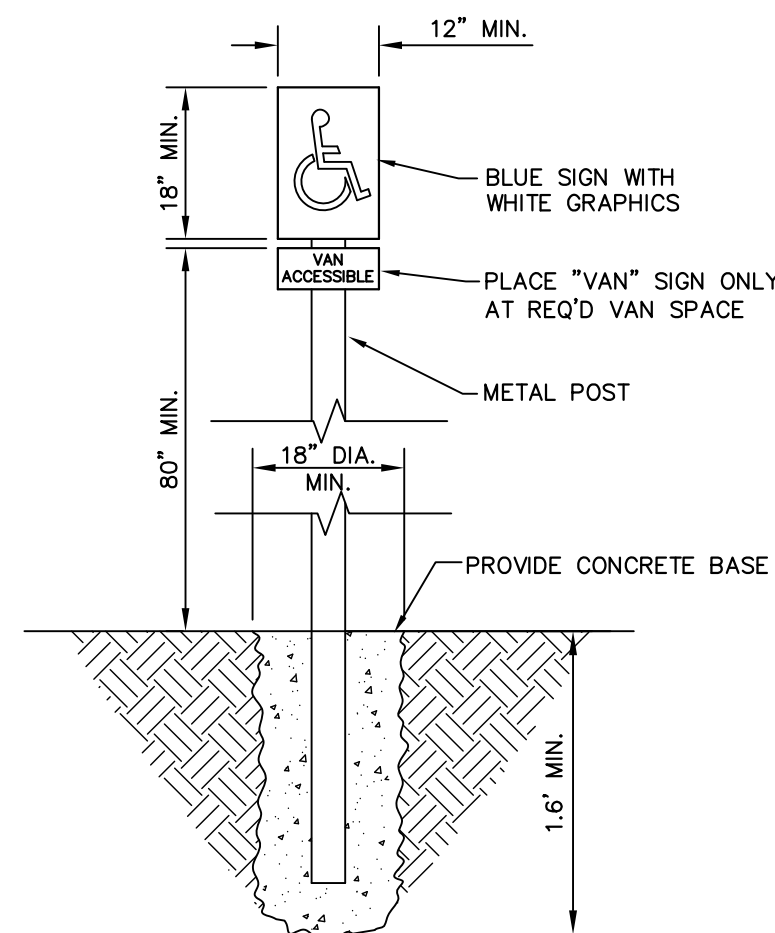
NOT TO SCALE



STANDARD PAVEMENT SECTION

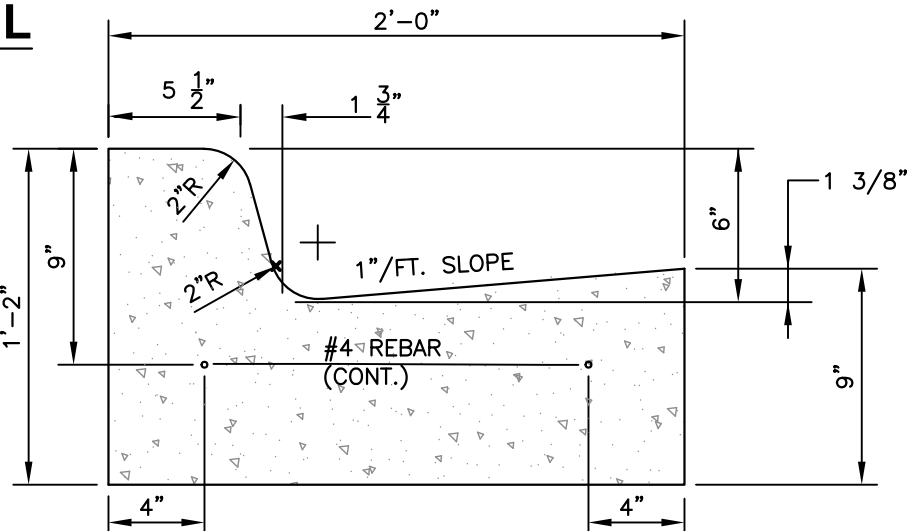
NOT TO SCALE

ALL MATERIAL DESIGNATIONS REFER TO MDOT. STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2020 EDITION AND SUPPLEMENTAL SPECIFICATIONS



BARRIER FREE SIGN DETAIL

NOT TO SCALE



M.D.O.T. F-4 CURB & GUTTER

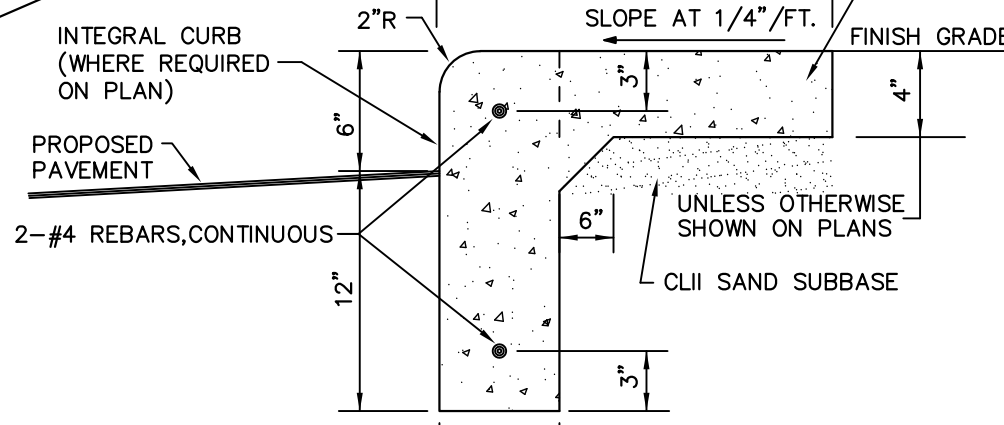
NOT TO SCALE

NOTES

1. MAXIMUM LANDING SLOPE IN ANY DIRECTION IS 2%. MINIMUM LANDING DIMENSION IS 5'x5'.
2. MAXIMUM CROSS SLOPE ON RAMP IS THE SAME AS THAT FOR SIDEWALK (2%). RUNNING SLOPE 5% - 7% (8.3% MAX).
3. REFER TO MDOT STANDARD DETAIL R-28 SERIES FOR MORE INFORMATION.

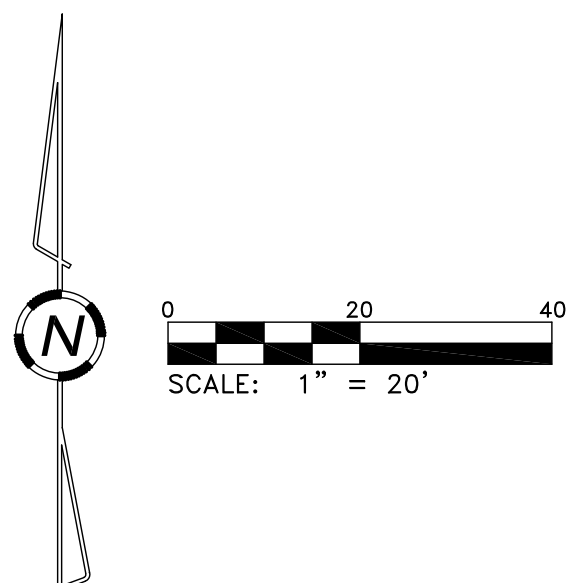
SIDEWALK RAMP TYPE P

(PARALLEL RAMP)  
NO SCALE



RAISED SIDEWALK DETAIL

NOT TO SCALE



SITE LAYOUT PLAN

NOT FOR CONSTRUCTION

Proposed Site Improvements For:  
**Sunset Grove at South Haven**

08729 M-140 HWY  
SOUTH HAVEN TOWNSHIP, VAN BUREN COUNTY, MICHIGAN

For: Pinnacle Construction Group  
1000 Front Ave. NW  
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Byron Center, MI 49315  
venturecivil.com

Drawn By: JAC Date: 12/2024 Ch'd By: JMB DATE: 12/2024 Sheet: **C1**  
Project No. **24132**



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Jul 23, 2025 - 1:22pm © Venture, Inc. (undrawn) Documents\Venture Projects\2024 S-HL South Haven Twp\Venture C2-Avg. 9061x- [0] [1] [2] [Venture TBLK] (Cont'd)  
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### EXIST. STRUCTURE INVENTORY

CBR 1  
RIM: 642.67'  
638.33 15" CPP S85°W  
638.33 12" CPP N70°E

(#2 INTENTIONALLY OMITTED)

SMH 3  
RIM: 643.75'  
640.45 8" PVC SOUTH  
641.35 2" PVC NORTH  
640.75 2" PVC NORTHEAST

CBR 4  
RIM: 636.39'  
632.79 12" CPP S75°W  
632.44 12" CPP S40°E

SMH 5  
RIM: 643.75'  
640.45 10" TILE NORTH  
641.35 10" TILE SOUTH  
640.75 8" PVC EAST

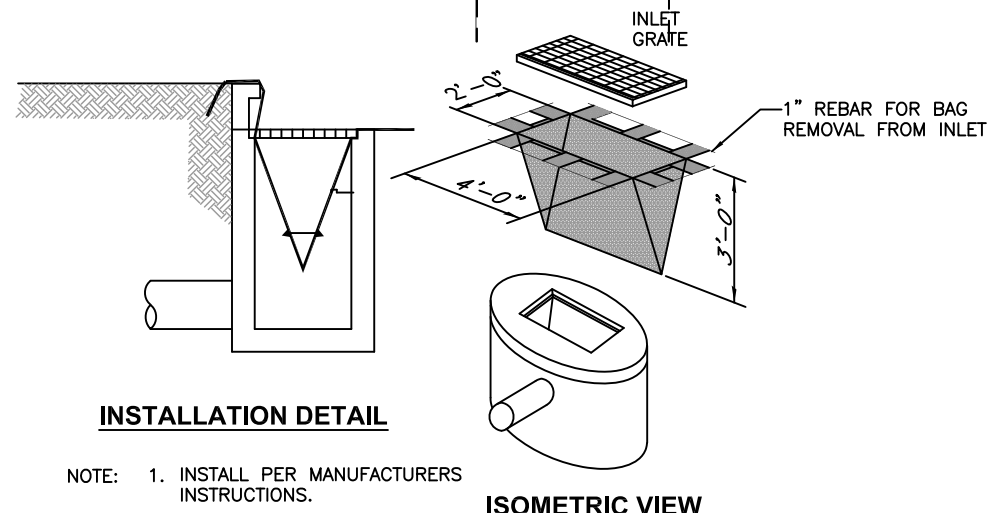
SMH 6  
RIM: 637.31'  
625.76 10" TILE SOUTH  
625.71 10" TILE NORTH

### SESC SCHEDULE

- INSTALL SILT FENCE & INLET PROTECTION AS SHOWN. MAINTAIN SILT FENCE BY REMOVING SEDIMENT WHEN IT HAS REACHED 1/3 TO 1/2 OF THE HEIGHT OF THE FENCE.
- CLEAR & GRUB SITE AS NECESSARY AND REMOVE EXISTING PAVEMENT AS SHOWN ON PLANS. STOCKPILE EXCESS MATERIALS AS REQUIRED. THE CONTRACTOR IS DIRECTED TO INSTALL SILT FENCE AT THE TOE OF THE SLOPE AROUND PERIMETER OF TEMPORARY STOCKPILES.
- CONSTRUCT STORM SYSTEM.
- PLACE INLET PROTECTION IN ALL PROPOSED CATCH BASINS IMMEDIATELY FOLLOWING INSTALLATION.
- PERMANENT CONTROL MEASURES MUST BE COMPLETED 5 CALENDAR DAYS AFTER THE FINAL EARTH CHANGE IS COMPLETED FOR EACH AREA DISTURBED. THIS INCLUDES BLANKETS, SEEDING, MULCHING & HYDROMULCHING, AS INDICATED IN THESE PLANS.
- FOR ALL AREAS TO BE SEEDDED, THE MULCH MUST BE APPLIED IMMEDIATELY AFTER SEED APPLICATION.
- CLEAN STORM SEWER, INLETS, AND PIPES OF ALL CONSTRUCTION SEDIMENT IMMEDIATELY FOLLOWING PROJECT COMPLETION.
- REMOVE TEMPORARY CONTROLS SUCH AS SILT FENCE, INLET PROTECTION AND NETTING ONCE VEGETATION IS ESTABLISHED AND THE SITE HAS BEEN STABILIZED.

### MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET S-E-S-C KEYING SYSTEM

KEY	BEST MANAGEMENT PRACTICES	SYMBOL	WHERE USED
<b>EROSION / SEDIMENT CONTROLS</b>			
E8	PERMANENT SEEDING		Stabilization method utilized on sites where earth change has been completed (final grading attained).
S51	SILT FENCE		Use adjacent to critical areas, to prevent sediment laden sheet flow from entering these areas.
S53	STABILIZED CONSTRUCTION ACCESS		Used at every point where construction traffic enters or leaves a construction site.
S58	INLET PROTECTION FABRIC DROP		Use at stormwater inlets, especially at construction sites.



### S58 INLET PROTECTION - FABRIC DROP

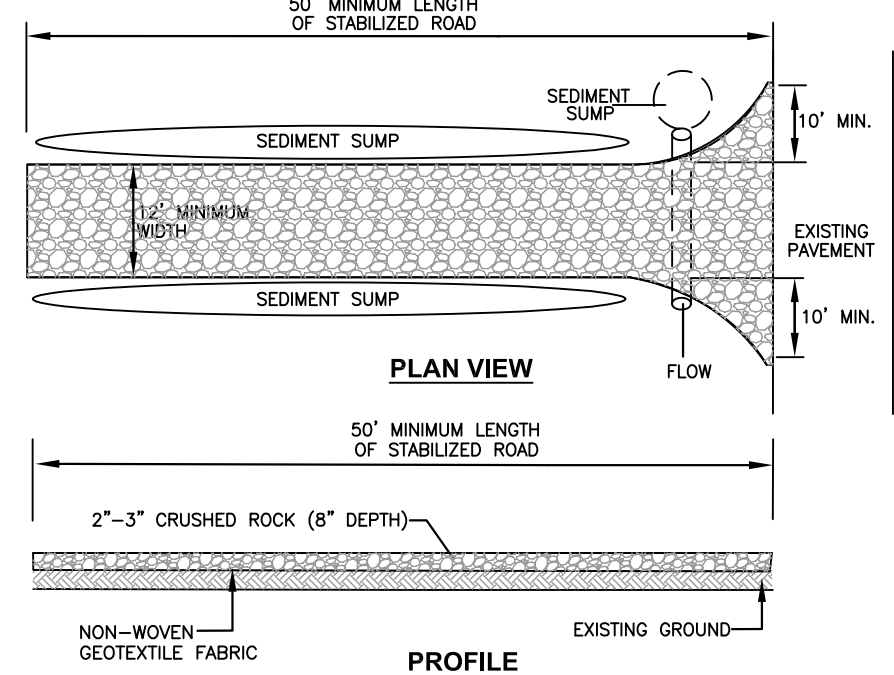
### E8 PERMANENT SEEDING NOTE

ALL PROPOSED LAWN AREAS AND ALL AREAS DISTURBED BY CONSTRUCTION SHALL RECEIVE A MINIMUM OF 4" OF TOPSOIL AND LAWN SEED MIX AS INDICATED ON PLANS AND AS FOLLOWS:

PROPORTION	CLASS "A" SEED TYPE
10%	CANON KENTUCKY BLUEGRASS
10%	GOLDRUSH KENTUCKY BLUEGRASS
20%	RONDE KENTUCKY BLUEGRASS
20%	SR100 CHEWINGS FESCUE
20%	SR200 CREEPING RED FESCUE
10%	SR400 PERENNIAL RYEGRASS
10%	SR400 PERENNIAL RYEGRASS

SEEDING RATE SHALL BE 4 TO 6 lbs. PER 1000 SQ. FEET.


ALL AREAS DESIGNATED FOR PERMANENT SEEDING SHALL BE HYDRO-SPRAYED.



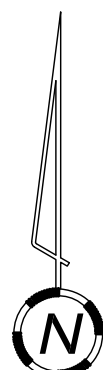
### S53 STABILIZED CONSTRUCTION ACCESS

NOT TO SCALE

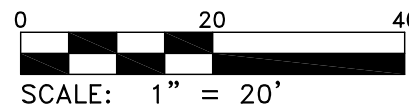
### SITE GRADING & SESC PLAN



Know what's below.  
Call before you dig.



ELEVATION DATUM  
All Elevations are based on NAVD 88 Datum.  
Contours are illustrated at 1.0' intervals.  
Bm#1)  
Elevation: 647.18'  
Description: Top bolt of hydrant, west side of M-140 (196)



0 20 40  
SCALE: 1" = 20'

### LEGEND

- PROPOSED CONTOURS
- EXISTING CONTOURS
- DRAINAGE STRUCTURES
- PROPOSED STORM SEWER
- SILT FENCE
- PROPOSED SPOT ELEVATION
- DIRECTION OF DRAINAGE FLOW
- SWALES
- DRAINAGE HIGH POINTS

### EROSION CONTROL NOTES

- ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY AND PERMIT AGENCY REQUIREMENTS.
- GRADING WILL BE LIMITED TO WITHIN PROPERTY LINES AND/OR GRADING LIMITS.
- THE PROPERTY IS NOT IMPACTED BY A FLOODPLAIN.
- NO SOIL WILL BE ALLOWED TO ACCUMULATE OFF SITE. ANY SOIL TRACKED OFF SITE IS SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR.
- ALL TRAFFIC ENTERING OR LEAVING PROPERTY SHALL USE STABILIZED CONSTRUCTION ACCESS.
- WHERE POSSIBLE SILT FENCE IS TO BE PLACED 10' FROM TOE OF SLOPE TO ALLOW FOR MAINTENANCE.
- DUST CONTROL MEASURES SHALL BE APPLIED AT ALL TIMES WITHIN THE PROJECT BY THE CONTRACTOR.
- ALL DISTURBED AREAS SHALL BE SEEDDED WITHIN 5 CALENDAR DAYS OF ACHIEVING FINAL GRADE WITH PERMANENT SEED MIXTURE.
- ALL DISTURBED AREAS THAT WILL NOT ACHIEVE FINAL GRADE WITHIN 30 CALENDAR DAYS SHALL BE SEEDDED PER TEMPORARY SEEDING SPECIFICATIONS. ALL SLOPES 1 VERTICAL: 5 HORIZONTAL OR STEEPER SHALL BE TRACK WALKED PERPENDICULAR TO SLOPE PRIOR TO TEMPORARY SEEDING.
- ALL SLOPES GREATER THAN 1:4 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN DS-75 EROSION CONTROL BLANKET OR APPROVED EQUAL, UNLESS NOTED OTHERWISE. ALL STORMWATER CHANNELS AND DITCHES SHALL BE STABILIZED WITH NORTH AMERICAN GREEN SC-250 PERMANENT EROSION CONTROL BLANKET OR APPROVED EQUAL, UNLESS NOTED OTHERWISE. BLANKETS SHALL BE INSTALLED PER MANUFACTURERS INSTRUCTIONS.
- TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED DAILY AND ANY PROBLEMS REMEDIED IMMEDIATELY.
- PERMANENT EROSION CONTROL MEASURES SHALL BE MAINTAINED BY PROPERTY OWNER. MAINTENANCE INCLUDES REGULAR INSPECTION AND CLEANING OF ALL STORM WATER FACILITIES AND ENSURING VEGETATION IS ADEQUATE ON ALL SLOPES.
- STOCKPILE EXCESS TOPSOIL ON SITE AS INDICATED ON PLANS OR DIRECTED BY ENGINEER AND INSTALL SILT FENCE AROUND THE PERIMETER OF THE STOCKPILE. PLACE TEMPORARY SEEDING ON STOCKPILE ONCE THE SITE HAS BEEN CLEARED AND ALL TOPSOIL HAS BEEN STOCKPILED.
- EXISTING SOILS ONSITE ARE TYPICALLY SAND.
- TOTAL AREA OF DISTURBANCE = 1.26 ACRES±
- ALL PROJECTS DISTURBING 1 OR MORE ACRES OR ARE WITHIN 500 FT. OF A LAKE OR STREAM REQUIRE A SOIL EROSION CONTROL PERMIT FROM THE DESIGNATED AUTHORIZED PUBLIC AGENCY.

### NOT FOR CONSTRUCTION


Proposed Site Improvements For:

## Sunset Grove at South Haven

08729 M-140 HWY  
SOUTH HAVEN TOWNSHIP, VAN BUREN COUNTY, MICHIGAN

For: Pinnacle Construction Group  
1000 Front Ave. NW  
Grand Rapids, MI 49504  
Ph. 616.451.0500

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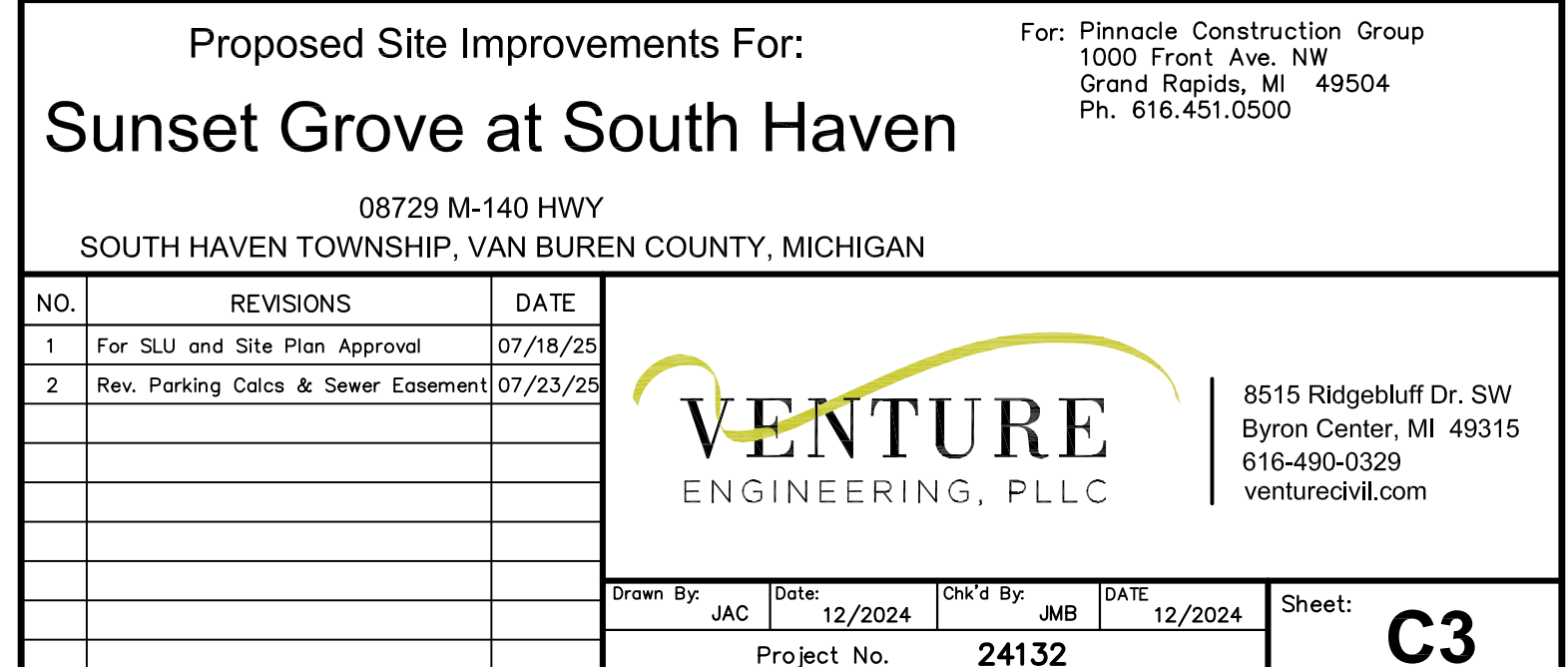


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venturecivil.com

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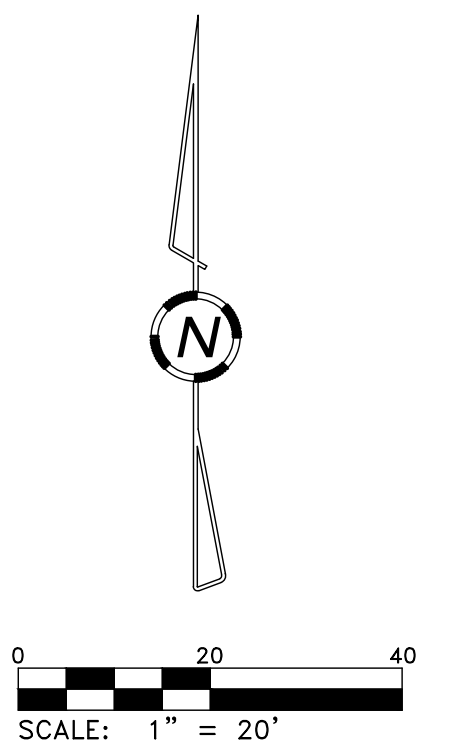
Project No. **24132**

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2. CONTRACTOR SHALL PERFORM ALL CONSTRUCTION ACTIVITIES IN A MANNER TO MINIMIZE INCONVENIENCE TO ADJACENT PROPERTIES.
3. ALL CONSTRUCTION METHODS & MATERIALS SHALL COMPLY WITH CURRENT SOUTH HAVEN TOWNSHIP, VAN BUREN COUNTY AND CURRENT MDT STANDARDS AND SPECIFICATIONS FOR CONSTRUCTION. NO CONSTRUCTION SHALL COMMENCE UNTIL ALL REQUIRED PERMITS HAVE BEEN ISSUED.
4. CONTRACTOR SHALL KEEP ALL FIRE LANS OPEN & ACCESSIBLE DURING CONSTRUCTION AT ALL TIMES.
5. CONSTRUCTION TRAFFIC SHALL BE MINIMIZED ON ANY NEW PAVEMENT. THE CONTRACTOR SHALL REPAIR ANY DAMAGE OR FAIRE CAUSED BY CONSTRUCTION ACTIVITIES, AS WELL AS REPAIRING ROAD DAMAGE ON THE EXISTING PAVEMENT SYSTEM TO THE SATISFACTION OF THE OWNER.
6. ALL CONSTRUCTION ACTIVITIES SHALL BE STAKED AND GRADED UNDER THE SUPERVISION OF A LICENSED LAND SURVEYOR.
7. ALL RUNOFF FROM THE ROOF OF THE PROPOSED BUILDING SHALL BE CONNECTED TO THE PROPOSED STORM SYSTEM.
8. STORM SEWER PIPE SHALL BE SLCPP (ADS N-12 OR EQUAL) UNLESS OTHERWISE INDICATED.
9. A QUALIFIED GEOTECHNICAL ENGINEER SHALL BE CONTRACTED TO MONITOR EARTHWORK & PAVING ACTIVITIES.
10. STORM WATER WILL BE COLLECTED IN AN UNDERGROUND DETENTION ARE COETING VANBUREN COUNTY OR DRUG COMMISSIONER STANDARDS AND DISCHARGED TO AN EXISTING STORM SEWER ON SITE.
11. COORDINATE ALL UTILITY CONNECTIONS WITH THE APPROPRIATE UTILITY PRIOR TO CONSTRUCTION. AT A MINIMUM, SERVICES SHALL BE PLACED IN 4" PVC CULVERT UNDER PAVED AREAS.
12. WATER LINES SHALL BE BORED AND JACKED BENEATH M-140. ALL CONSTRUCTION METHODS AND MATERIALS SHALL MEET MDT AND CITY OF SOUTH HAVEN REQUIREMENTS.



SMH 6  
RIM: 637.31'  
625.76 10" TILE SOUTH  
625.71 10" TILE NORTH

Bm#1)  
Elevation: 647.18'  
Description: Top bolt of hydrant,  
west side of M-140 (196)



SMH 6  
RIM: 637.31'  
625.76 10" TILE SOUTH  
625.71 10" TILE NORTH

# SANITARY LATERAL PLAN

PROJECT INFORMATION

ENGINEERED PRODUCT MANAGER

ADS SALES REP

PROJECT NO.



Advanced Drainage Systems, Inc.



ADS StormTech

SAL SOUTH HAVEN COPY

SOUTH HAVEN, MI, USA

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-800 SYSTEM

SC-800 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-800.

2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.

3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".

4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS UNSTRUCTURED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT OBSTRUCT FREE FLOW OR LIMIT ACCESS FOR INSPECTION.

5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE ASHITO LIFT BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS BASED ON THE ASHITO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE PRESENCE.

6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (1 MIN) ASHITO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER; 2) MAXIMUM PERMANENT (24 HR) COVER AND ALLOWABLE COVER WITH PARKED (1 WEEK) ASHITO DESIGN TRUCK.

7. REQUIREMENTS FOR HANDLING AND INSTALLATION:

- TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STAKING LUGS.
- TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
- TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 8.2.3 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LB/FT<sup>2</sup>. THE ADS IS DEFINED IN SECTION 8.2.3 OF ASTM F2418.
- AND TO RESIST CHAMBER LIFT, THE ADS SHALL BE DESIGNED TO RESIST CHAMBER LIFT AT ELEVATED TEMPERATURES ABOVE 72° F / 22° C. CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:

- THE STRUCTURAL EVALUATION SHALL BE SIGNED BY A REGISTERED PROFESSIONAL ENGINEER.
- THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.56 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD. THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 8 AND 12.12 OF THE ASHITO LIFT BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
- THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2787 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.

9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

10. MAINFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE AL-32 FOR MAINFOLD SIZING GUIDANCE. DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANHOLE COMPONENTS IN THE FIELD.

11. ADS DOES NOT DESIGN OR PROVIDE MEMBRANE LINER SYSTEMS. TO MINIMIZE THE LEAKAGE POTENTIAL OF LINER SYSTEMS, THE MEMBRANE LINER SYSTEM SHOULD BE DESIGNED BY A KNOWLEDGEABLE GEOTECHNICAL PROFESSIONAL AND INSTALLED BY A QUALIFIED CONTRACTOR.

PROPOSED LAYOUT

PROPOSED ELEVATIONS

INVERT ABOVE BASE OF CHAMBER



1. STORMTECH SC-800 CHAMBERS SHALL BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.

2. STORMTECH SC-800 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310SC-740SC-800SC-780 CONSTRUCTION GUIDE".

3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR STRAIGHT OVER THE CHAMBERS. STORMTECH REQUIRES 3 BACKFILL METHODS:

- STONESHOOTER LOCATED OFF THE CHAMBER BED.
- SHOVEL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
- BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.

4. THE FOUNDATION STONE SHALL BE LEVELLED AND COMPACTED PRIOR TO PLACING CHAMBERS.

5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.

6. MAINTAIN MINIMUM 4" (100 mm) SPACING BETWEEN THE CHAMBER ROWS.

7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE. ASHITO M83, M37, 4, 407, 5, 96, OR 57.

8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.

9. ADS RECOMMENDS THE USE OF "FLEXSTORM GATOR" IT INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH SC-800 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310SC-740SC-800SC-780 CONSTRUCTION GUIDE".

2. THE USE OF CONSTRUCTION EQUIPMENT OVER 8000 CHAMBERS IS LIMITED:

- NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
- NO RUBBER TIRE LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FLAT DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310SC-740SC-800SC-780 CONSTRUCTION GUIDE".
- WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310SC-740SC-800SC-780 CONSTRUCTION GUIDE".

3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR JUMPING.

USE OF A DOZER TO PUMP EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE INSTALL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUMP" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-800-823-8710 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

ACCEPTABLE FILL MATERIALS: STORMTECH SC-800 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	ASHITO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D. FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE 'C' LAYER TO THE BOTTOM OF THE CHAMBER. PAVEMENT OR UNPAVED FINISHED GRADE ABOVE NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOURCE MATERIAL, NATIVE SOIL, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBBASE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRENGTH MATERIAL AND PREPARATION REQUIREMENTS.
C. INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE (A LAYER) TO 12" (300 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOILS/AGGREGATE MIXTURES, 100% FINE OR PROCESSED AGGREGATE.	ASHITO M84 <sup>1</sup> A-1, A-2, A-3 OR ASHITO M47 <sup>2</sup>	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 4" (100 mm) MAX LIFTS TO A MIN. 80% PROCTOR DENSITY FOR WELL-GRADED MATERIAL AND 80% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER CIRCLES VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 25,000 lbs (10 kN).
B. EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE <sup>3</sup>	ASHITO M47 <sup>2</sup> 3, 307, 4, 407, 5, 96, 57	NO COMPACTION REQUIRED.
A. FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT BOTTOM OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE <sup>3</sup>	ASHITO M47 <sup>2</sup> 3, 307, 4, 407, 5, 96, 57	FLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE <sup>1,2</sup>

PLEASE NOTE:

1. THE LISTED ASHITO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR M4 STONE WOULD STATE "CLEAN, CRUSHED, ANGULAR NO. 4 (ASHITO M4) STONE".

2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR A LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 4" (100 mm) MAX LIFTS USING TWO FLAT COVERAGES WITH A VIBRATORY COMPACTOR.

3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR GRADING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD CONDITIONS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.

4. ONCE LAYER 'C' IS PLACED, ANY SOIL MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOLID CAN BE USED TO REPLACE THE MATERIAL. REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS A OR B, THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".

SC-800 TECHNICAL SPECIFICATION



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W x H x INSTALLED LENGTH)

CHAMBER STORAGE

MINIMUM INSTALLED STORAGE<sup>1</sup>

WEIGHT

51" (1295 mm) x 32" (813 mm) x 85' (2590 m)

50 CU YD (38 m<sup>3</sup>)

81 CU YD (62 m<sup>3</sup>)

271 kN

NOMINAL END CAP SPECIFICATIONS

SIZE (W x H x INSTALLED LENGTH)

END CAP STORAGE

MINIMUM INSTALLED STORAGE<sup>1</sup>

WEIGHT

48" (1219 mm) x 32" (813 mm) x 10' (3048 m)

4 CU YD (3 m<sup>3</sup>)

14 CU YD (11 m<sup>3</sup>)

157 kN

PRE-CORED HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "BPC"

PRE-CORED HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "TFC"

NOTE: ALL DIMENSIONS ARE NOMINAL.

SC-800 TECHNICAL SPECIFICATION



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3. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS.

4. DRAINAGE CONNECTION TUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3121 FOR CORRUGATED HOPE AND A HANCOCK DUAL WALL 500A 38 PVC.

5. FOR COMPLETE DESIGN AND PRODUCT INFORMATION, VISIT WWW.NYLOPLAST.COM.

6. TO ORDER CALL 800-823-8710.

NYLOPLAST DRAIN BASIN



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

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NYLOPLAST DRAIN BASIN



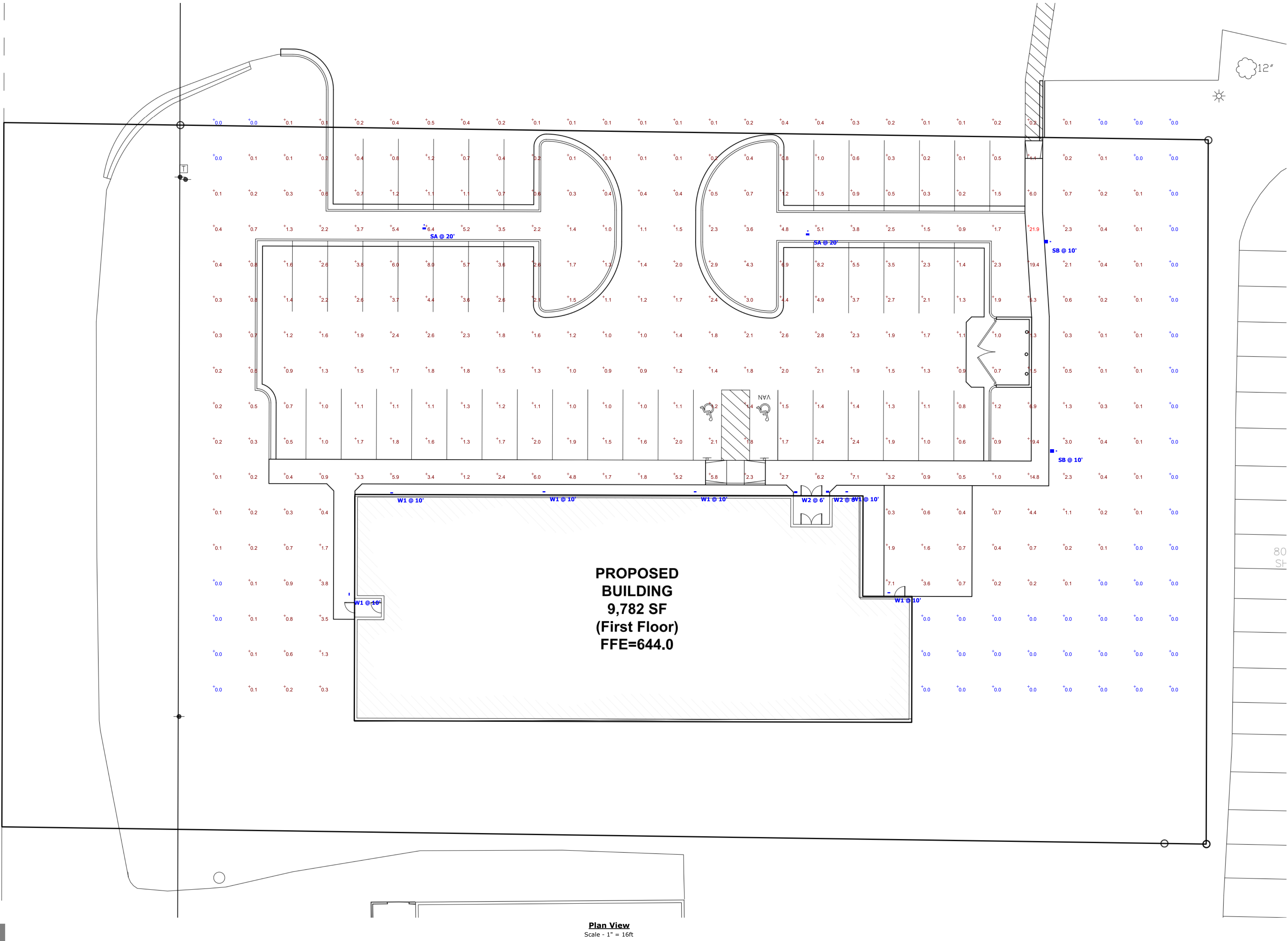
NOTES

1. 12" (300 mm) GRATES/SOLID

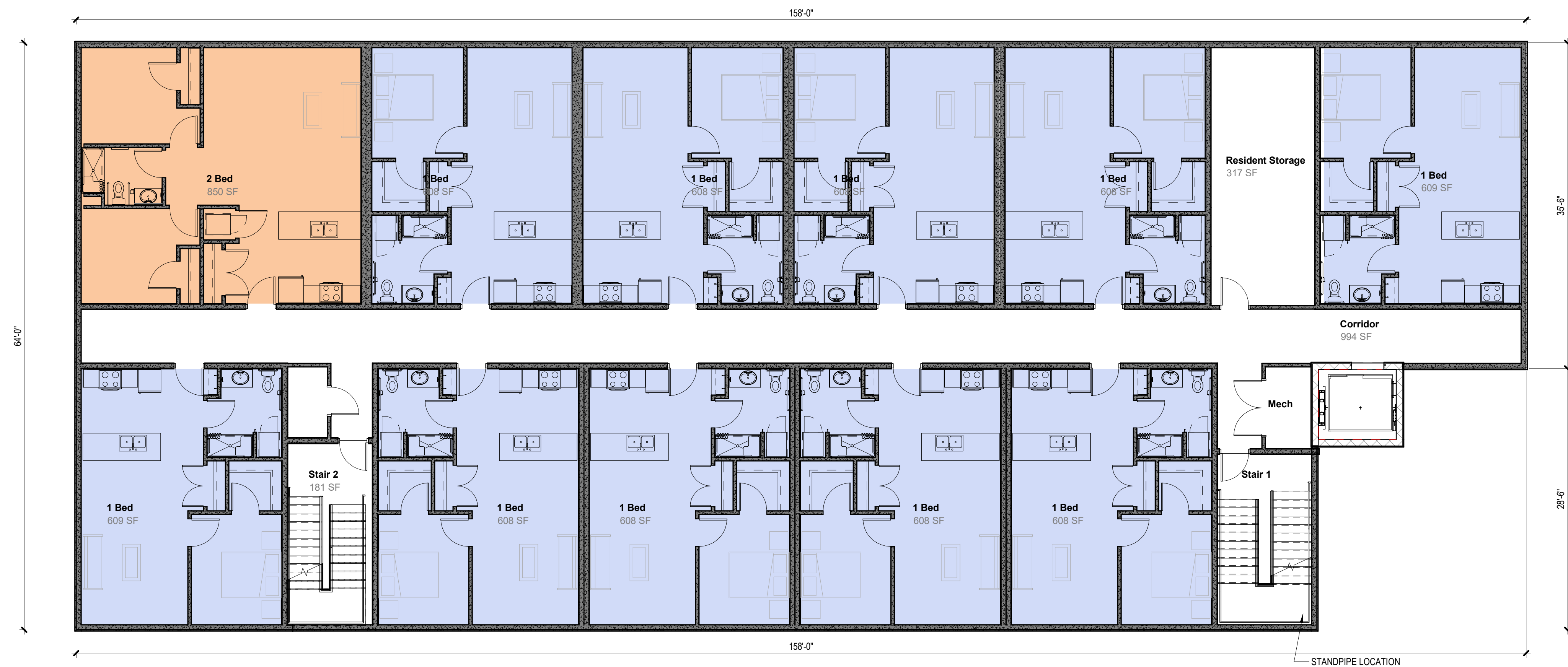
Schedule								
Symbol	Label	QTY	Catalog Number	Description	Number Lamps	Lumens per Lamp	LLF	Wattage
	SA	2	RSX1 LED P4 40K R4	RSX Area Fixture Size 1 P4 Lumen Package 4000K CCT Type R4 Distribution	1	16573	1	133.14
	SB	2	RSX1 LED P1 40K R2	RSX Area Luminaire Size 1 P1 Lumen Package 4000K CCT Type R2 Distribution	1	7121	1	51.3435
	W1	6	WPX1 LED P2 40K Mvolt	WPX1 LED wallpack 3000lm 4000K color temperature 120-277 Volts	1	2913	1	24.42
	W2	2	MERW-612-LED-U-13W	4-3/8"L X 6-1/2"W X 12"H, LED WALL SCONCE DIFFUSED LENS	1	1108	1	16.95

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #1	+	1.5 fc	21.9 fc	0.0 fc	N/A	N/A

M-140 (I-196)



Plan View  
Scale - 1" = 16ft



**1** TYPICAL UPPER FLOOR PLAN  
1/8" = 1'-0"



 **FIRST FLOOR PLAN**  
1/8" = 1'-0"

## GENERAL NOTES

2. DO NOT SCALE DRAWINGS.
3. FINISH FLOOR ELEVATION = 100' - 0". REFER TO CIVIL DRAWINGS FOR EQUIVALENT.
4. REFER TO CODE COMPLIANCE DRAWING(S) FOR LOCATIONS OF RATED ASSEMBLIES.
5. ABBREVIATIONS, TYPICAL MOUNTING DIMENSIONS, AND ANNOTATION SYMBOLLOGY ARE SHOWN ON GENERAL INFORMATION DRAWINGS.
6. WALL DIMENSIONS ARE TO FACE OF MASONRY, FACE OF CONCRETE, FACE OF STUDS, EXTERIOR WALL SHEATHING, COLUMN CENTERLINE AS SHOWN OR FACE OF EXISTING CONSTRUCTION UNLESS OTHERWISE NOTED.
7. ALL DIMENSIONS ARE PERPENDICULAR AND PARALLEL, UNLESS NOTED OTHERWISE.
8. PROVIDE APPROVED SMOKE/FIRESTOPPING ASSEMBLIES AT ALL MECHANICAL AND ELECTRICAL PENETRATIONS THROUGH FIRE RATED AND SMOKE RESISTANT PARTITIONS IDENTIFIED ON CODE COMPLIANCE DRAWING(S).
9. CONSTRUCT ALL WALLS TIGHT TO DECK ABOVE AND EXTEND INTO DECK FLUTES AND WEBS OF STEEL MEMBERS UNLESS OTHERWISE NOTED.
10. PROVIDE DEFLECTION TRACK AT TOP OF ALL METAL STUD ASSEMBLIES. DO NOT FASTEN GYP BOARD OR ANY OTHER WALL SHEATHING INTO DEFLECTION TRACK. ALTERNATIVE DEFLECTION ASSEMBLIES MAY BE USED AT THE ARCHITECT'S DISCRETION.
11. PROVIDE ACOUSTICAL SEALANT AT ALL WALLS WITH ACOUSTICAL INSULATION.
12. PROVIDE 5/8" WATER RESISTANT GYPSUM WALLBOARD OR CEMENTITIOUS BACKER BOARD AT ALL WALLS OF TOILET ROOMS, WALLS RECEIVING TILE, AND WALLS BEHIND AND ADJACENT TO SINKS.
13. REFER TO STRUCTURAL DRAWINGS FOR MASONRY REINFORCING AND GROUTING.
14. PROVIDE BULLNOSE CONCRETE MASONRY UNITS AT EXPOSED SILLS AND AT ALL INTERIOR EXPOSED VERTICAL CORNERS, INCLUDING WINDOW AND DOOR JAMBS.
15. ALL WALLS EXPOSED TO MOISTURE TO BE PRESSURE TREATED.
16. ALL SUBCONTRACTORS ARE TO COORDINATE WITH OTHER TRADES TO INSURE COMPATIBILITY OF THEIR RESPECTIVE WORK.
17. PROVIDE WOOD BLOCKING REQUIRED FOR ATTACHMENT OF ALL MISC. HARDWARE AND EQUIPMENT INCLUDING BUT NOT LIMITED TO: TOILET ACCESSORIES, DROW HARDWARE, ELECTRICAL DEVICES, EQUIPMENT INDICATED, GRAB BARS, HANDRAILS, METALWORK, ETC. BLOCKING SHALL BE 3/4" PLYWOOD, 16GA GALVANIZED SHEET STEEL OR 2X6 SOLID WOOD.
18. TRANSITION LINES OF DIFFERING FLOORING OCCURRING AT A DOOR SHALL BE LOCATED AT THE CENTER LINE OF THE CLOSED DOOR.
19. UNLESS NOTED OTHERWISE, DOOR HINGES ARE TO BE 4" FROM FINISH FACE OF WALL.
20. PROVIDE CONTROL JOINTS IN GYPSUM WALLBOARD AS RECOMMENDED BY WALLBOARD MANUFACTURER AND COORDINATE LOCATIONS WITH ARCHITECT.
21. ALL THERMAL/Acoustical INSULATION OTHER THAN FOAM PLASTICS, SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPMENT OF NOT MORE THAN 450.
22. ALL MATERIAL USED IN THE PROJECT IS TO BE ASBESTOS AND MERCURY FREE.

## WALL TAG LEGEND

- 
- The diagram illustrates how various wall specifications are grouped into three main categories: Wall Type, Stud Size, and Concrete/Masonry Thickness. Each category has a central box labeled A, B, C, or D, which then branches out to specific details.
- WALL TYPE**: Includes G-111 and U-111. The central boxes are labeled A, B, C, and D.
  - STUD SIZE**: Lists track and stud dimensions (e.g., 7/8" metal track, 1-5/8" metal stud). The central boxes are labeled A, B, C, and D.
  - CONCRETE/MASONRY THICKNESS**: Lists nominal CMU and concrete thicknesses (e.g., 4" nominal CMU, 4" concrete). The central boxes are labeled A, B, C, and D.
  - WALL INSULATION**: Options include Acoustic Insulation, Thermal Insulation, and None. This section points to the central boxes A, B, C, and D.
  - FIRE RESISTANCE RATING**: Refers to ratings shown in hours. This section points to the central boxes A, B, C, and D.
  - WALL HEIGHT**: Options include Exterior, Shaft sections, Bottom of hard lid, Underside of deck covering, Extend 6' above ceiling, # of wall in inches, and Other. This section points to the central boxes A, B, C, and D.
  - FURRING SIZE**: States that the same symbols as stud size apply. This section points to the central boxes A, B, C, and D.

## UNIT PLAN LEGEND

- 1 BEDROOM UNIT  
38 UNITS

2 BEDROOM UNIT  
4 UNITS

42 TOTAL UNITS



DESIGN/BUILD CONTRACTOR

PINNACLE CONSTRUCTION GROUP  
1000 FRONT AVE.  
GRAND RAPIDS, MI 49504  
616-451-0500

WWW.ASKOURCLIENTS.COM

## PROJECT TEAM

---

JAMES LEWIS

MATT DIXON

BRENT BOWEN

PROJECT NUMBER

24-014

***Samaritas South Haven***  
Multifamily Residential

M-140  
Allendale, MI 49401

Licensing Stamp

NOT FOR CONSTRUCTION

ISSUANCE

SITE PLAN APPROVAL  
07/14/2025

## REVISIONS

NO.	DATE	DESCRIPTION
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SHEET NAME

## PRESENTATION FLOOR PLANS

SHEET NUMBER

# A01



DESIGN/BUILD CONTRACTOR  
PINNACLE CONSTRUCTION GROUP  
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LICENSING STAMP  
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NO. DATE DESCRIPTION

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SHEET NAME  
**PRESENTATION ELEVATIONS**

SHEET NUMBER

**A02**



1 WEST PERSPECTIVE  
NOT TO SCALE



2 NORTHWEST PERSPECTIVE  
NOT TO SCALE



3 SOUTHWEST PERSPECTIVE  
NOT TO SCALE



4 EAST PERSPECTIVE  
NOT TO SCALE



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SHEET NAME  
**PRESENTATION  
RENDERINGS**

SHEET NUMBER

**A03**