

DOUGLAS MIXED-USE BUILDING

225 CENTER STREET
DOUGLAS, MI. 49406

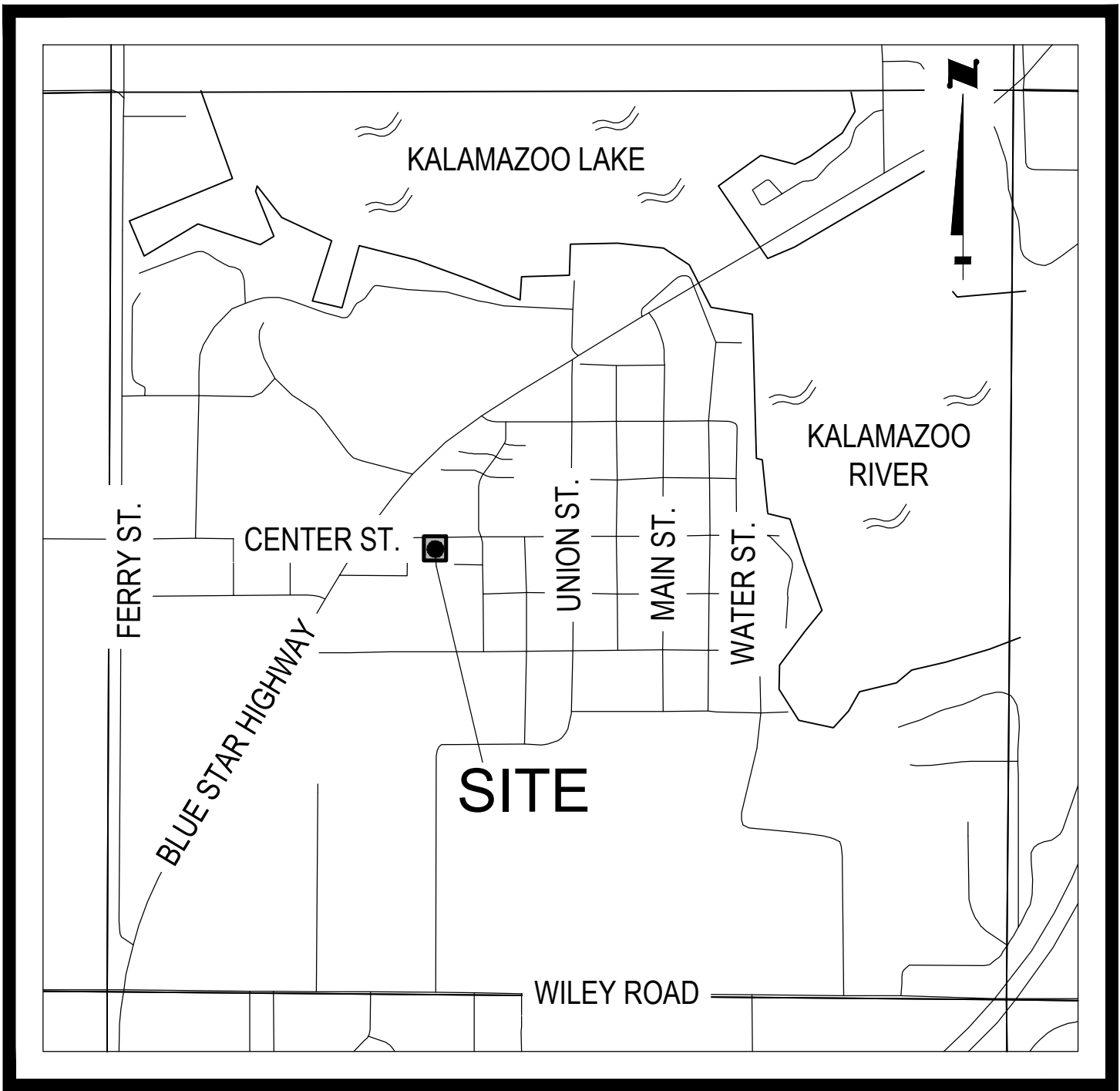
ZONING

C-1, VILLAGE COMMERCIAL DISTRICT

SETBACKS:	
FRONT YARD	0 FEET MIN.
SIDE YARD	5 FEET MIN. (*)
REAR YARD	5 FEET MIN. (**)
HEIGHT	28 FEET MAX.

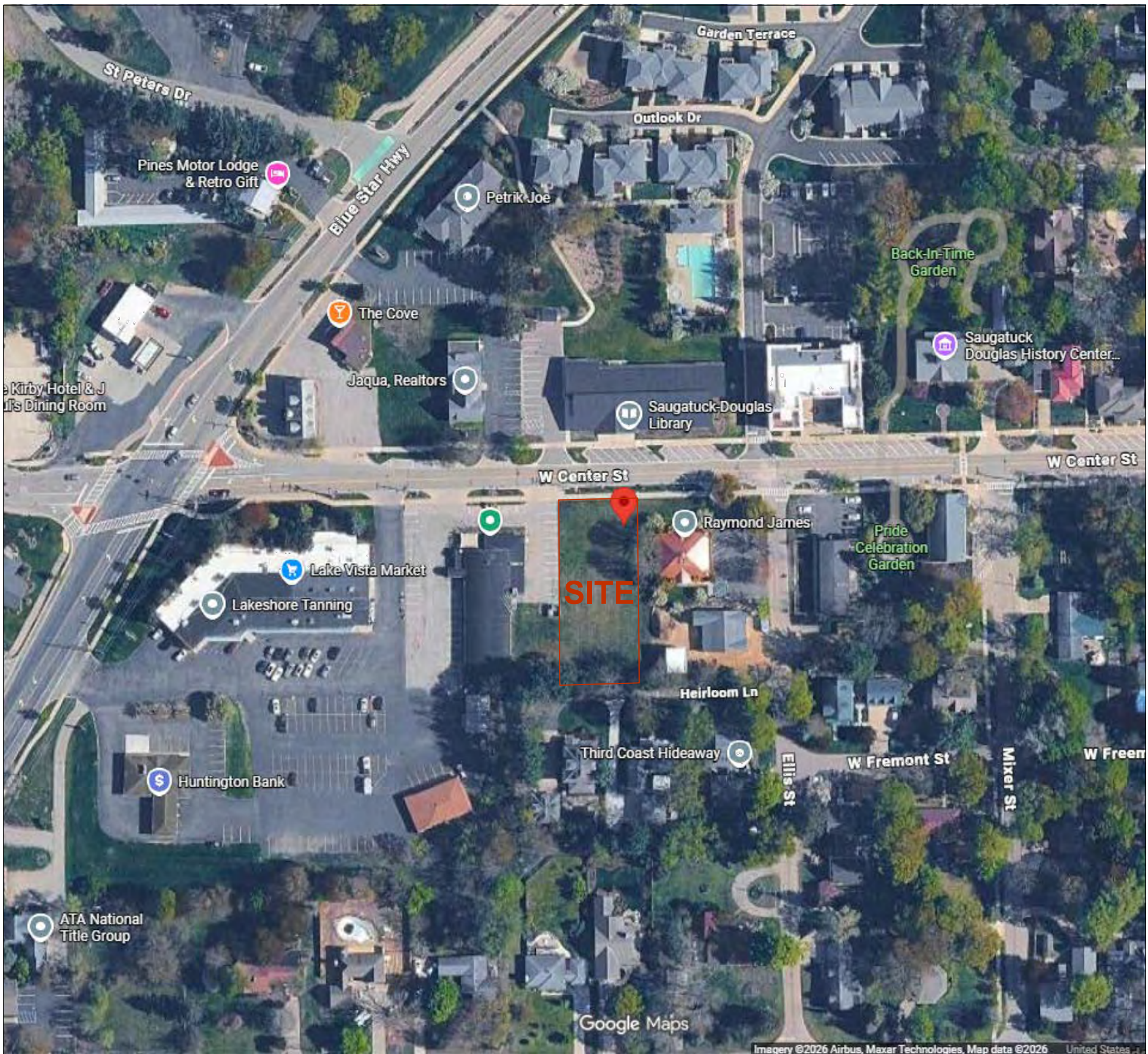
(*) EXCEPT WHERE A COMMERCIAL BUILDING IS PLACED DIRECTLY UPON THE SIDE LOT LINE

(**) EXCEPT WHERE THE REAR YARD ABUTS A SIDE YARD IN A RESIDENTIAL DISTRICT THE REAR YARD SHALL BE 25 FEET.



LOCATION MAP NOT TO SCALE

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NEIGHBORHOOD MAP
SCALE 1" = 150'

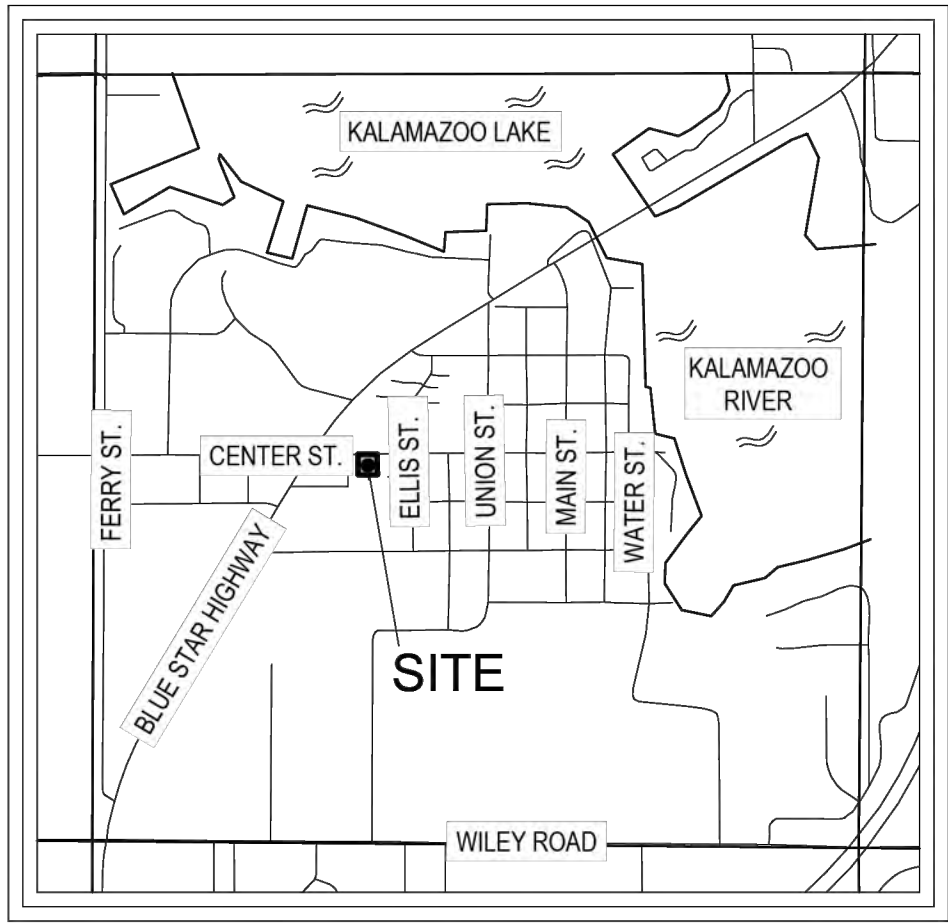
DESCRIPTION

SEE EXISTING CONDITIONS SHEET V-101



No.	Description
A	TOPOGRAPHIC AND BOUNDARY SURVEY
B	HEI REVIEW
C	SITE PLAN SUBMITTAL
D	REV. PER ACDC REVIEW COMMENTS
E	REV. PER ACDC REVIEW COMMENTS
F	ADDRESSED PC REVIEW COMMENTS

Project Manager	BRUCE ZEINTRA, LLA
Vertical Datum	NAVD88
Horizontal Datum	LOCAL
Drawn by	MARK BROOKHOUSE
Checked by	
Survey	
Civil	
Struc.	
L. A.	
HEI Project Number	26-04-022
Sheet Title	COVER SHEET
Sheet No.	G-100



LOCATION MAP

-NOT TO SCALE-

DOUGLAS FLATS, LLC PARCEL DESCRIPTION

PER WARRANTY DEED LIBER 4705, PAGE 523 RECORDED IN ALLEGAN COUNTY RECORDS, MICHIGAN.

PREMISES SITUATED IN THE CITY OF VILLAGE OF DOUGLAS, COUNTY OF ALLEGAN, STATE OF MICHIGAN, TO WIT:

THE EAST 100 FEET OF THE WEST 1858.62 FEET OF THE NORTH 233 FEET OF THE SOUTHWEST 1/4 OF SECTION 16, TOWN 3 NORTH, RANGE 16 WEST, CITY OF THE VILLAGE OF DOUGLAS, COUNTY OF ALLEGAN, STATE OF MICHIGAN.

TOGETHER WITH AN EASEMENT FOR INGRESS AND EGRESS, DESCRIBED AS PART OF THE SOUTHWEST 1/4 OF SECTION 16, TOWN 3 NORTH, RANGE 16 WEST, CITY OF THE VILLAGE OF DOUGLAS, ALLEGAN COUNTY, MICHIGAN, DESCRIBED AS: COMMENCING AT THE WEST 1/4 CORNER OF SAID SECTION, THENCE NORTH 89°16'47" EAST 1821.93 FEET ALONG THE EAST-WEST 1/4 LINE OF SAID SECTION TO THE POINT OF BEGINNING, THENCE CONTINUING NORTH 89°16'50" EAST 18.00 FEET, THENCE SOUTH 00°02'13" EAST 18.40 FEET PARALLEL WITH THE EAST LINE OF THE WEST 548.88 FEET OF THE NORTHEAST 1/4 OF THE SOUTHWEST 1/4 OF SAID SECTION, THENCE NORTH 89°16'50" EAST 18.72 FEET, THENCE SOUTH 00°02'13" EAST 20.00 FEET ALONG SAID EAST LINE, THENCE SOUTH 89°26'50" WEST 36.72 FEET, THENCE NORTH 00°02'13" WEST 179.40 FEET TO THE POINT OF BEGINNING.

SURVEYOR'S NOTES

THIS SURVEY WAS PREPARED FOR THE LANDS AS DESCRIBED HEREIN WITHOUT THE BENEFIT OF CURRENT TIME WORK. IT IS NOT A CERTIFICATION OF TITLE, ZONING OR FREEDOM OF ENCUMBRANCES.

UTILITIES SHOWN HEREON ARE BASED UPON A COMBINATION OF VISIBLE ABOVE GROUND OBSERVATIONS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA. THIS SURVEY SHOULD NOT BE RELIED UPON TO DEPICT THE LOCATION OF ALL UNDERGROUND UTILITIES.

NOTE: CONNECTIVITY AS SHOWN HEREON IS BASED UPON BEST AVAILABLE INFORMATION. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF ALL UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED.

BEARINGS ARE BASED ON A LOCAL COORDINATE SYSTEM, AND THE NORTH LINE OF THE SOUTHWEST 1/4 OF SECTION 16 HAVING A BEARING OF NORTH 88°22'29" EAST.

ELEVATIONS SHOWN HEREON ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

SOURCE BENCHMARK - NATIONAL GEODETIC SURVEY (NGS)
DESIGNATION: 03623
PID: D06962
ELEVATION = 606.68' (NAVD 88)

SOURCE OF FLOOD INFORMATION: <http://nrcsc.fema.gov>

SOURCE OF ADJOINING PARCEL DATA: <https://gis.allegancounty.org/portal/>

DATE OF FIELD SURVEY: APRIL 27, 2026.

FLOOD NOTE

PER THE FLOOD INSURANCE RATE MAP

CITY OF THE VILLAGE OF DOUGLAS,
ALLEGAN COUNTY, MICHIGAN
MAP NUMBER: 2605C0184G
EFFECTIVE DATE: JUNE 21, 2023

THE SUBJECT PARCEL LIES IN:

ZONE X, AREA OF MINIMAL FLOOD HAZARD, AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

I, MARK O. SCOVILL, A LICENSED PROFESSIONAL SURVEYOR IN THE STATE OF MICHIGAN, HEREBY CERTIFY THAT I HAVE SURVEYED THE PARCEL(S) OF LAND DESCRIBED AND DELINEATED HEREON, THAT THE SURVEY MAP IS A TRUE REPRESENTATION OF THE SURVEY AS PERFORMED BY ME, THAT SAID SURVEY WAS PERFORMED RESULTING WITH A RELATIVE POSITIONAL PRECISION AT EACH BOUNDARY CORNER SHOWN HEREON WITHIN LIMITS ACCEPTED BY THE PRACTICE OF PROFESSIONAL SURVEYING. THIS SURVEY WAS MADE FROM THE ATTACHED LEGAL DESCRIPTION. THE DESCRIPTION WAS GIVEN TO US BY OTHERS, OR WAS PREPARED BY US FROM INFORMATION OR DOCUMENTS GIVEN TO US BY OTHERS, AND SHOULD BE COMPARED WITH THE ABSTRACT OF TITLE OR TITLE INSURANCE POLICY FOR ACCURACY, EASEMENTS OR EXCEPTIONS.

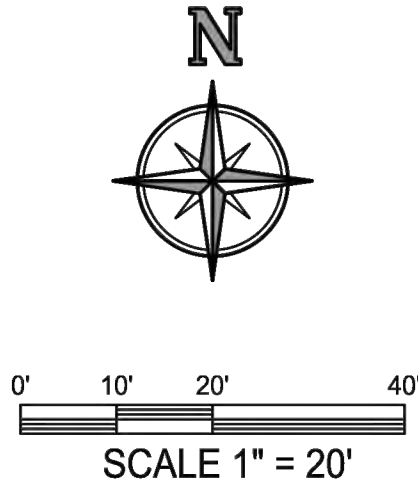
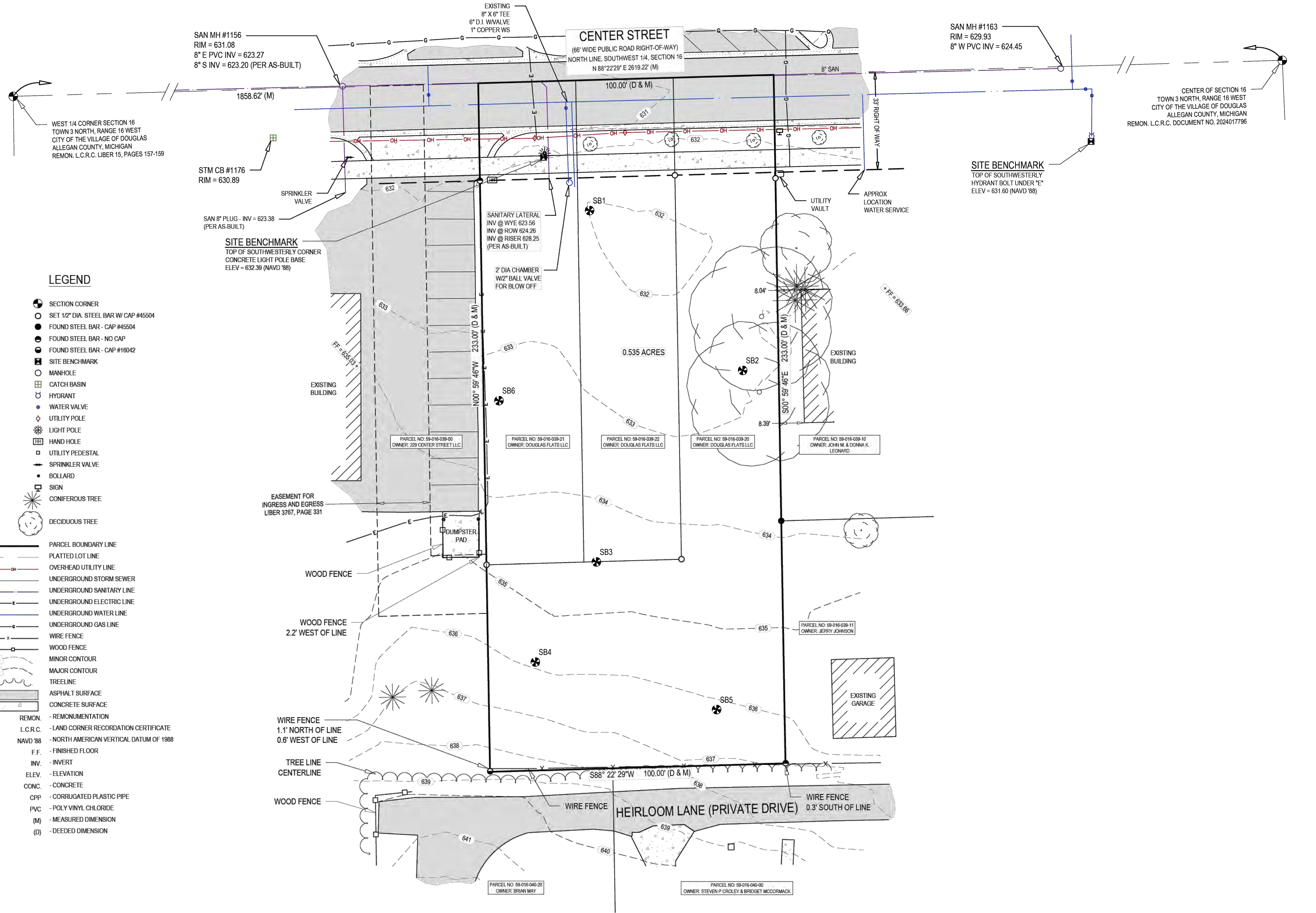
HOLLAND ENGINEERING, INC.
220 HOOVER BOULEVARD
HOLLAND, MICHIGAN 49423
(616) 392-5938

MARK O. SCOVILL
MICHIGAN PROFESSIONAL SURVEYOR #4001045504



LEGEND

- SECTION CORNER
 - SET 1/2" DIA. STEEL BAR W/ CAP #45504
 - FOUND STEEL BAR - CAP #45504
 - FOUND STEEL BAR - NO CAP
 - FOUND STEEL BAR - CAP #16042
 - SITE BENCHMARK
 - TOP OF SOUTHWESTERLY CORNER CONCRETE LIGHT POLE BASE ELEV = 632.38 (NAVD 88)
 - MANHOLE
 - CATCH BASIN
 - HYDRANT
 - WATER VALVE
 - UTILITY POLE
 - LIGHT POLE
 - HAND HOLE
 - UTILITY PEDESTAL
 - SPRINKLER VALVE
 - BOLLARD
 - SIGN
 - CONIFEROUS TREE
 - DECIDUOUS TREE
- PARCEL BOUNDARY LINE
 - PLATTED LOT LINE
 - OVERHEAD UTILITY LINE
 - UNDERGROUND STORM SEWER
 - UNDERGROUND SANITARY LINE
 - UNDERGROUND ELECTRIC LINE
 - UNDERGROUND WATER LINE
 - UNDERGROUND GAS LINE
 - WIRE FENCE
 - WOOD FENCE
 - MINOR CONTOUR
 - MAJOR CONTOUR
 - TREELINE
 - ASPHALT SURFACE
 - CONCRETE SURFACE
 - REMONUMENTATION
 - LAND CORNER RECORDATION CERTIFICATE
 - NORTH AMERICAN VERTICAL DATUM OF 1988
 - FINISHED FLOOR
 - INV. - INVERT
 - ELEV. - ELEVATION
 - CONC. - CONCRETE
 - CPP - CORRUGATED PLASTIC PIPE
 - PVC - POLY VINYL CHLORIDE
 - (M) - MEASURED DIMENSION
 - (D) - DEEDED DIMENSION
- REMON. L.C.R.C. LIBER 157-159
 - NAVD 88
 - F.F. - FINISHED FLOOR
 - INV. - INVERT
 - ELEV. - ELEVATION
 - CONC. - CONCRETE
 - CPP - CORRUGATED PLASTIC PIPE
 - PVC - POLY VINYL CHLORIDE
 - (M) - MEASURED DIMENSION
 - (D) - DEEDED DIMENSION



HOLLAND
ENGINEERING

220 Hoover Boulevard
Holland, Michigan 49423-3766
www.hollandengineering.com
T 616-392-5938 F 616-392-2116

The Surveyor's / Engineer's liability for any work performed by the Surveyor's / Engineer's arising out of the Surveyor's / Engineer's negligence, gross negligence, or misrepresentation shall not be limited to the amount to greater than the service fee.

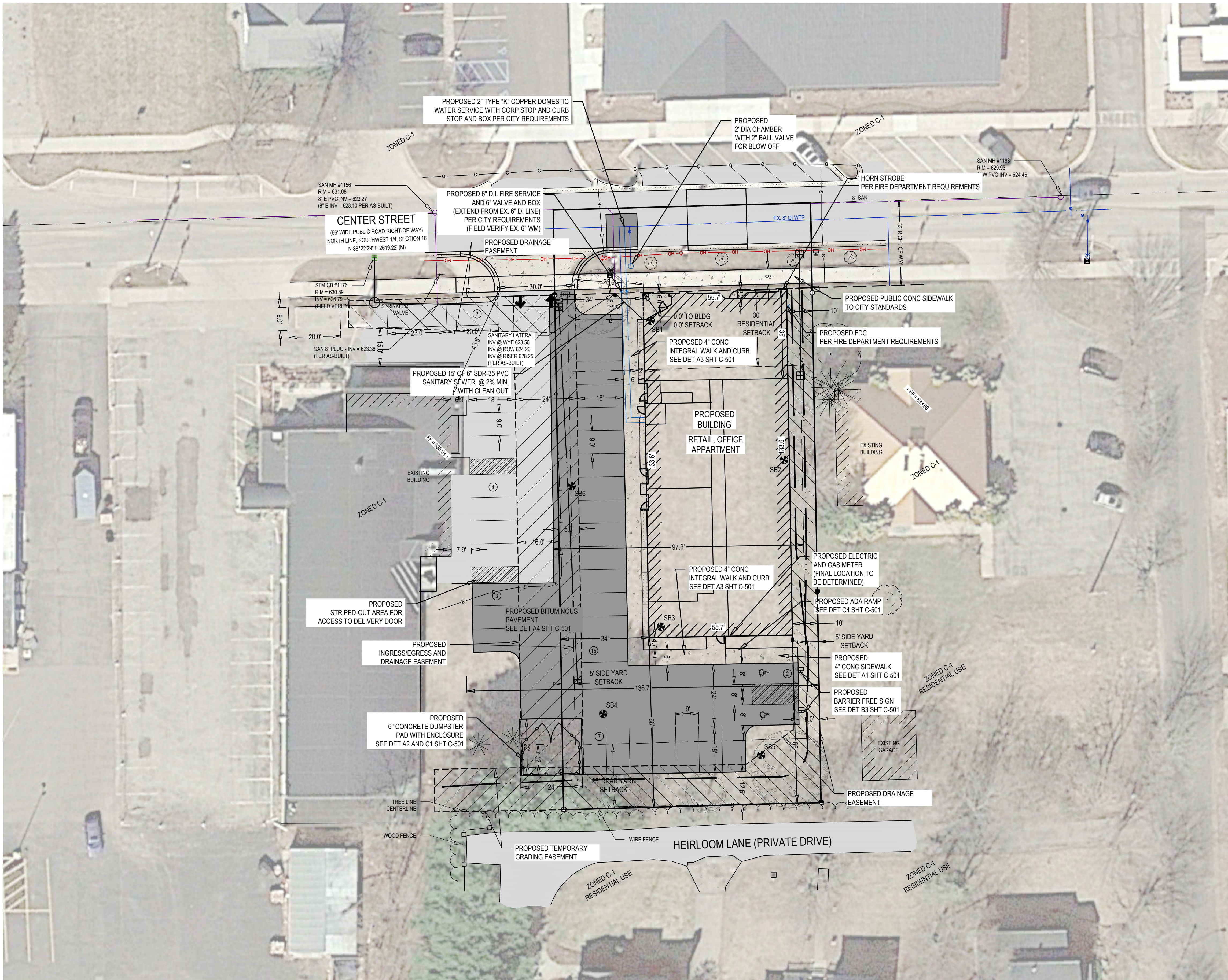
DOUGLAS FLATS LLC

ATTN: MR. UFUK TURAN
7437 RIVER STREET SE
ADA, MICHIGAN 49301

225 CENTER STREET
DOUGLAS, MI 49406
PT. OF THE SW 1/4 SEC. 16, T3N, R16W
CITY OF THE VILLAGE OF DOUGLAS, ALLEGAN CO., MI.

Issued for:		No.	Date
Description			
TOPOGRAPHIC AND BOUNDARY SURVEY			
Date			
05/13/2026			

Project Manager		BRUCE ZEINSTR, LLA	
Vertical Datum	Horizontal Datum	NAVD88	LOCAL
Drawn by		MARK BROOKHOUSE	
Checked by	JCD	Date	05/13/2026
Civil	-	-	-
Struc.	-	-	-
L. A.	-	-	-
HEI Project Number		26-04-022	
Sheet Title		EXISTING CONDITIONS	
Sheet No.		V-101	



BORING B1	
0.0' - 0.3'	4" TOPSOIL - FINE SILTY SAND - FREQUENT ROOTS - DARK BROWN - MOIST - (SM)
0.3' - 2.5'	FILL - FINE TO MEDIUM SILTY SAND - BROWN - MOIST - LOOSE (SM)
2.5' - 9.5'	FINE TO MEDIUM SAND - BROWN - MOIST TO WET - LOOSE TO MEDIUM DENSE (SP)
9.5' - 18.5'	LEAN CLAY - GRAY - STIFF (CL)
18.5' - 20.0'	SANDY LEAN CLAY - FREQUENT SAND LAYERS AND SEAMS - BROWN - WET - VERY STIFF (CL)
	GROUNDWATER 3.0' - DURING BORING 5.8' - AT END OF BORING

BORING B2	
0.0' - 0.7'	8" TOPSOIL - FINE TO MEDIUM SILTY SAND - FREQUENT ROOTS - OCCASIONAL CONCRETE FRAGMENTS - DARK BROWN - MOIST - (SM)
0.7' - 8.0'	FINE TO MEDIUM SAND WITH SILT - OCCASIONAL CLAY SEAMS - BROWN - MOIST TO WET - LOOSE TO MEDIUM DENSE (SP-SM)
8.0' - 13.5'	FINE TO MEDIUM SILTY SAND - FREQUENT CLAY SEAMS - BROWN - WET - LOOSE (SM)
13.5' - 17.0'	SILTY CLAY - BROWN - VERY STUFF (CL/ML)
17.0' - 20.0'	LEAN CLAY - GRAY - STIFF (CL)
	GROUNDWATER 6.0' - DURING BORING 4.6' - AT END OF BORING

BORING B3	
0.0' - 0.2'	2" TOPSOIL - FINE TO MEDIUM SILTY SAND - DARK BROWN - MOIST - (SM)
0.2' - 5.5'	FINE TO MEDIUM SAND - BROWN - MOIST - VERY LOOSE TO MEDIUM DENSE (SP)
5.5' - 13.5'	FINE TO MEDIUM SAND WITH SILT - BROWN - MOIST TO WET - MEDIUM - MEDIUM DENSE TO LOOSE (SP-SM)
13.5' - 16.5'	FINE TO MEDIUM SAND - FREQUENT SILT SEAMS - BROWN - WET - MEDIUM DENSE (SP)
16.5' - 20.0'	LEAN CLAY - GRAY - VERY STIFF (CL)
	GROUNDWATER 6.0' - DURING BORING 6.4' - AT END OF BORING

BORING B4	
0.0' - 0.3'	3" TOPSOIL - FINE TO MEDIUM SILTY SAND - FREQUENT ROOTS - DARK BROWN - MOIST - (SM)
0.3' - 11.0'	FINE TO MEDIUM SAND - BROWN - MOIST TO WET - VERY LOOSE TO MEDIUM DENSE (SP)
11.0' - 12.5'	CLAYEY SILT - BROWN - VERY STIFF (ML/CL)
12.5' - 15.5'	LEAN CLAY - FREQUENT SILT LAYERS AND SEAMS - GRAY - STIFF TO VERY STIFF (CL)
15.5' - 16.0'	FINE TO MEDIUM SAND WITH SILT - OCCASIONAL SILT LAYERS - BROWN - WET - (SP-SM)
	GROUNDWATER 6.0' - DURING BORING 6.1' - AT END OF BORING

BORING B5	
0.0' - 0.3'	3" TOPSOIL - FINE SILTY SAND - FREQUENT ROOTS - DARK BROWN - MOIST - (SM)
0.3' - 13.0'	FINE TO MEDIUM SAND - CLAY LAYER FROM 9.5 TO 10 FEET - BROWN - MOIST TO WET - VERY LOOSE TO MEDIUM DENSE (SP)
13.0' - 16.0'	FINE TO MEDIUM SAND - FREQUENT CLAY LAYERS AND SEAMS - BROWN - WET - VERY LOOSE TO MEDIUM DENSE (SP)
	GROUNDWATER 7.5' - DURING BORING SEE BORING NOTES

BORING B6	
0.0' - 0.3'	3" TOPSOIL - FINE TO MEDIUM SILTY SAND - FREQUENT ROOTS - DARK BROWN - MOIST - (SM)
0.3' - 2.0'	FINE SAND - FREQUENT ROOTS - BROWN - MOIST - VERY LOOSE (SP)
2.0' - 4.0'	FINE TO MEDIUM SAND - BROWN - MOIST - LOOSE (SP)
4.0' - 8.0'	FINE TO MEDIUM SAND WITH SILT - BROWN - MOIST - MEDIUM DENSE TO LOOSE (SP)
8.0' - 10.0'	FINE TO MEDIUM SAND WITH SILT - OCCASIONAL CLAY LAYERS - BROWN - WET - VERY LOOSE (SP-SM)
	GROUNDWATER 4.0' - DURING BORING 4.9' - AT END OF BORING

TOTAL PARCEL AREA 19,998 SQ FT 100%
(EXCLUDING PUBLIC RIGHT-OF-WAY)

BUILDING AREA	
- FIRST FLOOR	7,420 SQ FT 37.1%
- CANOPY/OVERHANG	584 SQ FT 2.9%
BUILDING TOTAL	8,004 SQ FT 40.0%

PARKING REQUIRED:
10.04(B)1. PERMITTED BY RIGHT USES SHALL PROVIDE 50% OF THE REQUIRED PARKING FOR EACH USE AS IDENTIFIED IN SECTION 19.03. USES PERMITTED BY SPECIAL USE SHALL BE REQUIRED TO PROVIDE 100% OF THE REQUIRED PARKING IDENTIFIED IN SECTION 19.03.

MULTIPLE FAMILY DWELLING - SPECIAL USE: GROUND FLOOR RESIDENTIAL	
1 SPACE PER DWELLING UNIT LESS THAN 900 SQ FT (4 UNITS LESS THAN 900 SQ FT X 1)	4 SPACES
PLUS 1 SPACE PER THREE DWELLING UNITS (4 UNITS / 3 = 1.33)	1 SPACE
MULTIPLE FAMILY DWELLING	
1 SPACE PER DWELLING UNIT LESS THAN 900 SQ FT (9 UNITS LESS THAN 900 SQ FT X 1 = 9)	9 SPACES x 50% = 5 SPACES
PLUS 1 SPACE PER THREE DWELLING UNITS (9 UNITS / 3 = 3)	3 SPACES x 50% = 2 SPACES
RETAIL	
1 SPACE PER 300 SQ FT USABLE FLOOR AREA (1650 SQ FT / 300 = 5.5)	6 SPACES x 50% = 3 SPACES
OFFICE	
1 SPACE PER 200 SQ FT USABLE FLOOR AREA (1800 SQ FT / 200 = 9)	9 SPACES x 50% = 5 SPACES

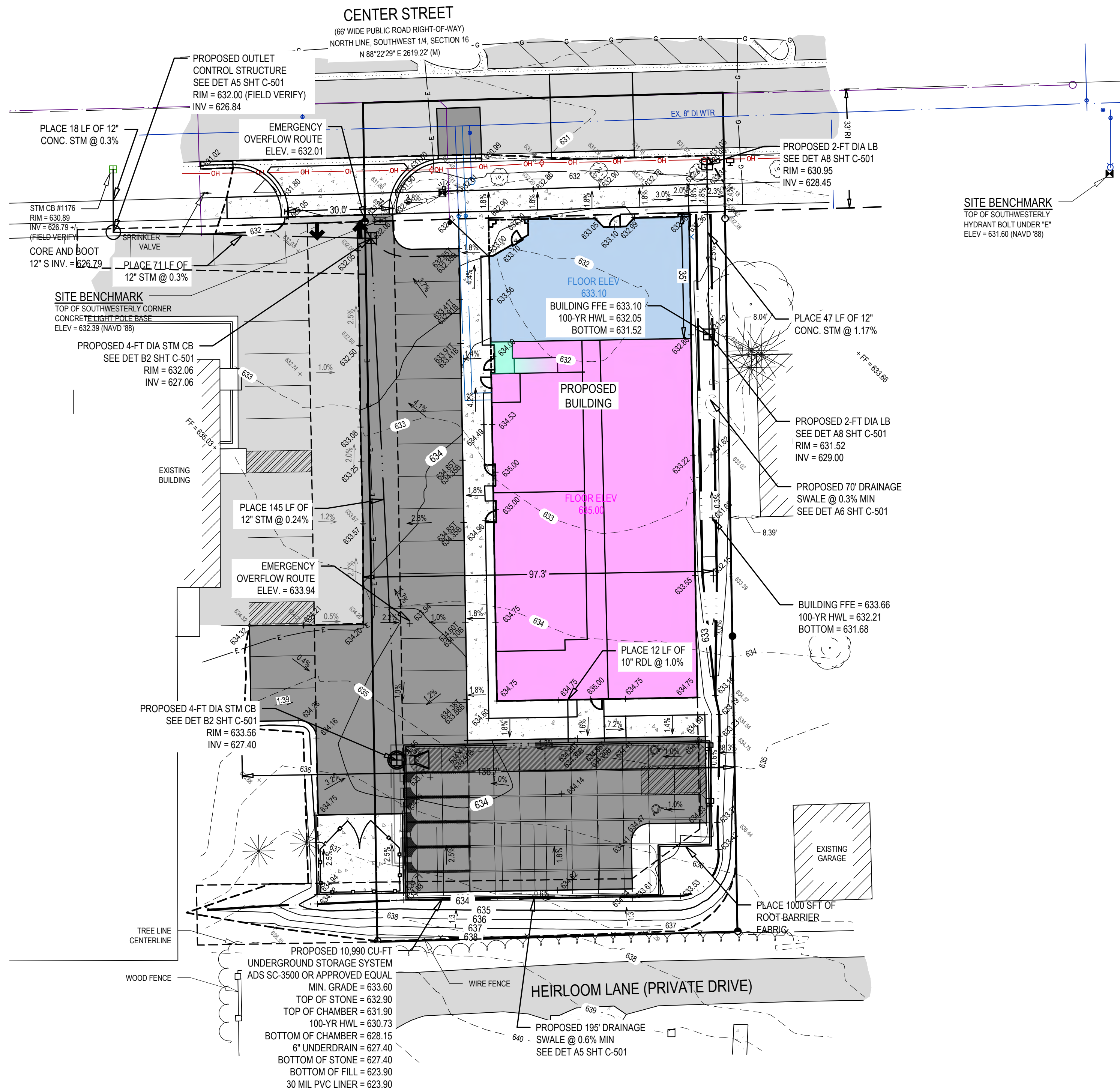
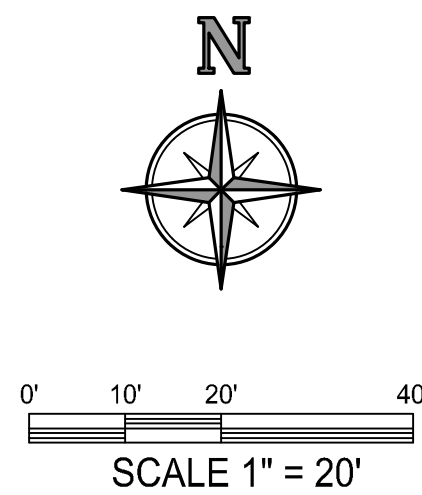
TOTAL PARKING REQUIRED:	20 SPACES
TOTAL PARKING PROVIDED:	24 SPACES (INCLUDING 2 ADA)

LAYOUT & UTILITY NOTES:

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT ALL NECESSARY PERMITS AND APPROVALS HAVE BEEN ACQUIRED PRIOR TO CONSTRUCTION.
- CALL MISS DIG AT LEAST THREE (3) WORKING DAYS PRIOR TO STARTING ANY EXCAVATION.
- CONTRACTOR SHALL CONTACT ENGINEER IF ANY DISCREPANCIES ARE DETERMINED BETWEEN SITE LAYOUT DIMENSIONS AND ACTUAL SITE CONDITIONS.
- COORDINATE ALL UTILITY CONSTRUCTION WITH UTILITY PROVIDER, AS REQUIRED.
- CONTRACTOR SHALL VERIFY THAT THERE ARE NO UTILITY CONFLICTS PRIOR TO CONSTRUCTION.
- ALL SANITARY SEWER WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT EDITION OF THE KAL LAKE SEWER AND WATER AUTHORITY STANDARDS & SPECIFICATIONS.
- ALL WATERMAIN, WATER SERVICES, AND FIRE PROTECTION LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT EDITION OF THE KAL LAKE SEWER AND WATER AUTHORITY STANDARDS & SPECIFICATIONS.
- ALL WORK WITHIN THE PUBLIC ROAD RIGHT-OF-WAY WILL REQUIRE A PERMIT AND OR APPROVAL FROM THE CITY OF THE VILLAGE OF DOUGLAS AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT EDITION OF THEIR STANDARDS & SPECIFICATIONS.
- COORDINATE ALL SIGNAGE REMOVAL AND RELOCATION WITHIN THE RIGHT-OF-WAY WITH CITY OF THE VILLAGE OF DOUGLAS.
- SITE CONTRACTOR RESPONSIBLE TO CONNECT EXISTING AND PROPOSED BUILDING TO WATER SERVICE AND SANITARY SEWER LATERAL, REFER TO PLUMBING PLANS FOR CONNECTION LOCATION AND DETAILS.
- REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING DIMENSIONS. BUILDING SHALL BE STAKED BASED ON FOUNDATION PLAN. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE ARE DISCREPANCIES BETWEEN THE BUILDING AND SITE DRAWINGS.
- ONSITE LIGHTING SHALL DIRECTED DOWNWARD AND AWAY FROM ADJACENT PROPERTIES AS REQUIRED PER THE CITY OF THE VILLAGE OF DOUGLAS ZONING ORDINANCE.
- SITE SIGNAGE SHALL MEET THE STANDARDS AND REQUIREMENTS OF THE CITY OF THE VILLAGE OF DOUGLAS ZONING ORDINANCE. A SIGN PERMIT SHALL BE ACQUIRED PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL BE RESPONSIBLE TO MEETING THE STANDARDS AND REQUIREMENTS OF THE LOCAL NOISE ORDINANCE FOR ALL CONSTRUCTION PRACTICES.
- THE DRIVEWAY SHALL BE INSTALLED WITH ASPHALT, CONCRETE, OR OTHER APPROVED DRIVING SURFACE CAPABLE OF SUPPORTING THE 80,000-POUND IMPOSED LOAD OF THE FIRE DEPARTMENTS HEAVIEST APPARATUS AND BE INSTALLED TO PROVIDE EMERGENCY ACCESS PRIOR TO COMMENCEMENT OF BUILDING CONSTRUCTION.
- THE EMERGENCY ACCESS SHALL BE INSTALLED, MAINTAINED, AND NAVIGABLE FOR EMERGENCY ACCESS PRIOR TO COMMENCEMENT OF VERTICAL BUILDING CONSTRUCTION.
- MINIMUM CLEAR HEIGHT SHALL BE 13'-6" ACROSS THE 20-FT DRIVEWAY WIDTH.
- SEE OTHER SHEETS IN PLAN SET FOR MORE INFORMATION.

Issued for:	
Date	Description
05/13/2026	TOPOGRAPHIC AND BOUNDARY SURVEY
06/02/2026	HEI REVIEW
07/01/2026	SITE PLAN SUBMITTAL
07/20/2026	REV. PER ACDC REVIEW COMMENTS
07/28/2026	REV. PER ACDC REVIEW COMMENTS
08/19/2026	ADDRESSED PC REVIEW COMMENTS
Plans are preliminary & incomplete until ISSUED FOR CONSTRUCTION.	

Project Manager BRUCE ZEINSTRAL, LLA	
Vertical Datum NAVD88	Horz. Datum LOCAL
Drawn by MARK BROOKHOUSE	
Checked by Survey	Date
Civil	-
Struc.	-
L. A.	-
HEI Project Number 26-04-022	
Sheet Title SITE LAYOUT PLAN	
Sheet No. C-101	



- GRADING & STORM SEWER NOTES:**
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT ALL NECESSARY PERMITS AND APPROVALS HAVE BEEN ACQUIRED PRIOR TO CONSTRUCTION.
 - SITE DESIGN WAS DEVELOPED IN ACCORDANCE WITH THE INFORMATION CONTAINED IN THE GEOTECHNICAL REPORT AND SOIL BORINGS COMPLETED FOR THE PROJECT. CONTRACTOR SHALL ACQUIRE A COPY OF THE GEOTECHNICAL REPORT AND SOIL BORING INFORMATION. SOIL CONDITIONS MAY VARY FROM THE GEOTECHNICAL INFORMATION, WHICH MAY AFFECT THE SITE DESIGN, EARTHWORK QUANTITIES, USABLE SOILS, AND SOIL EROSION AND SEDIMENTATION CONTROL PRACTICES. CONTRACTOR SHALL NOTIFY DESIGN ENGINEER AND GEOTECHNICAL ENGINEER IF SITE CONDITIONS VARY FROM SOILS INFORMATION CONTAINED IN THE GEOTECHNICAL INFORMATION.
 - CALL MISS DIG AT LEAST THREE (3) WORKING DAYS PRIOR TO STARTING ANY EXCAVATION.
 - CONTRACTOR SHALL VERIFY THAT THERE ARE NO UTILITY CONFLICTS PRIOR TO CONSTRUCTION.
 - ALL WORK WITHIN THE RIGHT-OF-WAY WILL REQUIRE A PERMIT AND OR APPROVAL FROM THE CITY OF THE VILLAGE OF DOUGLAS AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT EDITION OF THEIR STANDARDS & SPECIFICATIONS.
 - STORM WATER MANAGEMENT SYSTEM AND GRADING SHALL BE IN ACCORDANCE WITH THE CITY OF THE VILLAGE OF DOUGLAS AND THE ALLEGAN COUNTY DRAIN COMMISSION STORM WATER ORDINANCE.
 - SITE CONTRACTOR RESPONSIBLE TO CONNECT STORM / ROOF WATER TO STORM DRAIN AS SHOWN. REFER TO PLUMBING PLANS FOR CONNECTION TO THE BUILDING AND DETAILS.
 - SITE SHALL BE GRADED WITH SMOOTH CONTOURS IN ALL AREAS OF DISTURBANCE AND GRADED TO SLOPE AWAY FROM THE EXISTING AND PROPOSED BUILDINGS AND SIDEWALKS.
 - ALL STORM SEWER PIPING SHALL BE ADS N-12, HANCO H-I-O OR APPROVED EQUIVALENT POLYETHYLENE (PE) PLASTIC PIPE AND FITTINGS, UNLESS OTHERWISE NOTED, WHERE SPECIFIED IN THE PLANS, CONCRETE CLASS IV PIPE WITH RUBBER GASKETS IS REQUIRED.
 - WATERPROOF MEMBRANE TO BE PLACED BELOW UNDERGROUND DETENTION BASIN CHAMBERS TO PREVENT GROUNDWATER FROM ENTERING THE SYSTEM. (PER MANUFACTURE SPECIFICATIONS)
 - UNDERGROUND DETENTION CHAMBERS TO BE ANCHORED WITH CONCRETE PER MANUFACTURERS SPECIFICATIONS TO PREVENT SYSTEM FROM FLOATING.
 - SEE OTHER SHEETS IN PLAN SET FOR MORE INFORMATION.

- SESC NOTES:**
- CONTRACTOR SHALL OBTAIN ALL STATE AND LOCAL PERMITS AS NECESSARY FOR CONSTRUCTION.
 - SITE DESIGN WAS DEVELOPED IN ACCORDANCE WITH THE INFORMATION CONTAINED IN THE GEOTECHNICAL REPORT AND SOIL BORINGS COMPLETED FOR THE PROJECT. CONTRACTOR SHALL ACQUIRE A COPY OF THE GEOTECHNICAL REPORT AND SOIL BORING INFORMATION. SOIL CONDITIONS MAY VARY FROM THE GEOTECHNICAL INFORMATION, WHICH MAY AFFECT THE SITE DESIGN, EARTHWORK QUANTITIES, USABLE SOILS, AND SOIL EROSION AND SEDIMENTATION CONTROL PRACTICES. CONTRACTOR SHALL NOTIFY DESIGN ENGINEER AND GEOTECHNICAL ENGINEER IF SITE CONDITIONS VARY FROM SOILS INFORMATION CONTAINED IN THE GEOTECHNICAL INFORMATION.
 - CONTRACTOR IS RESPONSIBLE TO ACQUIRE THE ALLEGAN COUNTY HEALTH DEPARTMENT SOIL EROSION AND SEDIMENTATION CONTROL PERMIT AND THE NPDES NOTICE OF COVERAGE AND COMPLY WITH ALL PERMIT REQUIREMENTS AND WITH ALL STANDARDS AND REQUIREMENTS OF THE AGENCIES HAVING JURISDICTION.
 - BEST MANAGEMENT PRACTICES SHALL BE UTILIZED DURING AND AFTER CONSTRUCTION FOR TEMPORARY AND PERMANENT SOIL EROSION AND SEDIMENTATION CONTROL MEASURES.
 - CONTRACTOR SHALL PROVIDE A CERTIFIED STORM WATER OPERATOR FROM CONSTRUCTION COMMENCEMENT THROUGH FINAL SITE STABILIZATION.
 - THE TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED WEEKLY AND AFTER EACH SIGNIFICANT RAIN EVENT IN ACCORDANCE WITH THE EGLE REQUIREMENTS.
 - CALL MISS DIG AT LEAST THREE (3) WORKING DAYS PRIOR TO STARTING ANY EXCAVATION.
 - ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF THE VILLAGE OF DOUGLAS AND ALLEGAN COUNTY ROAD COMMISSION STANDARDS AND SPECIFICATIONS.
 - SOIL EROSION CONTROL MEASURES SHALL BE PLACED PRIOR TO EARTH MOVING OR GROUND DISTURBANCE AND REMAIN IN PLACE UNTIL FINAL RESTORATION HAS BEEN ESTABLISHED.
 - THE STORM WATER MANAGEMENT BASIN SHALL BE CONSTRUCTED FIRST. CONTRACTOR IS RESPONSIBLE TO REMOVE SEDIMENT FROM BOTTOM OF DETENTION BASIN UNTIL THE SITE IS FULLY STABILIZED.
 - ALL FOREIGN MATERIAL OR DEBRIS FROM JOB SITE WHICH IS DEPOSITED ON PAVED ROADWAY SHALL BE REMOVED IMMEDIATELY.
 - THE PAVED ROADWAY SHALL BE SWEEPED CLEAN AS NEEDED, BUT AT LEAST ONCE A WEEK.
 - SOIL EROSION CONTROL MEASURES ARE THE RESPONSIBILITY OF THE CONTRACTOR DURING CONSTRUCTION AND THE OWNER UPON COMPLETION.
 - CONTRACTOR SHALL PHASE THE PLACEMENT OF THE SOIL EROSION CONTROL MEASURES AS NECESSARY FOR THE SITE IMPROVEMENTS WITHIN THE LIMITATIONS OF THE ACQUIRED SOIL EROSION CONTROL PERMIT.
 - STOCKPILE AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT SEED IN ACCORDANCE WITH THE ALLEGAN COUNTY HEALTH DEPARTMENT SOIL EROSION AND SEDIMENTATION CONTROL REQUIREMENTS. ALL EXCESS SPOILS SHALL BE REMOVED FROM SITE.
 - ALL EXCESS SPOILS SHALL BE HAULED OFFSITE AND LEGALLY PLACED IN AN UPLAND AREA NOT ENCUMBERED BY WETLANDS OR FLOODPLAIN.
 - THERE SHALL BE NO EARTH MOVEMENT OR DISTURBANCE OUTSIDE THE LIMITS OF DISTURBANCE WITHOUT PRIOR AUTHORIZATION FROM THE ALLEGAN COUNTY HEALTH DEPARTMENT.
 - THE MINIMUM AMOUNT OF SOIL EROSION AND SEDIMENTATION CONTROL MEASURES ARE SHOWN THE DRAWINGS. CONTRACTOR SHALL PROVIDE ADDITIONAL CONTROL MEASURES, MAINTENANCE, AND/OR STABILIZATION MEASURES AS NECESSARY FOR CONSTRUCTION ACTIVITIES.
 - SEE OTHER SHEETS IN PLAN SET FOR MORE INFORMATION.

PROPOSED CONSTRUCTION SCHEDULE

ACTIVITY	2026				2027				
	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY
INSTALL CONTROLS									
CLEARING									
GRADE									
BUILDING									
UTILITIES									
PAVING									
RESTORE									

*NOTE: CONSTRUCTION SCHEDULE MAY VARY BASED ON CONTRACTOR'S SCHEDULE. CONTRACTOR SHALL UPDATE THE **ACHD** IF CONSTRUCTION SCHEDULE VARIES FROM ABOVE.

HOLLAND
ENGINEERING

220 Hoover Boulevard
Holland, Michigan 49423-3766
www.hollandengineering.com
T 616-392-9536 F 616-392-1116

The Surveyor's
Engineer's liability for any
surveying or engineering
work shall not be limited to those
arising out of the
Surveyors' / Engineer's
negligence, gross
negligence, or
misrepresentation shall
not be limited to the
amount to greater than
the service fee.

DOUGLAS FLATS LLC

ATTN: MR. UFUK TURAN
7437 RIVER STREET SE
ADA, MICHIGAN 49301

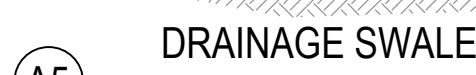
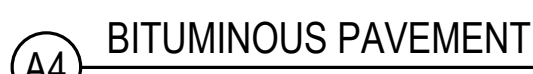
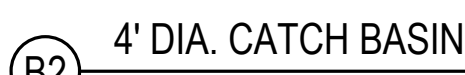
225 CENTER STREET
DOUGLAS, MI 49406

PT. OF THE SW 1/4 SEC. 16, T3N, R16W
CITY OF THE VILLAGE OF DOUGLAS, ALLEGAN CO., MI.

Issued for:		No.	
Date	Description	A	B
05/13/2026	TOPOGRAPHIC AND BOUNDARY SURVEY	A	B
06/02/2026	HEI REVIEW	C	D
07/01/2026	SITE PLAN SUBMITTAL	E	F
07/20/2026	REV PER ACDC REVIEW COMMENTS		
07/28/2026	REV PER ACDC REVIEW COMMENTS		
08/16/2026	ADDRESSED PC REVIEW COMMENTS		

Plans are preliminary & incomplete until ISSUED FOR CONSTRUCTION.

Project Manager		BRUCE ZEINSTR, LLA	
Vertical Datum	Horz. Datum	NAVD88	LOCAL
Drawn by		MARK BROOKHOUSE	
Checked by	Date	Survey	
Civil			
Struc.			
L. A.			
HEI Project Number		26-04-022	
Sheet Title		GRADING DRAINAGE & SESC PLAN	
Sheet No.		C-201	



PROJECT INFORMATION		
ENGINEERED PRODUCT	ADS MC-3500	ADS MC-3500
MANAGER	ADS MC-3500	ADS MC-3500
ADS SALES REP	ADS MC-3500	ADS MC-3500
PROJECT NO.	ADS MC-3500	ADS MC-3500



225 CENTER ST DOUGLAS, MI, USA

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH MC-3500.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45/67 DESIGNATION SS.
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPED FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR 1) LONG-DURATION DEAD LOAD AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED, 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) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75 YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1 WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING 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 SHALL BE GREATER THAN OR EQUAL TO 800 LB/IN². THE AISC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418 AND 1) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73°F / 23°C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- 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 SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.60 FOR LIVE LOAD AND 1.75 FOR DEAD LOAD. THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC.
 - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.
- MANHOLE SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #3.35 FOR MANHOLE 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.
- 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 NOT BY A QUALIFIED CONTRACTOR.

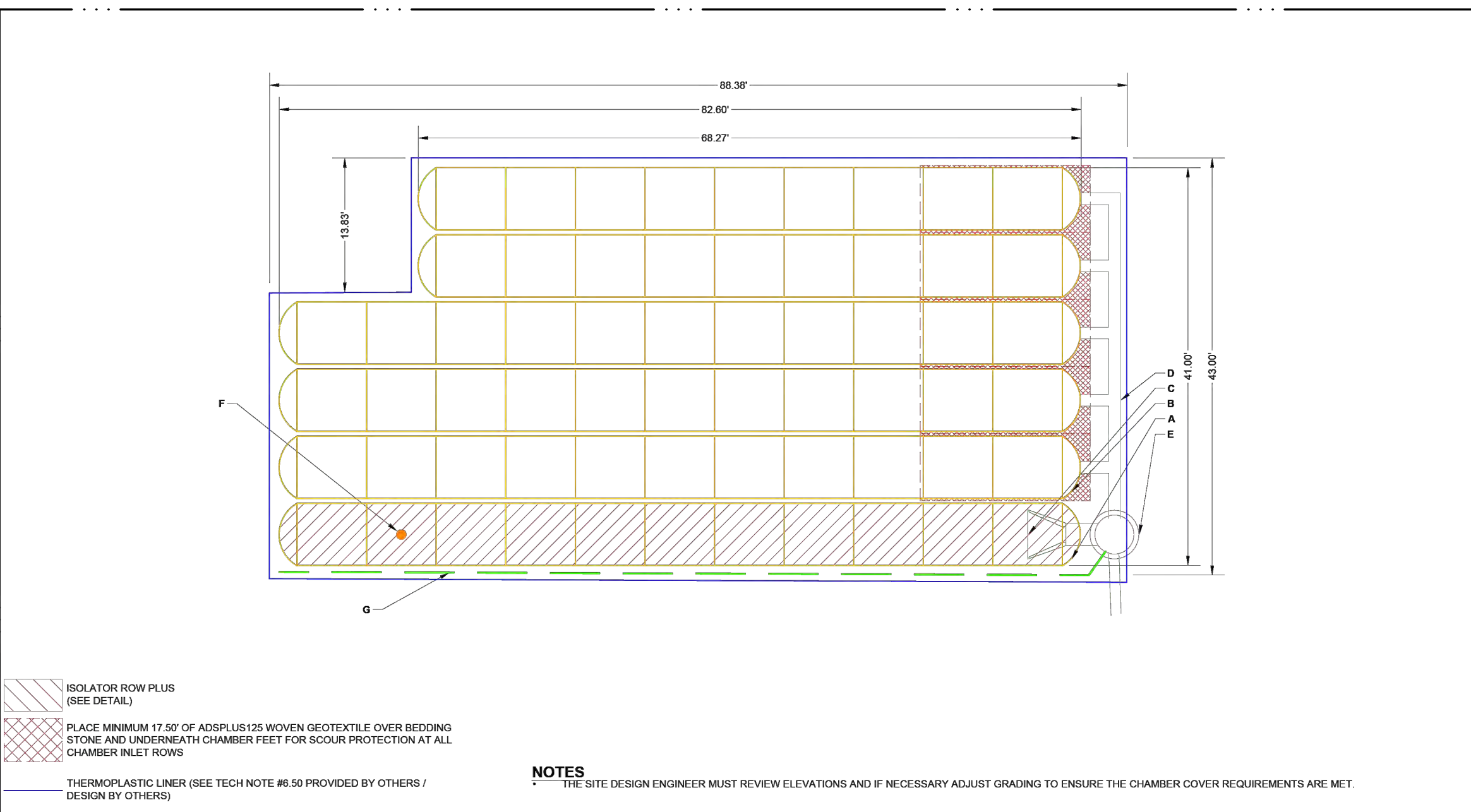
- STORMTECH MC-3500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "MC-3500 & MC-4500 STORMTECH CHAMBER INSTALLATION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STORMTECH LOCATED OVER THE CHAMBER BED.
 - BACKFILL 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.
- THE FOUNDATION STONE SHALL BE LEVELLED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
- INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE, AASHTO M43 #3, 357, 4, 467, 56, 57, OR 57.
- STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

- STORMTECH MC-3500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "MC-3500 & MC-4500 STORMTECH CHAMBER INSTALLATION GUIDE".
- THE USE OF EQUIPMENT OVER MC-3500 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON CHAMBERS.
 - NO RUBBER TIRE LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "MC-3500 & MC-4500 STORMTECH CHAMBER INSTALLATION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "MC-3500 & MC-4500 STORMTECH CHAMBER INSTALLATION GUIDE".
- FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

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

CONTACT ADS WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

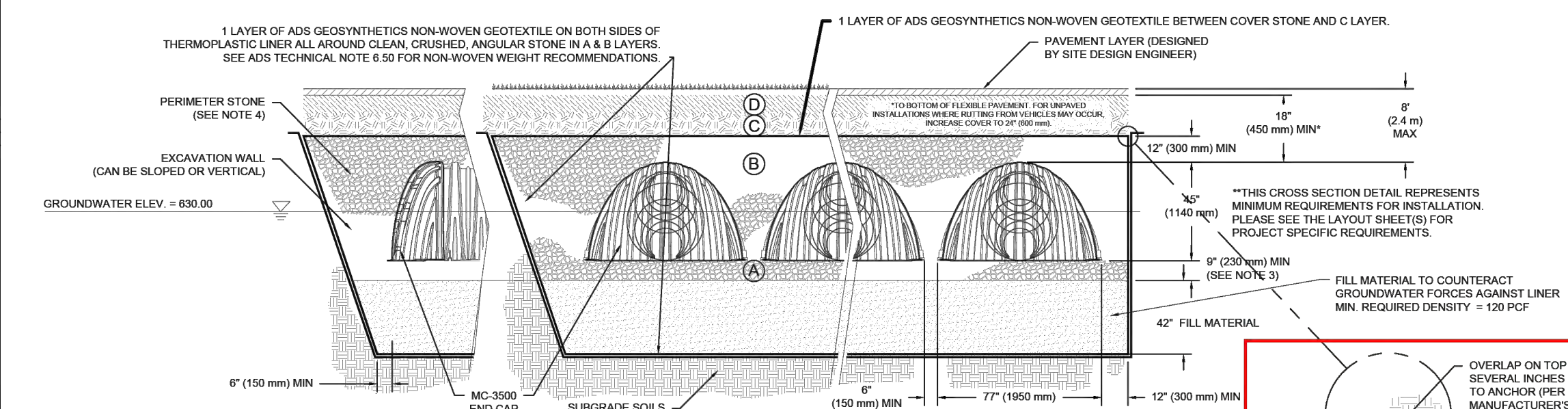


ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE (IF LAYER 'E') TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <3% FINES OR PROCESSED AGGREGATE.	AASHTO M43# A-1, A-2-A, A-3 OR AASHTO M43# 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 68, 8, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIALS AND 90% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (IF LAYER 'E') TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE ¹	AASHTO M43# 3, 357, 4, 467, 5, 56, 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 ²	AASHTO M43# 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ^{3,4}

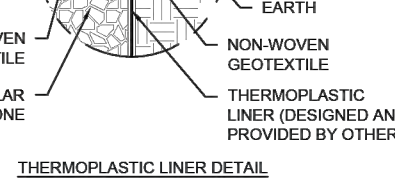
PLEASE NOTE:

- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- STORMTECH COMPACTION REQUIREMENTS ARE MET FOR A LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) MAX LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
- WHERE INSTALLATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
- ONCE LAYER 'C' IS PLACED, ANY SOLID MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOLS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
- WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE #20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".



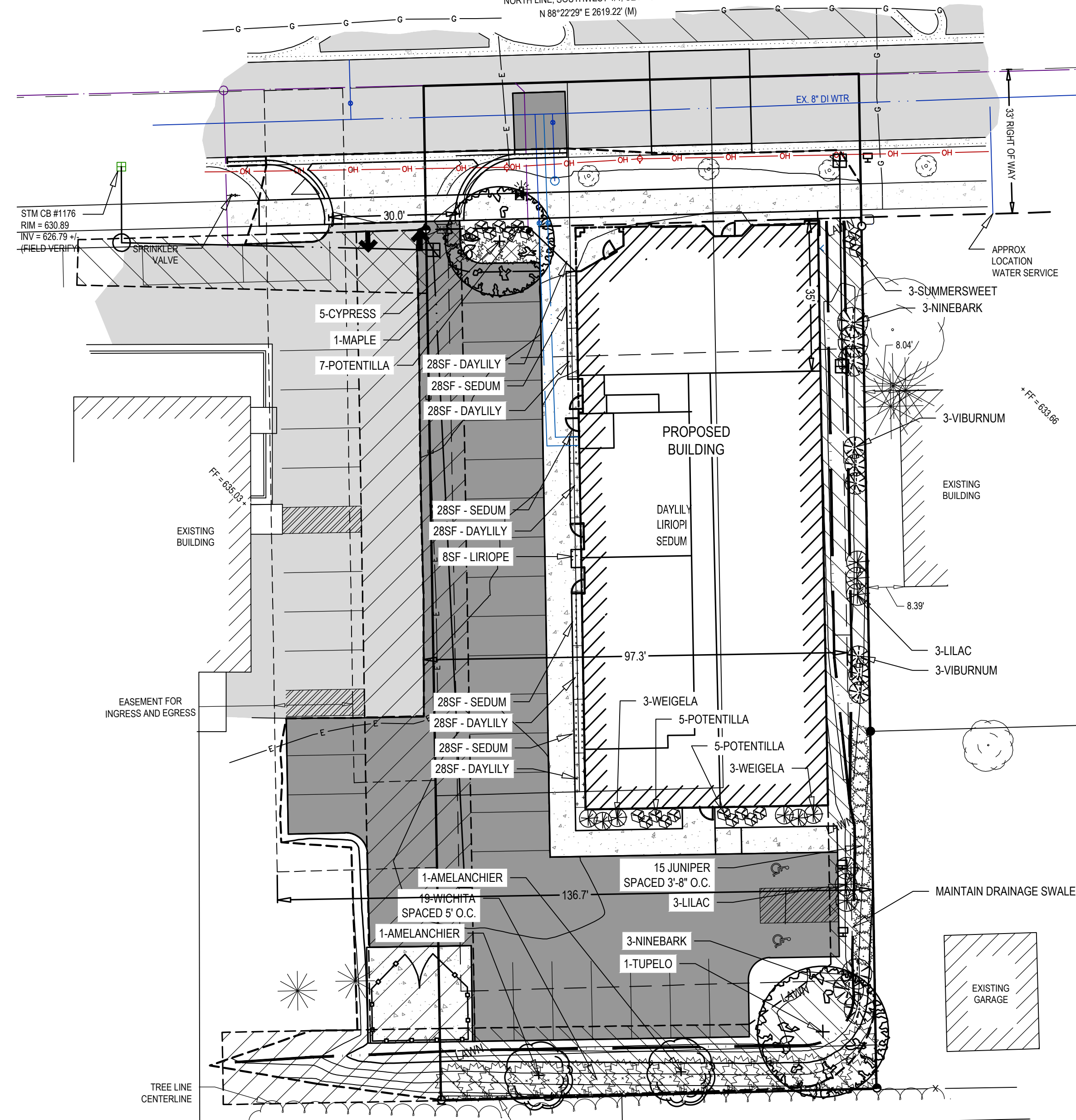
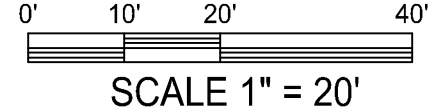
NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 45/67 DESIGNATION SS.
- MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTHS OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS. REFERENCE STORMTECH DESIGN MANUAL FOR BEARING CAPACITY GUIDANCE.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING 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 SHALL BE GREATER THAN OR EQUAL TO 800 LB/IN². THE AISC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418 AND 1) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73°F / 23°C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.



NOTE: THERMOPLASTIC LINER TO BE 30MIL PVC GEOMEMBRANE OR APPROVED EQUAL

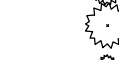
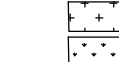
PROPOSED LAYOUT			PROPOSED ELEVATIONS			PART TYPE			INVERT ABOVE BASE OF CHAMBER		
							ITEM ON LAYOUT			INVERT	MAX FLOW
62	STORMTECH MC-3500 CHAMBERS	MINIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)	635.50								
12	STONE ABOVE (B)	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)	635.50								
12	STONE BELOW (D)	MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT)	635.50								
46	STONE VOID (C)	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)	635.50								
62	FOUNDATION FILL (C20 PCFT10)	TOP OF STONE	635.50								
8.425	INSTALLED SYSTEM VOLUME (CF)	HIGHER OF TWO (TOP OF WEEK)	635.50								
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PLANTING NOTES:

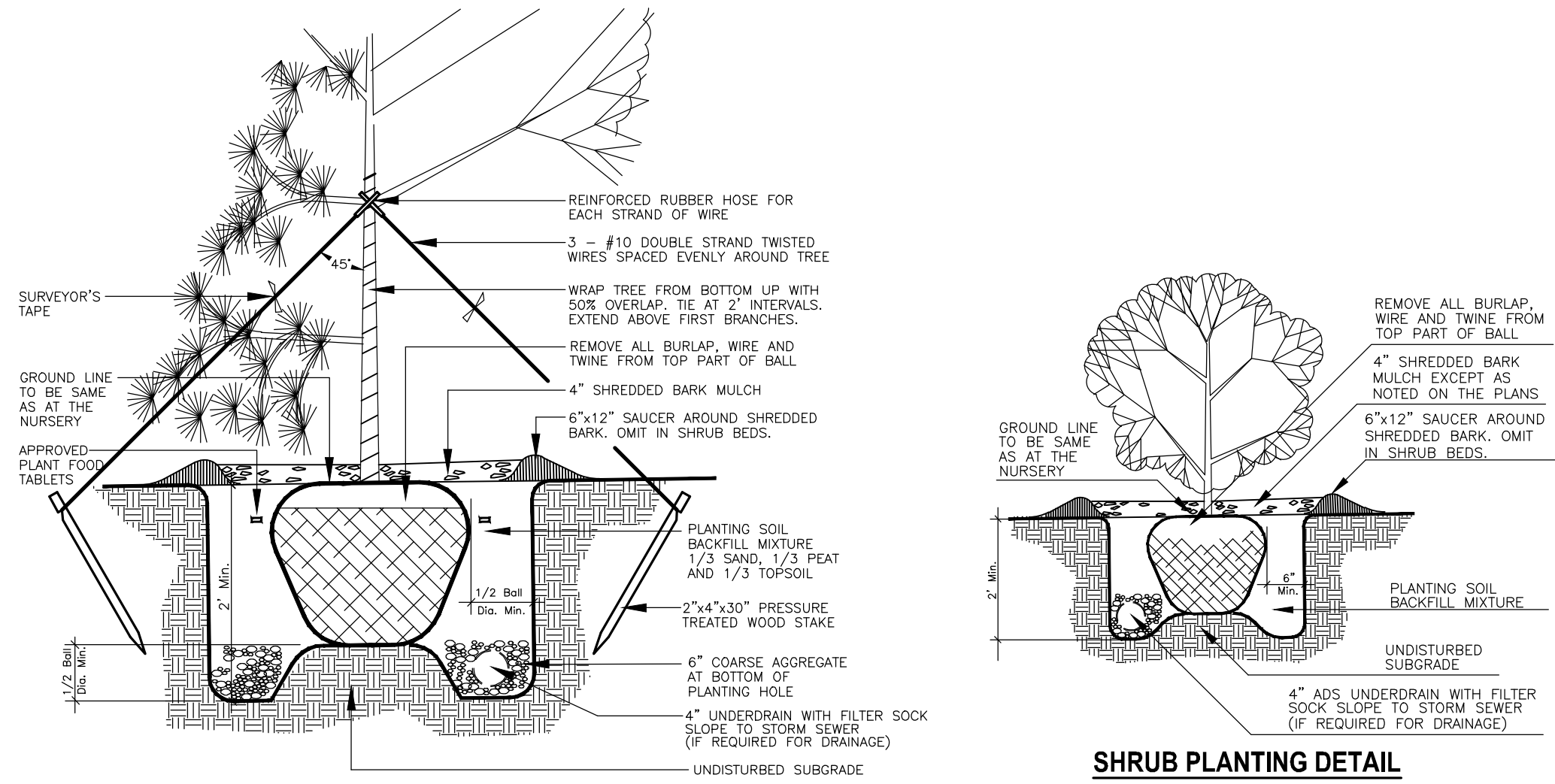
- APPLICABLE LANDSCAPE REQUIREMENTS:
- 1.1. SCREENING BETWEEN USES: 6' TALL SCREEN ALONG PROPERTY LINE TO REACH 80% OPACITY IN 3 YEARS.
- 1.1.1. PROVIDED: 19 WICHTA JUNIPERS SPACED 5' APART ALONG SOUTH PROPERTY LINE AND 15 SPEARMINT JUNIPERS SPACED AT 3'-8" ALONG THE EAST PROPERTY LINE
- 1.2. PARKING LOT: 1 TREE PER 8 SPACES IN 50 SF SPACE. 14 SPACES / 8 = 1.75 = 2 TREES
- 1.2.1. PROVIDED: 2 CANOPY TREES
- 1.3. SITE LANDSCAPING: 10% OF THE SITE AREA SHALL BE LANDSCAPED IN ADDITION TO BUFFER. SITE AREA: 19,988 SF ± 10% = 1,999 SF
- 1.3.1. PROVIDED: 2,588 SF (12.9% - NOT INCLUDING RESIDENTIAL BUFFER AREA ALONG SOUTH AND EAST PROPERTY LINES)
- 1.3.1.1. 695 SF (3.5%) IS WITHIN A STORM DRAINAGE AREA
- 1.4. SITE LANDSCAPING: 1 TREE PER 30' OF FRONTAGE. CENTER STREET: 100' / 30' = 3 TREES;
- 1.5. PROVIDED: 3 EXISTING TREES IN CENTER STREET ROW
2. ALL SHRUBS SHALL BE PLANTED A MINIMUM OF 2.5' AWAY FROM PAVEMENT.
3. ALL CURBSIDE AREAS SHALL BE COVERED WITH 4" MIN. OF SHREDED HORTICULTURAL BARK
4. ALL LANDSCAPE AREAS SHALL BE MAINTAINED BY OWNER IN A HEALTHY AND GROWING CONDITION. TREES AND OTHER VEGETATION THAT DIE SHALL BE PROMPTLY REPLACED WITH IN KIND VEGETATION.
5. CONTRACTOR SHALL PROVIDE SPECIFIED TREES, SHRUBS, GROUND COVERS AND OTHER PLANT MATERIAL THAT COMPLY WITH ALL RECOMMENDATIONS AND REQUIREMENTS OF ANSI Z60.1 "AMERICAN STANDARD FOR NURSERY STOCK." PLANT MATERIAL SHALL BE HEALTHY, VIGOROUS STOCK GROWN WITH GOOD HORTICULTURAL PRACTICE AND INSTALLED IN ACCORDANCE WITH METHODS ESTABLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
6. SEED SHALL BE PLACED OVER 6" TOPSOIL IN ALL PROPOSED LAWN AREAS AND ALL AREAS DISTURBED BY CONSTRUCTION EXCEPT AS NOTED ON PLANS AND SPECIFICATIONS.
7. PLANTING SOIL CONSISTING OF 1/3 TOPSOIL, 1/3 PEAT MOSS AND 1/3 SAND SHALL BE PLACED IN ALL GROUND COVER AND FLOWER BEDS. DEPTH SHALL BE NOT LESS THAN 8".
8. FOLLOWING CONSTRUCTION, RESTORE ALL DISTURBED AREAS WITH EGS-PLUS SEED MIX, UNLESS OTHERWISE NOTED.
9. PLANT MATERIAL SUBSTITUTIONS SHALL BE APPROVED BY OWNER & LANDSCAPE ARCHITECT.

PLANT LIST

	QTY.	KEY	SIZE	COMMON NAME	BOTANICAL NAME	MATURE SIZE/COMMENTS
	1	MAPLE	2-1/2'B8	CELEBRATION MAPLE	ACER X FREEMANII 'CELZAM'	45Hx25'S; SEEDLESS; COMPACT; RED & GOLD FALL COLOR
	1	TUPELO	2-1/2'B8	TUPELO / BLACK GUM	NYSSA SYLVATICA	50'Hx30'S; PYRAMIDAL; ORANGE, RED & GOLD FALL COLOR
	2	ORNAMENTAL TREES AMELANCHIER	2-1/2'B8	SHADBLOW SERVICEBERRY	AMELANCHIER CANADENSIS	20'Hx15'S; TREE FORM; EQUIVALENT TO 2.5" CALIPER IF MULTI-STEM
	15	EVERGREEN SHRUBS JUNIPER	6' B&B	SPEARMINT JUNIPER	JUNIPEROUS CHINENSIS 'SPEARMINT'	15'Hx3-4'S; DENSE, UPRIGHT; SOFT BRIGHT GREEN NEEDLES
	19	WICHTA	6' B&B	WICHTA BLUE JUNIPER	JUNIPEROUS SCOPULORUM 'WICHTA BLUE'	18'Hx8'S; DENSE, BROAD PYRAMIDAL FORM, BRIGHT BLUE FOLIAGE
	5	CYPRESS	30" CONT.	SIBERIAN CYPRESS	MICROBIOTA DECUSATA	1'Hx6-8'S; GREEN FEATHERY LEAF TURNING BRONZE IN WINTER; HARDY; FULL/PART SUN
	3	ORNAMENTAL SHRUBS SUMMERSWEET	24" CONT.	HUMMINGBIRD SUMMERSWEET	CLETHRA ALNIFOLIA 'HUMMINGBIRD'	4'Hx4'S; WHITE FLOWERS, JULY-AUGUST;
	6	LILAC	30" CONT.	MISS KIM LILAC	SYRINGA PATULA 'MISS KIM'	6'Hx5'S; BLUE FLOWERS; DARK GREEN FOLIAGE; FULL/PART SUN
	6	NINEBARK	30" CONT.	DIABLO NINEBARK	PHYSCARPUS OPULIFOLIOUS 'MONLO'	8'Hx5'S; CREAMY-WHITE FLOWERS; PURPLISH FOLIAGE; SUNSHADE
	17	POTENTILLA	24" CONT.	ABBOTSWOOD POTENTILLA	POTENTILLA FRUITICOSA 'ABBOTSWOOD'	2'Hx2'S; WHITE FLOWERS, EARLY SPRING-LATE FALL
	6	WIEGELA	24" CONT.	WINE & ROSES WIEGELA	WIEGELA FLORIDA 'ALEXANDRA'	4'Hx4'S; ROSE-PINK FLOWERS, MAY-JUNE; BURGUNDY-PURPLE FOLIAGE
	6	VIBURNUM	30" CONT.	KOREAN SPICE VIBURNUM	VIBURNUM CARLESII	5'Hx5'S; FRAGRANT, SPRING WHITE FLOWERS; FULL/PART SUN
	145 SF	PERENNIALS DAYLILY	6" POT	HAPPY RETURN DAYLILY	HEMEROCALLIS 'HAPPY RETURNS'	16" TALL; SPACE 16"; CANARY YELLOW FLOWER; RE-BLOOMING; FULL SUN-LIGHT SHADE
	190 SF	LIRIOP	3" POT	CREeping LILTYUR	LIRIOPI SPICATA	8"-12" TALL; SPACE 12"; LILY-LIKE TURT; DRAUGHT RESISTANT; FULL SUN-MOD SHADE
	115 SF	SEDUM	6" POT	BLACK JACINTH	SEDUM 'CARL'	14"-18" TALL; SPACE 16"; VIBRANT PINKISH-RED FLOWERS; FULL SUN-LIGHT SHADE

LAWN-EGS PLUS SEED MIX

29.44%	ORACLE CREEPING RED FESCUE	SEEDING RATE: 5 LBS. PER 1,000 SQUARE FEET.
21.38%	SOX FAN PERENNIAL RYEGRASS	HYDROSEED ALL AREAS WITH A SLURRY OF SEED,
19.44%	GALLOP PERENNIAL RYEGRASS	PULVERIZED MULCH, FERTILIZER AND WATER.
14.90%	SHANNON KENTUCKY BLUEGRASS	PLACE IN ALL DISTURBED AREAS NOT LABELED AS
14.84%	GAELIC KENTUCKY BLUEGRASS	DETENTION BASIN SEED MIX



The Surveyor's / Engineer's liability for any and all claims, including but not limited to those arising out of the Surveyor's / Engineer's professional, gross negligence, gross misconduct, warranties or misrepresentations shall be deemed limited to an amount no greater than the service fee.

DOUGLAS FLATS LLC

ATTN: MR. UFUK TURAN
7437 RIVER STREET SE
ADA, MICHIGAN 49301

2225 CENTER STREET
DOUGLAS, MI 49406

No.	Date	Description
A	05/13/2026	TOPOGRAPHIC AND BOUNDARY SURVEY
B	08/30/2026	HE REVIEW
C	07/01/2026	SITE PLAN SUBMITTAL
D	07/20/2026	REV PER REVIEW COMMENTS
E	07/28/2026	REV PER ACD REVIEW COMMENTS
F	8/18/2026	ADDRESS PCP REVIEW COMMENTS

Please note: all comments are in red/pink color. \$ is intended as a unit (USD) FOR CONCENTRATION

Project Manager BRUCE ZEINSTRA, LL	
Vertical Datum NAVD88	Horz. Datum LOCAL
Drawn by BRUCE ZEINSTRA, LA	
Checked by Survey	Date
Civil	
Struc.	
L. A.	
HEI Project Number 26-04-022	
Sheet Title LANDSCAPE PLANTING PLAN	
Sheet No. L-101	