

PLANS FOR CONSTRUCTION OF CHARLOTTE DAIRY QUEEN

DATE	DESCRIPTION	BY
REVISIONS/SUBMITTALS		

NOTES

GENERAL

- BENCHMARK #1:
Set mag nail in the East face of power pole, 2.5'± East of the East back of curb of Cochran Avenue, and 2.5'± North of the North wall line of House #417. Elevation: 901.20 (NAVD 88)
- The contractor shall call "MISS DIG" at 1-800-482-7171 at least 3 working days (excluding weekends and holidays) prior to construction.
- All work shall be done in accordance with the applicable codes, ordinances, design standards and standard specifications of the following agencies which have the responsibility of reviewing plans and specifications for construction of all items included in these plans:
 - City of Charlotte
 - Eaton County
 - State of Michigan
 - Michigan Department of Transportation
- The contractor shall apply for and obtain all necessary permits as required for construction of this project prior to the beginning of work from the previously mentioned agencies.
- The contractor shall notify the Michigan Department of Transportation a minimum of 24 hours prior to any construction in the road right-of-way of Cochran Road (M50).
- The contractor agrees that in accordance with generally accepted construction practices, the contractor will be required to assume sole responsibility for job site conditions during the course of construction of the project, including the safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours.
- The locations and dimensions shown on the plans for existing facilities are in accordance with all available information. The engineer does not guarantee the accuracy of this information or that all existing underground facilities are shown.
- When any existing utility requires adjustment or relocation, the contractor shall notify the proper utility company and coordinate the work accordingly. There shall be no claim made by the contractor for any costs caused by delays in construction due to the adjustment or relocation of utilities.
- The contractor is to verify that the plans and specifications that he/she is building from are the very latest plans and specifications that have been approved by all applicable permit-issuing agencies and the owner. All items constructed by the contractor prior to receiving the final approval and permits having to be adjusted or re-done, shall be done at the contractor's expense.
- Should the contractor encounter conflict between these plans and specifications, either among themselves or with the requirements of any and all reviewing and permit-issuing agencies, he/she shall seek clarification in writing from this engineer before commencement of construction. Failure to do so shall be at the sole expense to the contractor.
- Unless otherwise noted the contractor shall furnish as-built drawings indicating all changes and deviations from approved drawings.
- All signs and traffic control measures during construction and maintenance activities shall be constructed and installed per the latest edition of the Michigan Manual of Uniform Traffic Control Devices (M.M.U.T.C.D.).
- LSG Engineers & Surveyors will not be responsible for field design changes made by the contractor or the contractor's surveyor where LSG Engineers & Surveyors has not approved these design changes.

GRADING AND SITE WORK

- Prior to grading, cutting and filling the contractor shall remove all topsoil, debris, vegetation, etc. from the site. Acceptable material excavated from the cut areas shall be used for fill. Fill shall be placed in layers not exceeding depths of 12 inches and shall be compacted to 95% of its maximum unit weight.
- The contractor shall proof-roll the existing subgrade to determine its suitability. If, in the opinion of the engineer, the subgrade is unsuitable that portion of the subgrade shall be excavated and replaced with a minimum of 12" M.D.O.T. Class II granular material.
- All site grading must be performed to insure positive drainage across the entire site, throughout the period of construction and after project completion.
- All sedimentation and soil erosion control measures shall be constructed prior to the commencement of site grading and must conform to Part 91 of Act 451 of the Public Acts of 1994 as amended. All applicable permits shall be obtained before implementing these measures. The contractor shall be responsible for maintaining the sedimentation and soil erosion control measures throughout construction.

STORM DRAINAGE SYSTEM

- Unless otherwise noted all storm drain pipe shall be ASTM C-76 Class III or better, with premium joints. All storm drain with less than 3 feet of cover below paved areas shall be ASTM C-76 Class IV, with premium joints.
- All storm drain service leads shall be 6" minimum SDR-35 connected via a cored hole and Kor-N-Seal or equivalent unless otherwise noted on these plans.
- All storm drain manholes and catch basins shall conform to the City of Charlotte Standard Details included in these plans.
- All storm drain below paved areas shall be backfilled with 100% granular material (or approved other) and compacted to 95% of its maximum unit weight (see typical trench details included in these plans).
- All frames and covers on drainage structures shall be non-rocking, made of heavy duty cast iron and shall conform to the casting schedule.
- All rim elevations in outlawn areas are approximate only and shall be adjusted by the contractor after final grades are established.
- See Storm Drain Details.

SANITARY SEWER SYSTEM

- All construction of the sanitary sewer system shall conform to the sanitary sewer construction plans and specifications approved by City of Charlotte.
- All sanitary sewer pipe shall be PVC SDR-35 unless otherwise noted on these plans.
- All sanitary service pipe shall be 6" minimum Schedule 40 or SDR-35 unless otherwise noted on these plans.
- All rim elevations in outlawn areas are approximate only and shall be adjusted by the contractor after final grades are established.
- All sanitary sewer below paved areas shall be backfilled with 100% granular material (or approved other) and compacted to 95% of its maximum dry density (see typical trench details included in these plans).
- All sanitary sewer manholes shall conform to the City of Charlotte standards.
- All service laterals shall have a sampling manhole at the property line.
- All service laterals shall have cleanouts at 50 foot intervals.
- See Sanitary Sewer Details.

WATER MAIN SYSTEM

- All water main shall be class 52 ductile iron unless otherwise noted on these plans.
- All construction of the water main service system shall conform to the water main construction plans and specifications approved by the City of Charlotte.
- All water main shall be installed with a minimum of 6.0 feet of cover from finished grades.
- A full length of water main pipe shall be centered from the point of crossings of all sewers with a minimum vertical clearance of 1.5 feet. In the event a clearance of less than 1.5 feet is constructed, the intersection shall be encased in concrete.
- All elevations in outlawn areas are approximate only and shall be adjusted by the contractor after finish grades are established.
- All water main within a 45' zone of influence of paved areas shall be backfilled with 100% granular material (or approved other) and compacted to 95% of its maximum unit weight (see typical trench details included in these plans).
- All water main shall have a minimum 10' horizontal separation from any storm or sanitary sewer.
- All ductile iron water main pipe, fittings, and valves are to be encased within 8-mil thick polyethylene wrap.
- Water services shall be 1.5" type K copper pipe with Ford FB 1000 corporation stop and 1.5" Mueller Mark II Oriseal or Ford B44-666 curb stop and box at rear of 10' utility easement.
- See Water Main Details.

407 S COCHRAN CHARLOTTE, MI 48813



LOCATION MAP

LEGEND

(E) SPOT ELEVATION	100.00	(P) SPOT ELEVATION	850
(E) 1' CONTOURS	851	(P) 1' CONTOUR	851
(E) 5' CONTOURS	850	(P) 5' CONTOUR	850
(E) GAS LINE	G - G - G	(P) GAS LINE	G - G - G
(E) TELEPHONE LINE	T - T - T	(P) TELEPHONE LINE	T - T - T
(E) ELECTRIC LINE	E - E - E	(P) ELECTRIC LINE	E - E - E
(E) STORM DRAIN	STM - STM	(P) STORM DRAIN	STM - STM
(E) SANITARY SEWER	SAN - SAN	(P) SANITARY SEWER	SAN - SAN
(E) WATER MAIN	W - W - W	(P) WATER MAIN	W - W - W
(E) CHAIN LINK FENCE	X - X - X	(P) CHAIN LINK FENCE	X - X - X
(E) WOOD FENCE	○ - ○ - ○	(P) WOOD FENCE	○ - ○ - ○
(E) WATER WELL	⊕	(P) GUARD RAIL	—○—○—○—○—
(E) FIRE HYDRANT	⊕	(P) FIRE HYDRANT ASSEMBLY	⊕
(E) WATER VALVE	⊕	(P) WATER MAIN VALVE	⊕
(E) SANITARY MANHOLE	⊕	(P) WATER MAIN BEND	⊕
(E) STORM MANHOLE	⊕	(P) WATER MAIN REDUCER	⊕
(E) CATCH-BASIN	⊕	(P) CURB INLET	⊕
(E) CULVERT	⊕	(P) CATCH BASIN	⊕
(E) LIGHT POLE	⊕	(P) TRENCH DRAIN	⊕
(E) UTILITY POLE	⊕	(P) FLARED END SECTION	⊕
(E) SIGN	⊕	(P) MANHOLE	⊕
(E) MAILBOX	⊕	(P) LIGHT POLE	⊕
(E) CONIFEROUS TREE	⊕	(P) SANITARY SEWER CLEANOUT	⊕
(E) DECIDUOUS TREE	⊕	(P) UTILITY CROSSING	⊕
(P) SIDE SLOPE	⊕	(P) BUILDING WALLPACK	⊕
(P) DRAINAGE SWALE	⊕	(P) SIGN	⊕
(P) DRAINAGE FLOW ARROW	⊕	(P) PARKING COUNT	⊕
(P) RIP RAP	⊕	(P) HANDICAP PARKING	⊕
LOW POINT	L.P.	(P) HANDICAP VAN ACCESSIBLE	⊕
HIGH POINT	H.P.	(P) TRAFFIC FLOW	⊕
FINISH FLOOR	F.F.	(P) MODIFIED CURB & GUTTER	⊕
BENCHMARK	B.M.	(P) REGULAR CURB & GUTTER	⊕
WATER SURFACE	W.S.	(P) SCREEN WALL OR RETAINING WALL	⊕
GRADE BREAK	G.B.		
(P) HEAVY DUTY ASPHALT AREA	⊕		
(P) LIGHT DUTY ASPHALT AREA	⊕		
(P) CONCRETE SURFACE	⊕		
(P) AGGREGATE SURFACE	⊕		
(P) DRAINAGE BASIN BOUNDARY	⊕		
(P) BASIN DESIGNATION	⊕		
(P) BASIN AREA IN ACRES	⊕		

NOTE:
(E) - INDICATES EXISTING
(P) - INDICATES PROPOSED

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- C4.1 GRADING CALCULATIONS & DRAINAGE PLAN
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- C6.0 MISCELLANEOUS DETAILS
- C6.1 MISCELLANEOUS DETAILS
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- C7.1 SOIL EROSION CONTROL NOTES AND DETAILS
- L1.0 EXISTING LANDSCAPE PLAN
- L1.1 PROPOSED LANDSCAPE PLAN
- PHOTOMETRIC PLAN

CONTACT LIST

OWNER/DEVELOPER CONTACTS

ROBERTS REAL ESTATE OF CHARLOTTE
BRETT ROBERTS
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DAILEY ENGINEERING

MATT FOWLER
PH: 517-281-8933

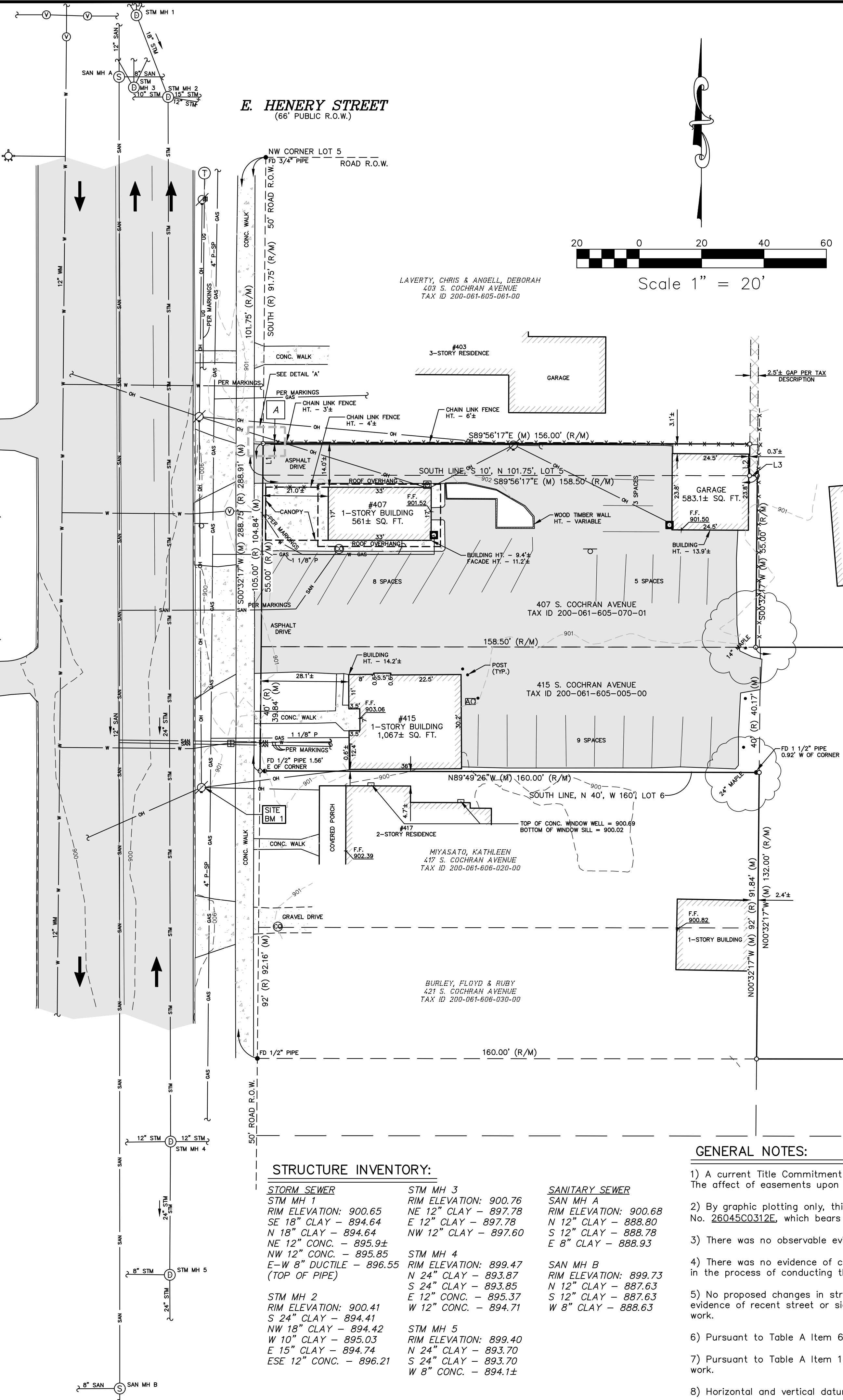
PREPARED FOR:
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DATE: AUGUST 24, 2017
PROJECT NO.: 2004
SHEET NO.: C

COCHRAN AVENUE (HIGHWAY M-50) (US-27 B.R.)



ALTA/NSPS LAND TITLE SURVEY CERTIFICATE:

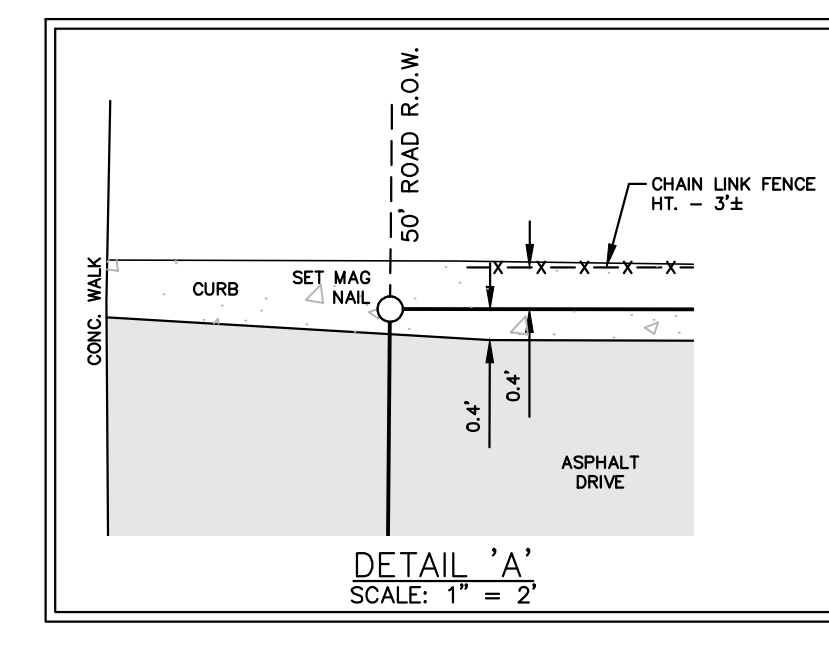
To: Roberts Real Estate of Charlotte:
 This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 5, 6(b), 7(a), 7(b)(1), 7(c), 8, 9, 10(a), 11, 13, 14, 16, 17, 18, and 19 of Table A thereof. The field work was completed on August 18, 2017.

Wendy S. Fuller
 Professional Surveyor No. 47969
 email: fuller@sg-es.com
 Date: August 23, 2017
 Date of Last Revision:

NOTE: This survey is for the exclusive use and benefit of the parties indicated and is not intended for future transactions.

LEGAL DESCRIPTION:

TAX ID 200-061-605-070-01 (407 S. COCHRAN AVENUE)
 S 55 FT OF W 158.5 FT OF LOT 5 AND S 10 FT OF N 101.75 FT OF W 156 FT OF LOT 5, LAWRENCE'S ADD OF OUT LOTS, CITY OF CHARLOTTE.
 TAX ID 200-061-606-005-00 (415 S. COCHRAN AVENUE)
 N 40 FT OF W 160 FT OF LOT 6, LAWRENCE'S ADD OF OUT LOTS, CITY OF CHARLOTTE.
 TAX ID 200-061-606-008-00 (VACANT)
 N 132 FT OF LOT 6, EXCEPT W 160 FT & EXCEPT E 50 FT, LAWRENCE'S ADDITION OF OUT LOTS, CITY OF CHARLOTTE.



LINE TABLE

NUMBER	DIRECTION	DISTANCE
L1	S00°32'17"W (M)	10.00' (R/M)
L2	N00°32'17"E (M)	10.00' (R/M)
L3	S89°56'17"E (M)	2.50' (M)

LEGEND:

- ⊙ STORM MANHOLE
- ⊙ CATCHBASIN
- STM STORM LINE
- ⊙ SANITARY MANHOLE
- SANITARY CLEANOUT
- SANITARY LINE
- ⊙ UTILITY POLE
- ⊙ ELECTRIC MANHOLE
- ⊙ UTILITY POLE
- ⊙ GUY WIRE
- OH OVERHEAD UTILITY LINE
- UG UNDERGROUND UTILITY LINE
- ⊙ TRANSFORMER
- ⊙ AC-UNIT
- ⊙ TELEPHONE MANHOLE
- ⊙ ROOF DRAIN
- ⊙ TELEPHONE PEDESTAL
- ⊙ ELECTRIC PEDESTAL
- ⊙ ELECTRIC METER
- ⊙ LIGHT POLE
- ⊙ SIGN
- ⊙ MONUMENT SIGN
- ⊙ WATER MANHOLE
- ⊙ WELL
- ⊙ WATER LINE
- ⊙ WATER VALVE
- ⊙ FIRE HYDRANT
- ⊙ MONITORING WELL
- ⊙ GAS METER
- ⊙ GAS VALVE
- ⊙ GAS LINE
- ⊙ FENCE LINE
- ⊙ DECIDUOUS TREE
- ⊙ CONIFEROUS TREE
- ⊙ CURB AND GUTTER
- ⊙ TREE LINE
- ⊙ SET IRON & CAP #47969
- ⊙ FOUND IRON AS NOTED
- ⊙ SECTION CORNER
- ⊙ DISTANCE NOT TO SCALE
- ⊙ YARDBASIN
- ⊙ POST INDICATOR VALVE
- ⊙ WALL HYDRANT
- ⊙ MAIL BOX
- ⊙ SATELLITE DISH
- ⊙ ASPHALT
- ⊙ CONCRETE
- ⊙ RECORDED
- ⊙ MEASURED

STRUCTURE INVENTORY:

STORM SEWER	SANITARY SEWER
STM MH 1 RIM ELEVATION: 900.65 SE 18" CLAY - 894.64 N 18" CLAY - 894.64 NE 12" CONC. - 895.9± NW 12" CONC. - 895.85 E-W 8" DUCTILE - 896.55 (TOP OF PIPE)	SAN MH A RIM ELEVATION: 900.68 N 12" CLAY - 888.80 S 12" CLAY - 888.78 E 8" CLAY - 888.93
STM MH 2 RIM ELEVATION: 900.41 S 24" CLAY - 894.41 NW 18" CLAY - 894.42 W 10" CLAY - 895.03 E 15" CLAY - 894.74 ESE 12" CONC. - 896.21	SAN MH B RIM ELEVATION: 899.73 N 12" CLAY - 887.63 S 12" CLAY - 887.63 W 8" CLAY - 888.63
STM MH 3 RIM ELEVATION: 900.76 NE 12" CLAY - 897.78 E 12" CLAY - 897.78 NW 12" CLAY - 897.60	STM MH 4 RIM ELEVATION: 899.47 N 24" CLAY - 893.87 S 24" CLAY - 893.85 E 12" CONC. - 895.37 W 12" CONC. - 894.71
STM MH 4 RIM ELEVATION: 900.76 NE 12" CLAY - 897.78 E 12" CLAY - 897.78 NW 12" CLAY - 897.60	STM MH 5 RIM ELEVATION: 899.40 N 24" CLAY - 893.70 S 24" CLAY - 893.70 W 8" CONC. - 894.1±

GENERAL NOTES:

- A current Title Commitment and Schedule B Section II Supportive Documentation has not been furnished. The affect of easements upon this parcel, other than indicated, are unknown.
- By graphic plotting only, this property is in Zone(s) X of the Flood Insurance Rate Map, Community Panel No. 26045C0312E, which bears an effective date of 11/26/2010 and is not in a Special Flood Hazard Area.
- There was no observable evidence of cemeteries / burial grounds on the subject property.
- There was no evidence of current earth moving work, building construction or building additions observed in the process of conducting the field work.
- No proposed changes in street right of way lines were made available to the surveyor. There is no evidence of recent street or sidewalk construction or repairs observed in the process of conducting the field work.
- Pursuant to Table A Item 6, a zoning letter or report was not provided to the surveyor.
- Pursuant to Table A Item 18, no wetland delineation was observed in the process of conducting the field work.
- Horizontal and vertical datums are based upon State Plane Coordinates - Michigan South Zone.

BENCHMARKS:

Site BM 1 - Set mag nail in the East face of power pole, 2.5± East of the East back of curb of Cochran Avenue, and 2.5± North of the North wall line of House #417.
 Elevation: 901.20 (NAVD 88)

SIGNIFICANT OBSERVATIONS:

- Curb extends over the North line of subject property by a maximum of 0.5±, see drawing for detail.

PARKING SPACE TABLE

TYPE OF SPACE	EXISTING STRIPED SPACES
REGULAR	25
HANDICAP	0
TOTAL	25

NOTE: THE UNDERGROUND UTILITIES SHOWN ARE THE RESULT OF FIELD OBSERVATION, AVAILABLE PLAN INFORMATION, FIELD MARKINGS, AND AN 811 DESIGN TICKET REQUEST. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES OTHER THAN ANY STRUCTURE INVENTORY SHOWN HEREON.

MISS DIG 811
 Know what's below. Call before you dig.

FILE: C1-0.dwg
 FIELD WORK: JS/JZ
 DRAWN BY: JML
 CHECKED BY: DKR
 DATE OF SURVEY: 8/10/2017
 SCALE: 1" = 20'
 HOR.: N/A
 VERT.: N/A
 PROJECT NO.: 2004
 SHEET NO.: C1.0

REVISIONS

NO.	DATE	DESCRIPTION

LSG
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 3135 PINE TREE ROAD SUITE D LANSING, MI 48911
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ROBERTS REAL ESTATE OF CHARLOTTE
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 CHARLOTTE, MICHIGAN 48813

TOPOGRAPHIC & ALTA/NSPS LAND TITLE SURVEY OF CHARLOTTE DAIRY QUEEN
 407 S. COCHRAN AVENUE
 CHARLOTTE, MICHIGAN 48813

SITE DATA

ZONING: SITE (EXISTING): R-1 (ONE-FAMILY RESIDENTIAL DISTRICT)
(PROPOSED): B-1 (LOCAL BUSINESS DISTRICT)
NORTH: R-1 (ONE-FAMILY RESIDENTIAL DISTRICT)
SOUTH: R-1 (ONE-FAMILY RESIDENTIAL DISTRICT)
EAST: R-1 (ONE-FAMILY RESIDENTIAL DISTRICT)
WEST: RM-2 (MULTIPLE FAMILY RESIDENTIAL DISTRICT)

LAND USE: SITE: (EXISTING): DAIRY QUEEN RESTAURANT
(PROPOSED): DAIRY QUEEN RESTAURANT
NORTH: RESIDENTIAL
SOUTH: RESIDENTIAL
EAST: RESIDENTIAL
WEST: RESIDENTIAL

BUILDING HEIGHT: 17'-2" (TOP OF TALLEST PARAPET)
1 STORY

SETBACKS: FRONT: 25' REQUIRED
26' PROPOSED
REAR: 10' REQUIRED (BORDERING RESIDENTIAL)
0.3' PROPOSED (GARAGE)
SIDE: 10' REQUIRED (IF STRUCTURE HAS WINDOWS)
0' REQUIRED (NO WINDOWS)
3.1' PROPOSED (GARAGE, NO WINDOWS ON NORTH)

MINIMUM LOT WIDTH: 105' EXISTING AND PROPOSED

LOT AREA: 49,226 SQ.FT. PROPOSED

BUILDING: STORE FLOOR AREA: 1,969 SQ.FT.
GARAGE FLOOR AREA: 583 SQ.FT.
FLOOR COVERAGE RATIO: 5% (GROUND FLOOR/LOT AREA)
FLOOR AREA RATIO: 5% (TOTAL FLOOR AREA/LOT AREA)
NUMBER OF BUILDINGS: 2

NOTES

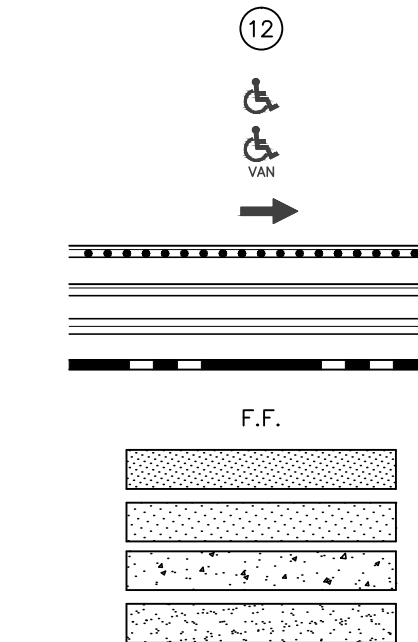
- BENCHMARK
#1. SET MAG NAIL IN THE EAST FACE OF POWER POLE, 2.5'± EAST OF THE EAST BACK OF CURB OF COCHRAN AVENUE, AND 2.5'± NORTH OF THE NORTH WALL LINE OF HOUSE #417. ELEVATION: 901.20 (NAVD 88)
- THE CONTRACTOR SHALL CALL "MISS DIG" AT 811 OR 1-800-482-7171 AT LEAST THREE (3) WORKING DAYS (EXCLUDING WEEKENDS AND HOLIDAYS) PRIOR TO CONSTRUCTION.
- LSG ENGINEERS & SURVEYORS WILL NOT BE RESPONSIBLE FOR FIELD DESIGN CHANGES MADE BY THE CONTRACTOR OR THE CONTRACTOR'S SURVEYOR WHERE THESE DESIGN CHANGES HAVE NOT BEEN APPROVED BY LSG ENGINEERS & SURVEYORS.
- UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TO THE FACE OF CURB AND ALL BUILDING AND PAVEMENT LINES ARE PARALLEL AND/OR PERPENDICULAR TO THE NORTH PROPERTY LINE.

LEGEND

PARKING COUNT
HANDICAP PARKING
HANDICAP VAN ACCESSIBLE

TRAFFIC FLOW
MODIFIED CURB & GUTTER
REGULAR CURB & GUTTER
VALLEY GUTTER
SCREEN WALL OR RETAINING WALL

FINISH FLOOR
HEAVY DUTY ASPHALT AREA
LIGHT DUTY ASPHALT AREA
CONCRETE SURFACE
AGGREGATE SURFACE



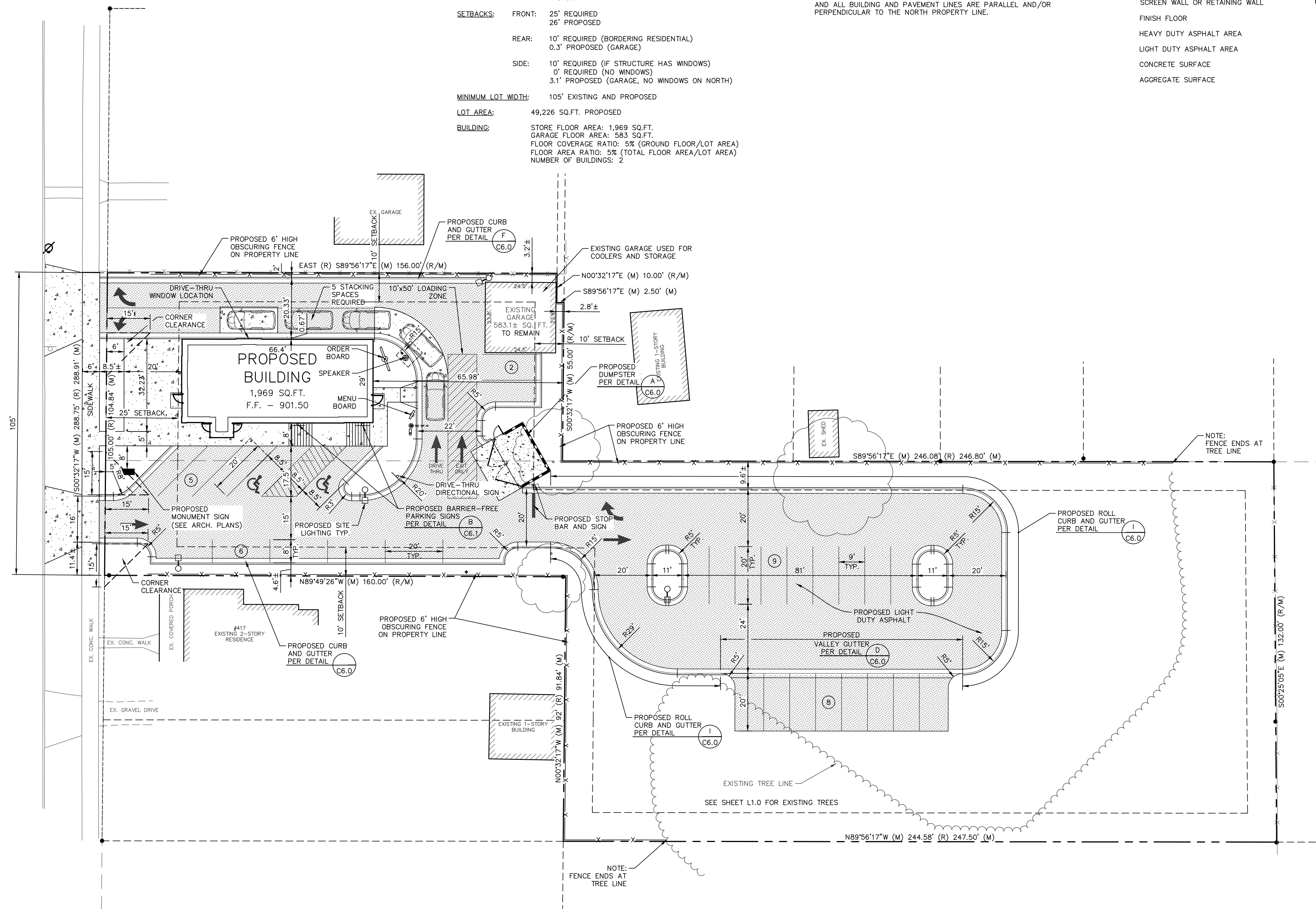
NOTES

- SECTION REQUIREMENT
82-407 COMMERCIAL DRIVEWAY SPACING (BASED ON 30 MPH SPEED LIMIT)
REQUIRED: 185'
PROVIDED: 75'±
- 82-407 MINIMUM SPACING BETWEEN DRIVEWAYS AND INTERSECTIONS ON A MAJOR THROUGHFARE
REQUIRED: 125'
PROVIDED: 100'±
- 82-426 SETBACKS LOCATION REQUIRED. PROVIDED:
FRONT 25' 26'
SIDE 10' 3.1' (GARAGE, GARAGE IS EXISTING)
REAR 10' BORDERING RESIDENTIAL 0.3' (GARAGE, GARAGE IS EXISTING)
- 82-460 GREENBELTS REQUIRED ABUTTING PUBLIC THROUGHFARE. MUST BE ON PRIVATE PROPERTY NOT IN RIGHT-OF-WAY. PROVIDED:
MINIMUM WIDTH 10' 6'
1 TREE/75' FRONTAGE (2 TREES) 1 PROPOSED
4 SHRUBS/20' FRONTAGE (24 SHRUBS) 24 PROPOSED
- 82-460 LANDSCAPE SCREENING BETWEEN COMMERCIAL AND RESIDENTIAL USES. REQUIREMENT: MINIMUM WIDTH 15'. PROVIDED:
1.5' (NORTH BUILDING)
9.6' (NORTH LOT)
1.9'± (SOUTH)
- 6' (MIN) HIGH WALL OR FENCE. PROVIDED FENCE (NORTH)
PROPOSED FENCE (SOUTH)
- 1 TREE/75' OF LOT LINE (2 NORTH BUILDING) 0 (NORTH BUILDING)
(4 NORTH LOT) 6 (NORTH LOT)
(3 SOUTH) 3 (SOUTH)
- 82-461 SIGNS PERMITTED ONE GROUND SIGN, 5' MAXIMUM HEIGHT, 32 SQUARE FEET IN AREA PER SIGN FACE IN THE REQUIRED FRONT YARD. MUST BE A MINIMUM OF 20' FRONT THE PROPERTY LINE OF ADJACENT RESIDENTIAL. RUNNING ANIMATION IS PROHIBITED.
- 82-467 COMMERCIAL USE ABUTTING RESIDENTIAL USE REQUIRES A 4'6" HIGH WALL. (FENCE PROVIDED)

PARKING

REQUIRED:
MAXIMUM OF 1/100 S.F. OF USABLE FLOOR AREA OR 1 PER 2 PEOPLE AT MAXIMUM OCCUPANCY.
USABLE FLOOR AREA: APPROXIMATELY 700 SF
700 S.F. / 100 = 7 SPACES
MAXIMUM OCCUPANCY: 36 PEOPLE
36 PEOPLE / 2 = 18 SPACES (18 SPACES REQUIRED)
PROPOSED: 30 SPACES

COCHRAN AVENUE (HIGHWAY M-50) (US-27 B.R.)
(VARIABLE WIDTH PUBLIC R.O.W.)



FILE: L:\2004 (00 CHARLOTTE)\06 PLANS\C3-0.DWG - PLOT DATE: 8/24/2017 3:14 PM BY: Michelle Shumaker SCALE: 1:1

DATE	DESCRIPTION	BY

LSG
Engineers & Surveyors

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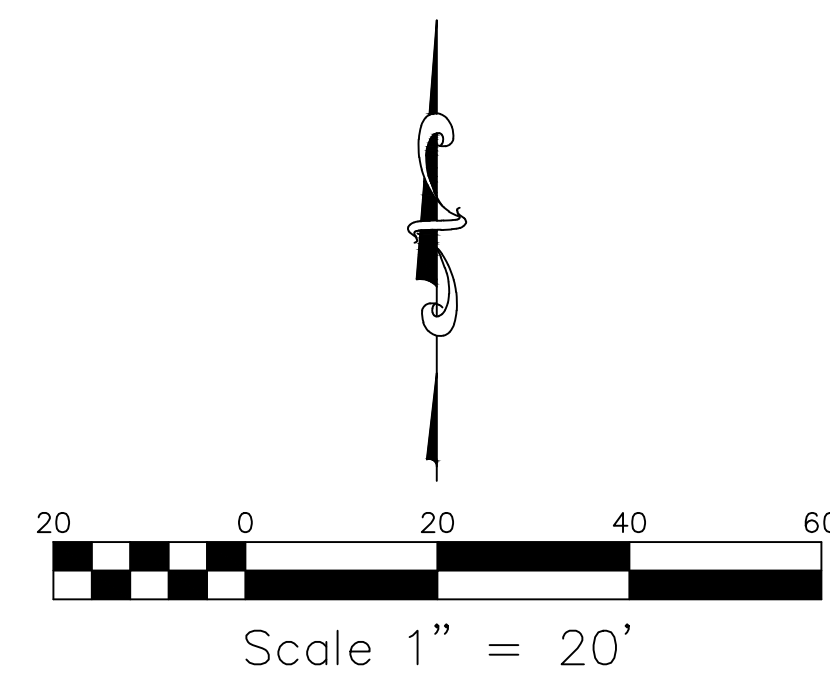
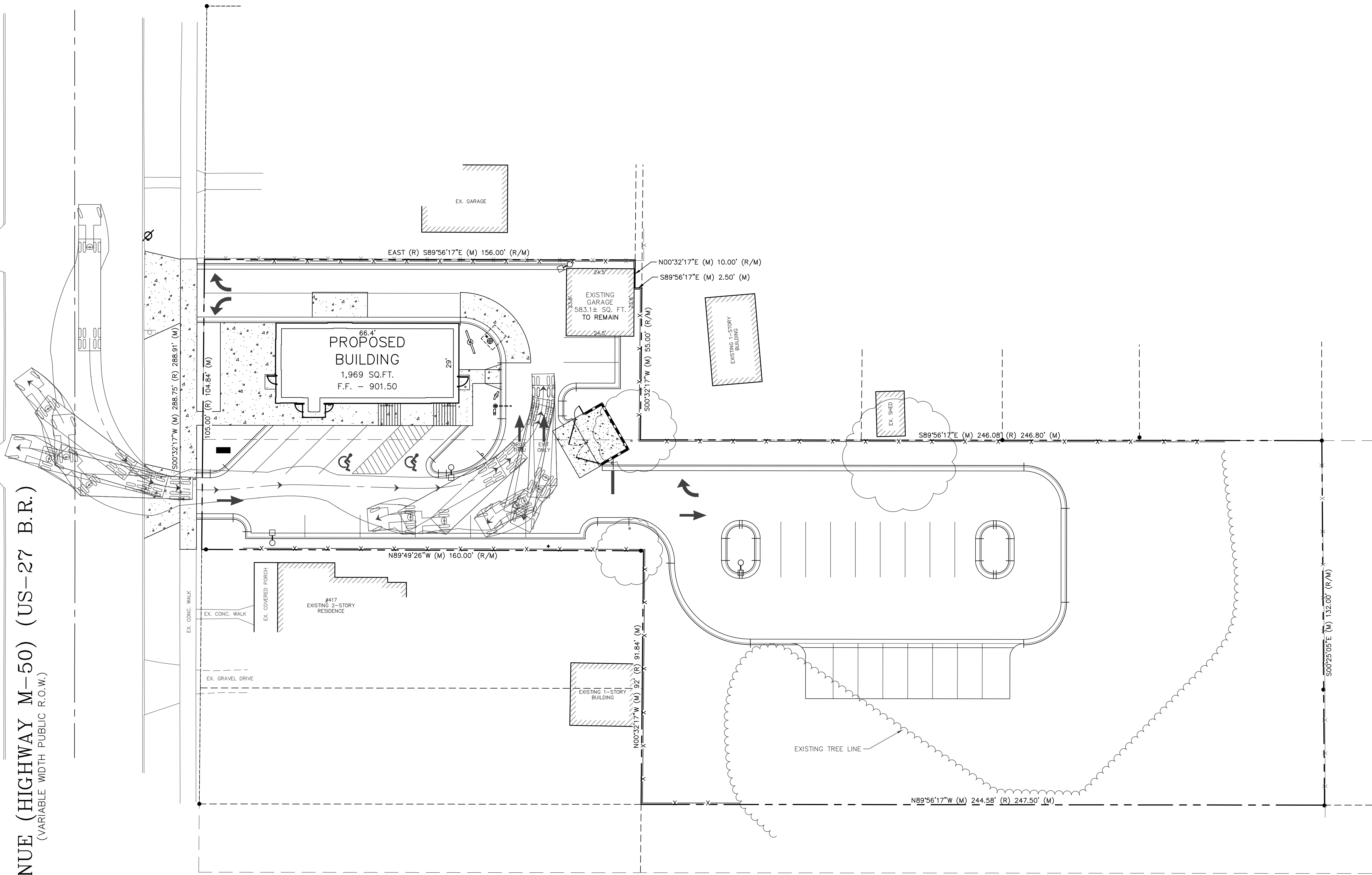
ROBERTS REAL ESTATE
OF CHARLOTTE
640 E. KALAMO HIGHWAY
CHARLOTTE, MICHIGAN 48813
PHONE:

SITE PLAN FOR
CHARLOTTE DAIRY QUEEN
407 S. COCHRAN AVENUE
CHARLOTTE, MICHIGAN 48813

MISS DIG
811
Know what's below.
Call before you dig.

FILE	C3-0.DWG
DESIGNED BY	MLS
DRAWN BY	MLS
CHECKED BY	ADB
DATE	AUGUST 24, 2017
SCALE	
HOR.	1" = 20'
VERT.	N/A
PROJECT NO.	2004
SHEET NO.	C3.0

COCHRAN AVENUE (HIGHWAY M-50) (US-27 B.R.)
(VARIABLE WIDTH PUBLIC R.O.W.)



NOTES

- BENCHMARK
#1. SET MAG NAIL IN THE EAST FACE OF POWER POLE, 2.5'± EAST OF THE EAST BACK OF CURB OF COCHRAN AVENUE, AND 2.5'± NORTH OF THE NORTH WALL LINE OF HOUSE #417. ELEVATION: 901.20 (NAVD 88)
- THE CONTRACTOR SHALL CALL "MISS DIG" AT 811 OR 1-800-482-7171 AT LEAST THREE (3) WORKING DAYS (EXCLUDING WEEKENDS AND HOLIDAYS) PRIOR TO CONSTRUCTION.
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DATE	DESCRIPTION	BY

LSG
Engineers & Surveyors

3135 PINE TREE ROAD
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LANSING, MI 48911
PH. (517) 393-2902
FAX (517) 393-2608
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PREPARED FOR:
**ROBERTS REAL ESTATE
OF CHARLOTTE**
640 E. KALAMO HIGHWAY
CHARLOTTE, MICHIGAN 48813
PHONE:

TRUCK TURNING PLAN
FOR
CHARLOTTE DAIRY QUEEN
407 S. COCHRAN AVENUE
CHARLOTTE, MICHIGAN 48813

MISS DIG
811
Know what's below.
Call before you dig.

FILE	C3-1.DWG
DESIGNED BY	MLS
DRAWN BY	MLS
CHECKED BY	ADB
DATE	AUGUST 24, 2017
SCALE	
HOR.	1" = 20'
VERT.	N/A
PROJECT NO.	2004
SHEET NO.	C3.1

FILE: L:\2004 (DQ CHARLOTTE)\C4-0.DWG - PLANS\C4-0.DWG - PLOT DATE: 8/24/2017 2:54 PM BY: Michelle Shumaker SCALE: 1:1

COCHRAN AVENUE (HIGHWAY M-50) (US-27 B.R.)
(VARIABLE WIDTH PUBLIC R.O.W.)

LSG ENGINEERS & SURVEYORS
Development Data
Job Name: Dairy Queen - Existing West Drainage Area
Job No: 2004

SUBAREA	AREA acres	RUNOFF COEFF. C	A x C	AREA sq.mi.
Greenspace	0.02	0.20	0.00	0.0000
Paved/Roof	0.27	0.90	0.24	0.0004
East	0.29		0.25	0.0005
	acres		sq. mi.	
Weighted Runoff Coefficient		0.85	= C_w	

LSG ENGINEERS & SURVEYORS
Development Data
Job Name: Dairy Queen - Proposed West Drainage Area
Job No: 2004

SUBAREA	AREA acres	RUNOFF COEFF. C	A x C	AREA sq.mi.
Greenspace	0.02	0.20	0.00	0.0000
Paved/Roof	0.20	0.90	0.18	0.0003
East	0.22		0.18	0.0003
	acres		sq. mi.	
Weighted Runoff Coefficient		0.84	= C_w	

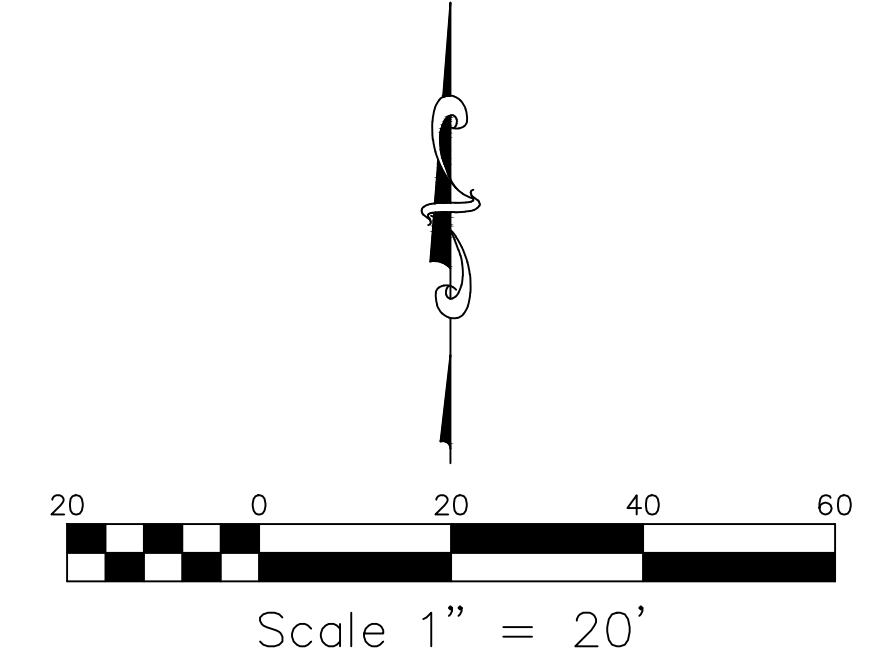
LSG ENGINEERS & SURVEYORS
Development Data
Job Name: Dairy Queen - East Drainage Area
Job No: 2004

SUBAREA	AREA acres	RUNOFF COEFF. C	A x C	AREA sq.mi.
Greenspace	0.53	0.20	0.11	0.0008
Paved/Roof	0.38	0.90	0.34	0.0006
East	0.91		0.45	0.0014
	acres		sq. mi.	
Weighted Runoff Coefficient		0.49	= C_w	

Required Retention Volume
100-Year Rainfall 5.2 inches
Area 39,616 SF
CW 0.49
Volume = Area * C * I 8,451

LEGEND

(E) 1 FOOT CONTOUR	---861---
(E) 5 FOOT CONTOUR	-----861-----
(E) SPOT ELEVATION	100.00
(P) SPOT ELEVATION	859.00 - (TOP OF CURB) 858.50 - (GUTTER)
(P) 1 FOOT CONTOUR	---861---
(P) 5 FOOT CONTOUR	-----861-----
(P) DRAINAGE FLOW	→
(P) CATCH BASIN (L.P.)	⊙
(P) CURB INLET (L.P.)	⊠
(P) DRAINAGE SWALE	---
(P) HIGH POINT	H.P.
(P) LOW POINT	L.P.
(E) INDICATES EXISTING	
(P) INDICATES PROPOSED	



NOTES

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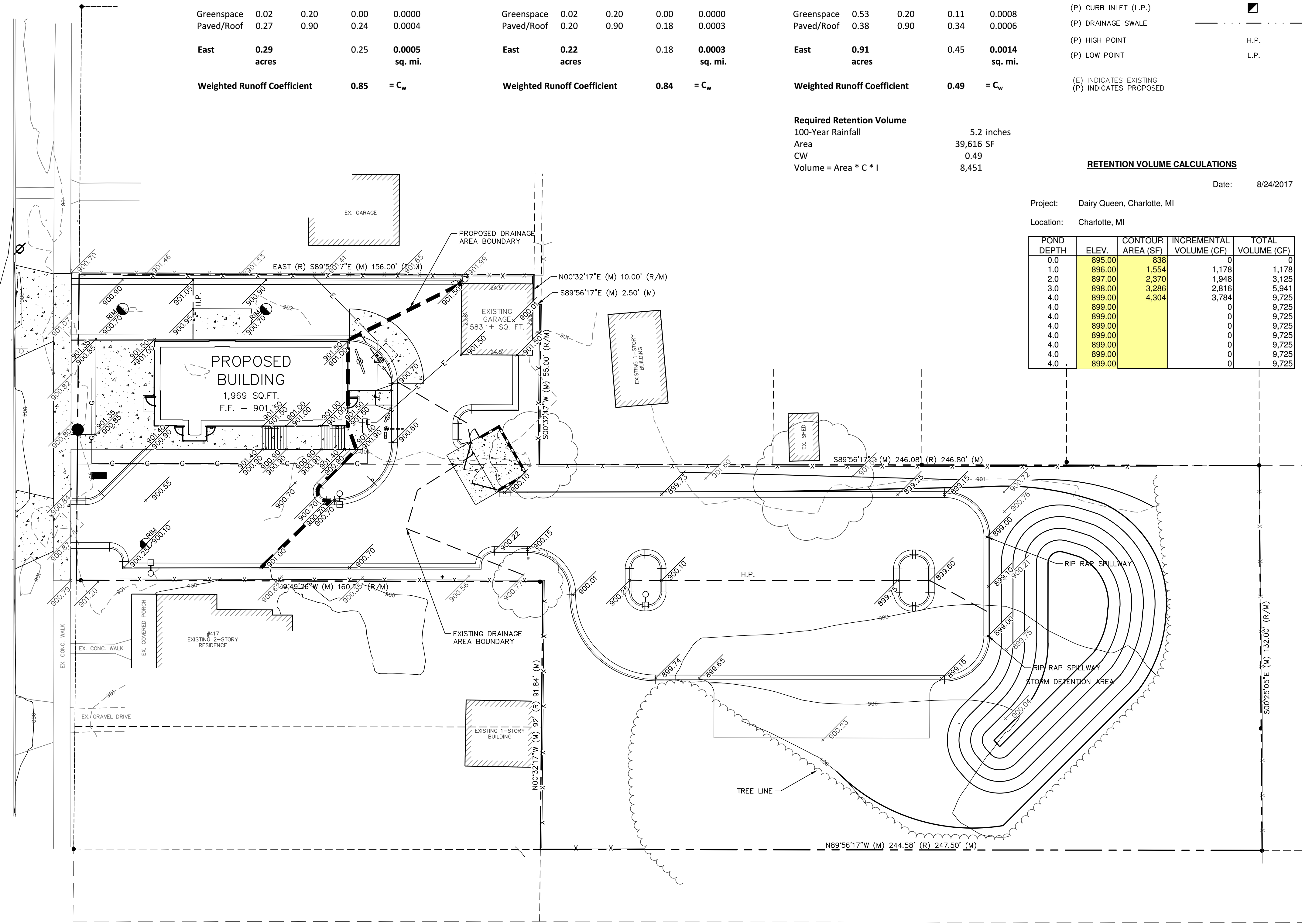
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CHARLOTTE, MICHIGAN 48813
PHONE:

RETENTION VOLUME CALCULATIONS
Date: 8/24/2017

Project: Dairy Queen, Charlotte, MI
Location: Charlotte, MI

POND DEPTH	ELEV.	CONTOUR AREA (SF)	INCREMENTAL VOLUME (CF)	TOTAL VOLUME (CF)
0.0	895.00	838	0	0
1.0	896.00	1,554	1,178	1,178
2.0	897.00	2,370	1,948	3,125
3.0	898.00	3,286	2,816	5,941
4.0	899.00	4,304	3,784	9,725
4.0	899.00	0	0	9,725
4.0	899.00	0	0	9,725
4.0	899.00	0	0	9,725
4.0	899.00	0	0	9,725
4.0	899.00	0	0	9,725
4.0	899.00	0	0	9,725
4.0	899.00	0	0	9,725



DRAINAGE NOTES

THE MAJORITY OF THE EXISTING SITE DRAINS WEST TO THE MDOT RIGHT-OF-WAY. THE EXACT CONNECTION POINT IS UNKNOWN. THE ARE AND CURVE NUMBER FOR THE AREA DRAINING TO THE EAST HAVE BEEN REDUCES WITH THE PROPOSED DESIGN.
THE NEW PARKING LOT ON THE EAST SIDE WILL DRAIN TO A RETENTION BASIN.

LEGEND

	INLET PROTECTION AT CB
	REFERS TO THE APPROPRIATE S.E.S.C. KEYING SYSTEM DETAIL (SEE THIS SHEET)
	SILT FENCE
	NRCS SOIL BOUNDARY
	LIMITS OF EARTH CHANGE (___ ACRES)

SCS SOIL TYPES

BoB BOYER SANDY LOAM (0 TO 6 PERCENT SLOPES)

LEGEND

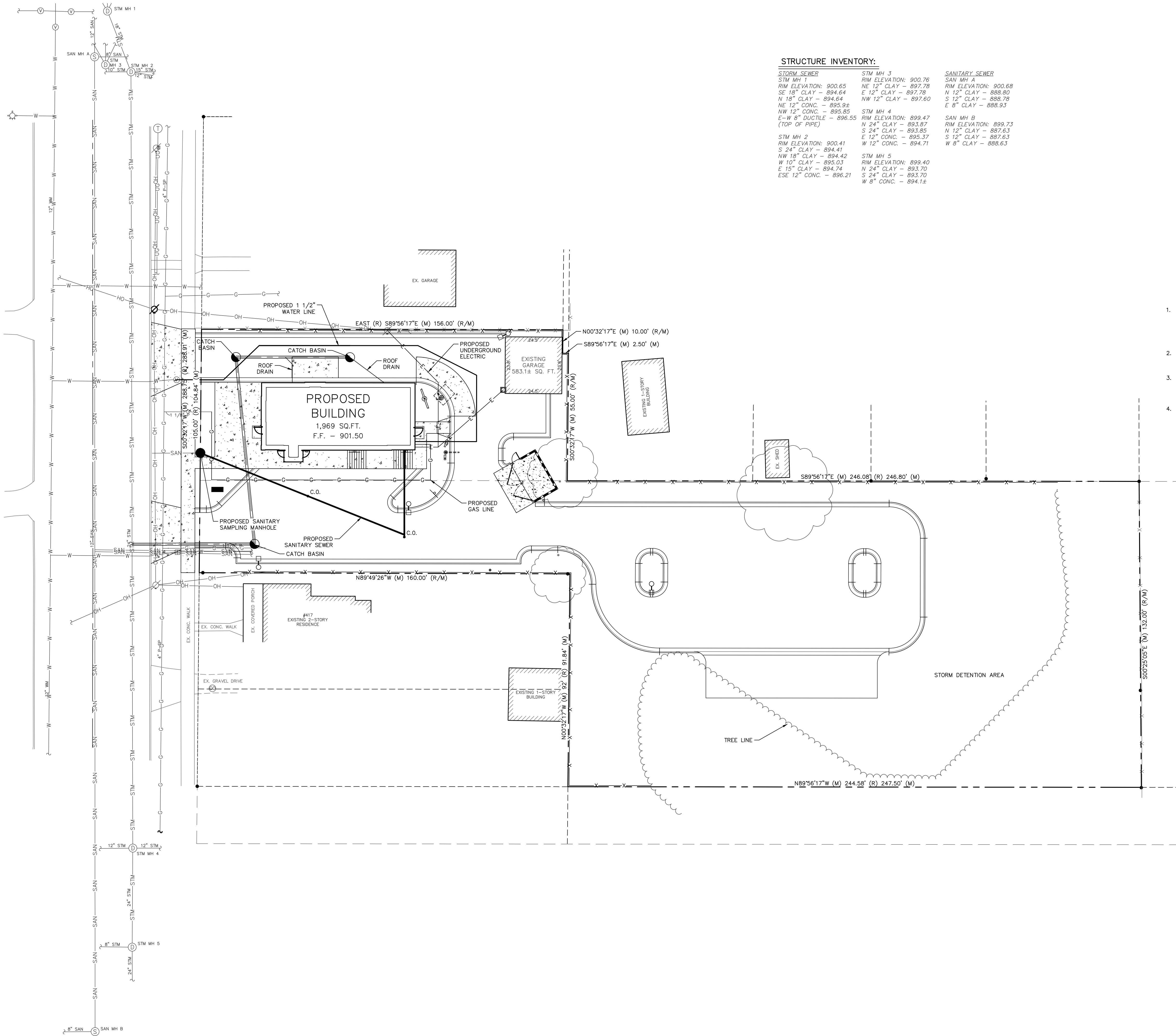
	DRAINAGE BASIN BOUNDARY
	BASIN DESIGNATION E-1a
	BASIN AREA IN ACRES 2.52

MISS DIG

Know what's below.
Call before you dig.

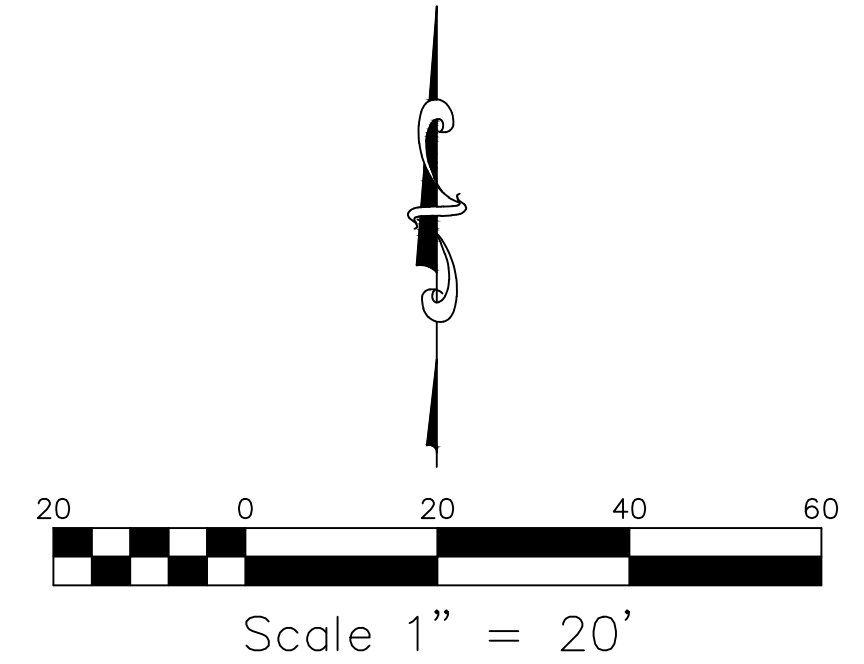
FILE	C4-0.DWG
DESIGNED BY	MLS
DRAWN BY	MLS
CHECKED BY	ADB
DATE	AUGUST 24, 2017
SCALE	
HOR.	1" = 20'
VERT.	N/A
PROJECT NO.	2004
SHEET NO.	C4.0

COCHRAN AVENUE (HIGHWAY M-50) (US-27 B.R.)
(VARIABLE WIDTH PUBLIC R.O.W.)



STRUCTURE INVENTORY:

STORM SEWER		SANITARY SEWER	
STM MH 1	RIM ELEVATION: 900.65	STM MH 3	RIM ELEVATION: 900.76
SE 18" CLAY - 894.64		NE 12" CLAY - 897.78	
N 18" CLAY - 894.64		E 12" CLAY - 897.78	
NE 12" CONC. - 895.9±		NW 12" CLAY - 897.60	
NW 12" CONC. - 895.85			
E-W 8" DUCTILE - 896.55		STM MH 4	RIM ELEVATION: 899.47
(TOP OF PIPE)		N 24" CLAY - 893.87	
STM MH 2	RIM ELEVATION: 900.41	S 24" CLAY - 893.85	
S 24" CLAY - 894.41		N 12" CLAY - 897.63	
NW 18" CLAY - 894.42		S 24" CONC. - 895.37	
W 10" CLAY - 895.03		W 12" CONC. - 894.71	
E 15" CLAY - 894.74		STM MH 5	RIM ELEVATION: 899.40
ESE 12" CONC. - 896.21		N 24" CLAY - 893.70	
		S 24" CLAY - 893.70	
		W 8" CONC. - 894.1±	



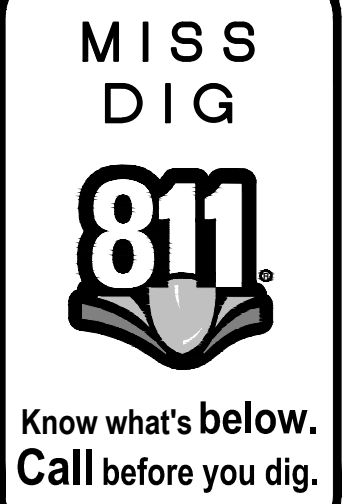
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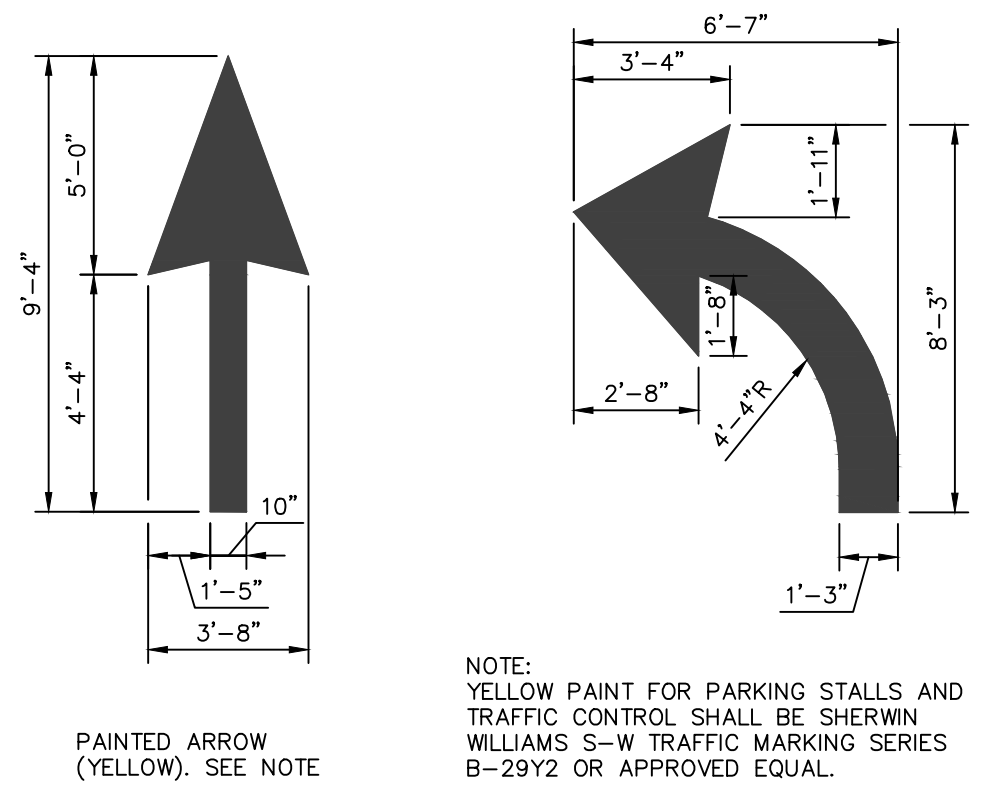
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CHARLOTTE, MICHIGAN 48813
PHONE:

UTILITY PLAN
FOR
CHARLOTTE DAIRY QUEEN
407 S. COCHRAN AVENUE
CHARLOTTE, MICHIGAN 48813

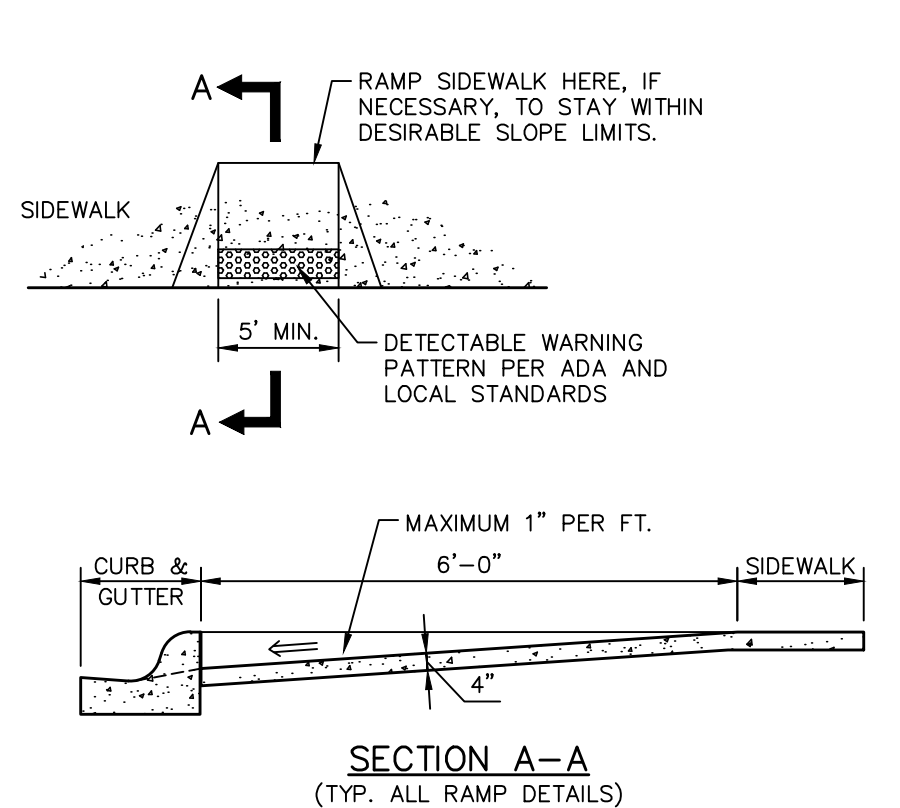


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DESIGNED BY	MLS
DRAWN BY	MLS
CHECKED BY	ADB
DATE	AUGUST 24, 2017
SCALE	
HOR.	1" = 20'
VERT.	N/A
PROJECT NO.	2004
SHEET NO.	C5.0

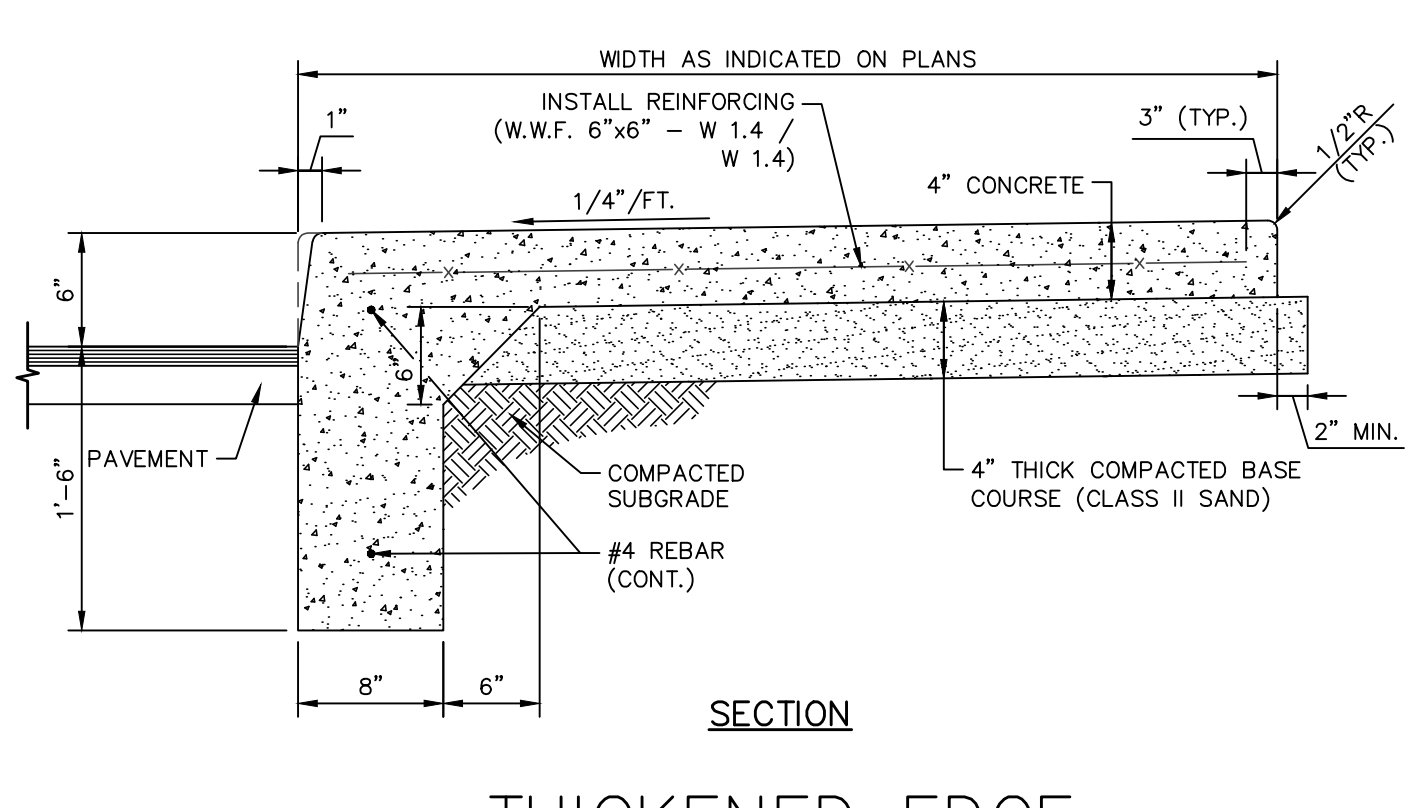
DATE	DESCRIPTION	BY



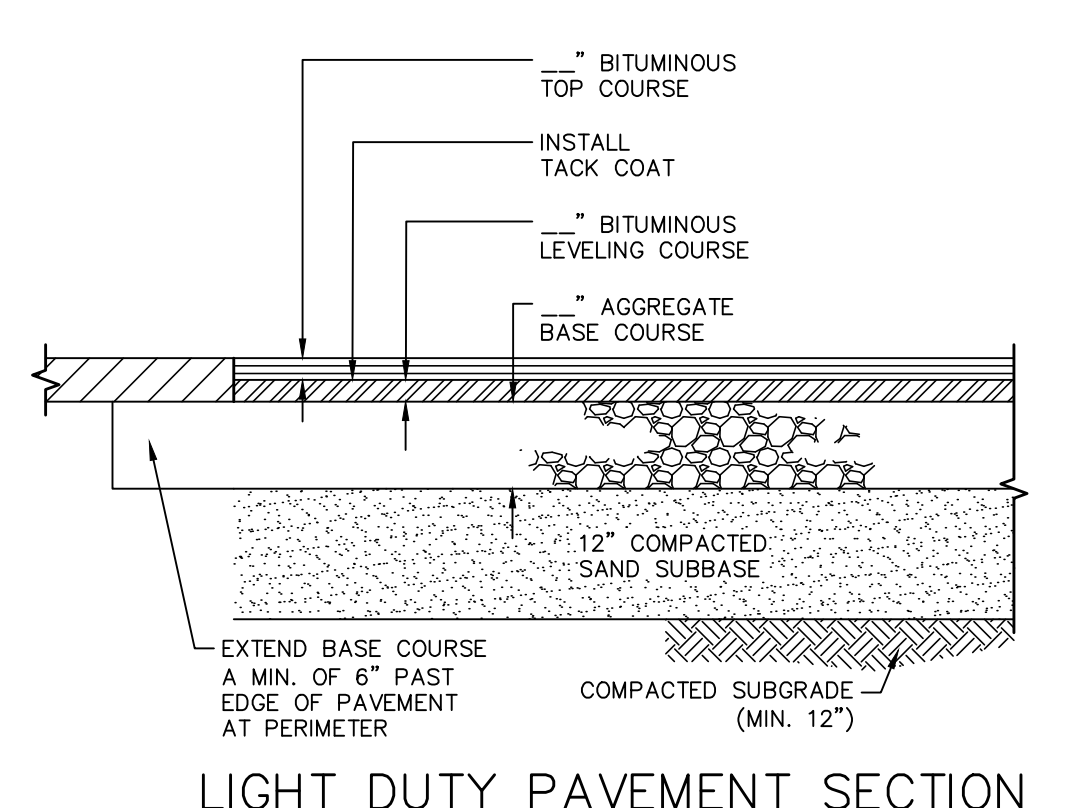
PAINTED ARROW DETAIL (K) C6.0
(NOT TO SCALE)



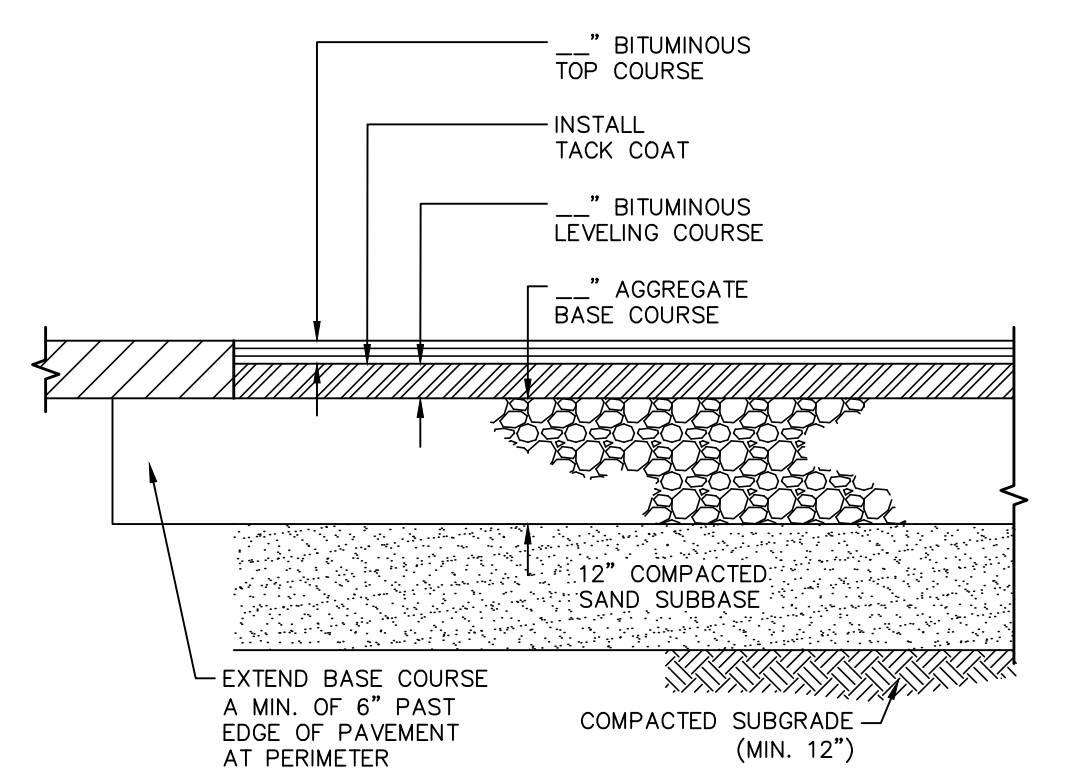
SIDEWALK RAMP (G) C6.0
(NOT TO SCALE)



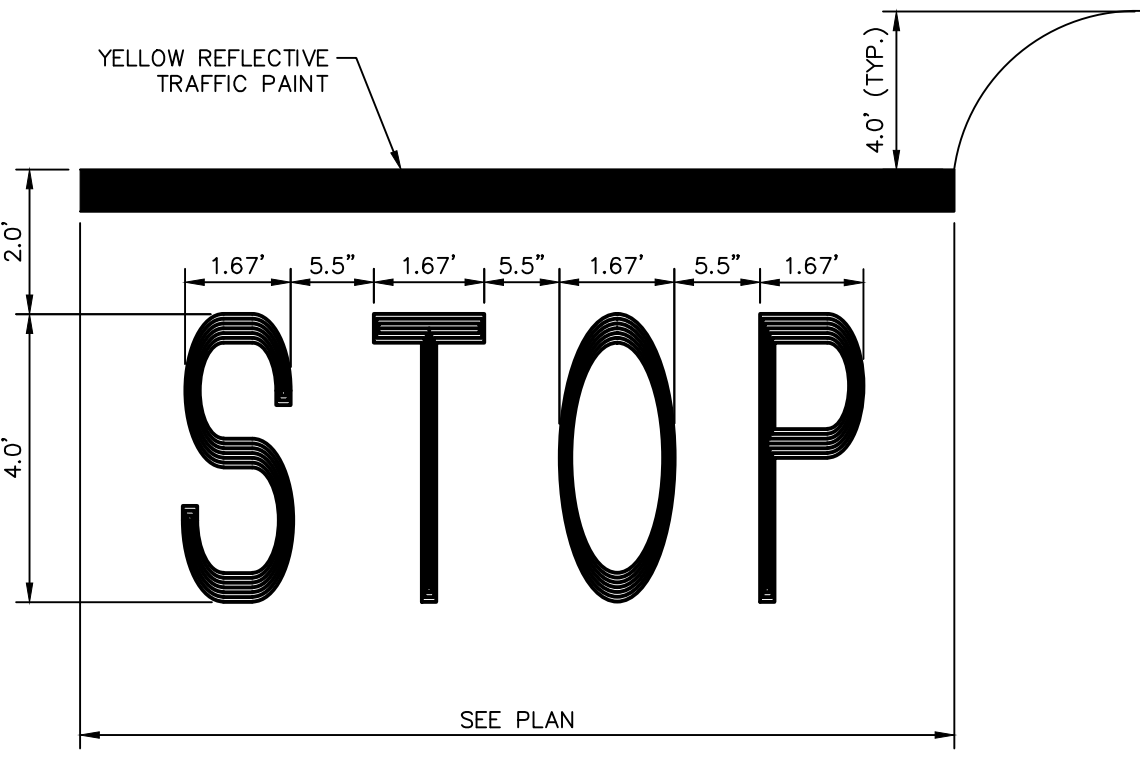
THICKENED EDGE SIDEWALK DETAIL (E) C6.0
(NOT TO SCALE)



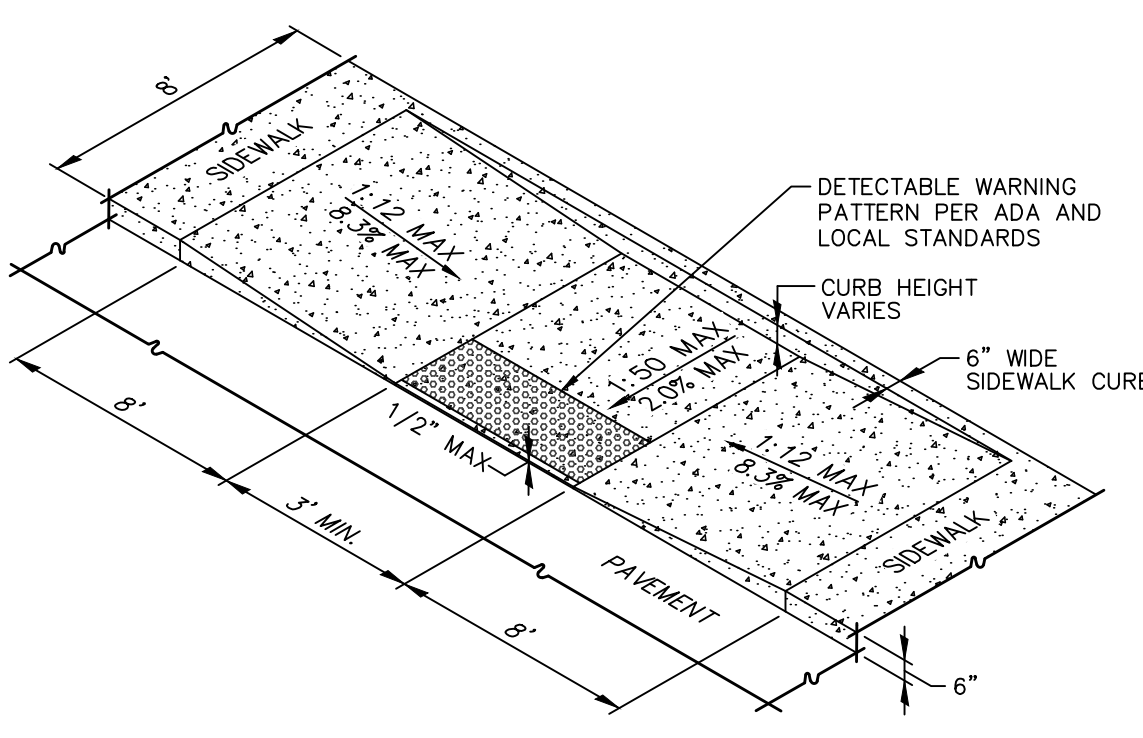
LIGHT DUTY PAVEMENT SECTION



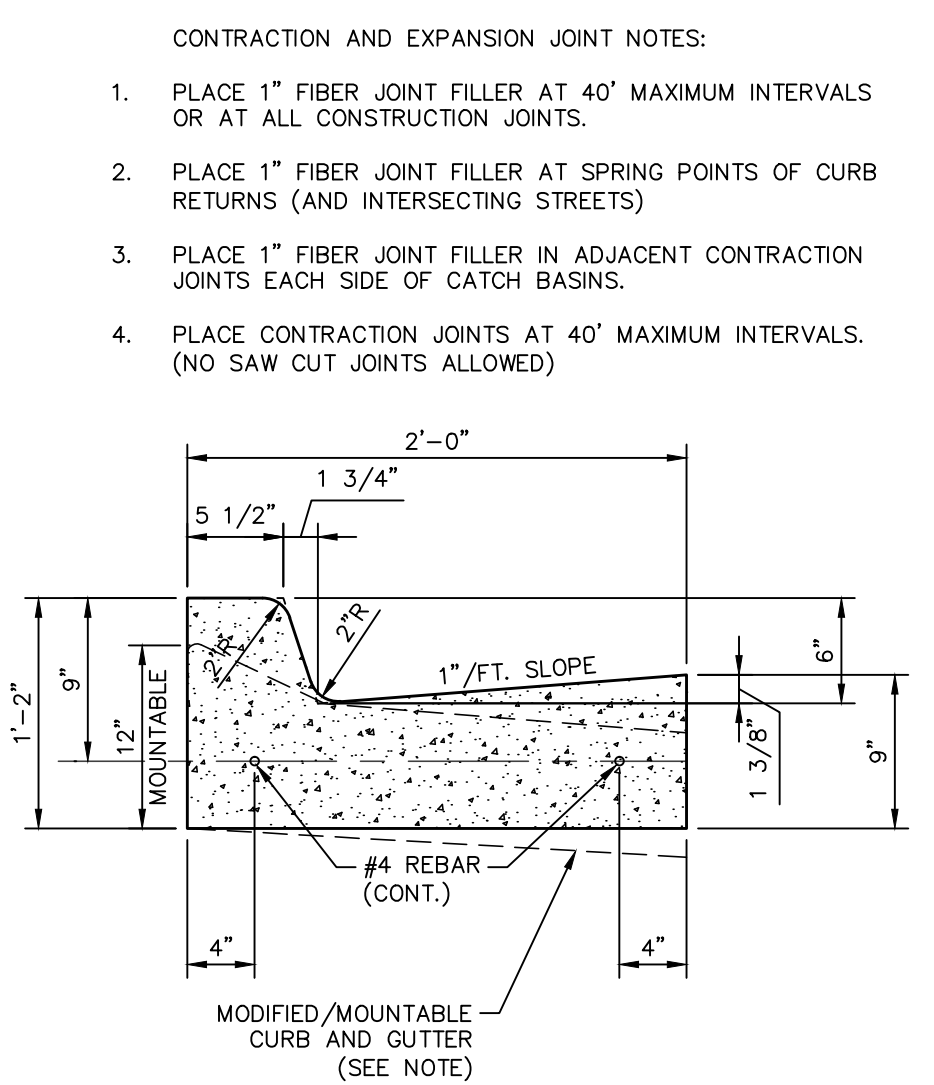
HEAVY DUTY PAVEMENT SECTION



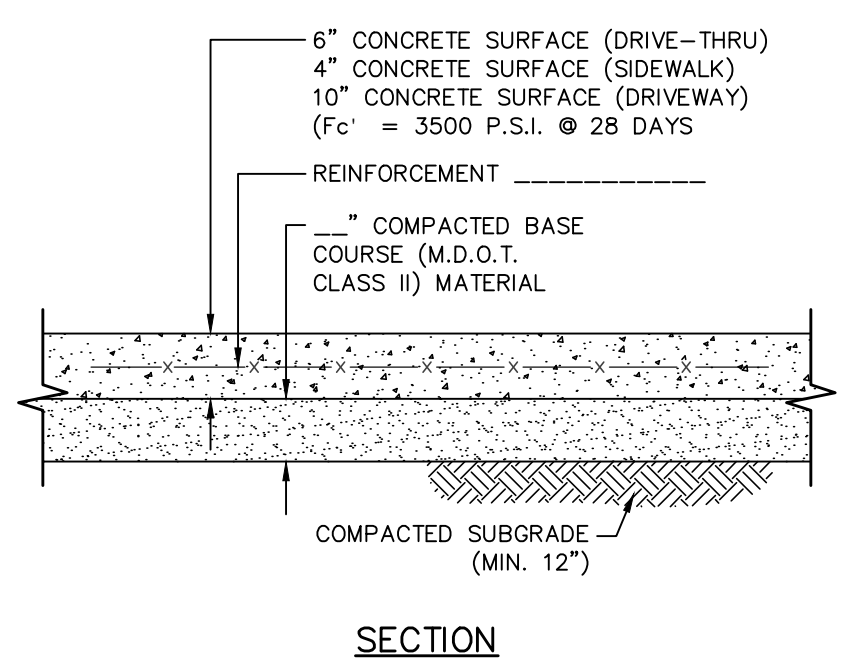
STOP & STOP BAR PAINTING DETAIL (J) C6.0
(NOT TO SCALE)



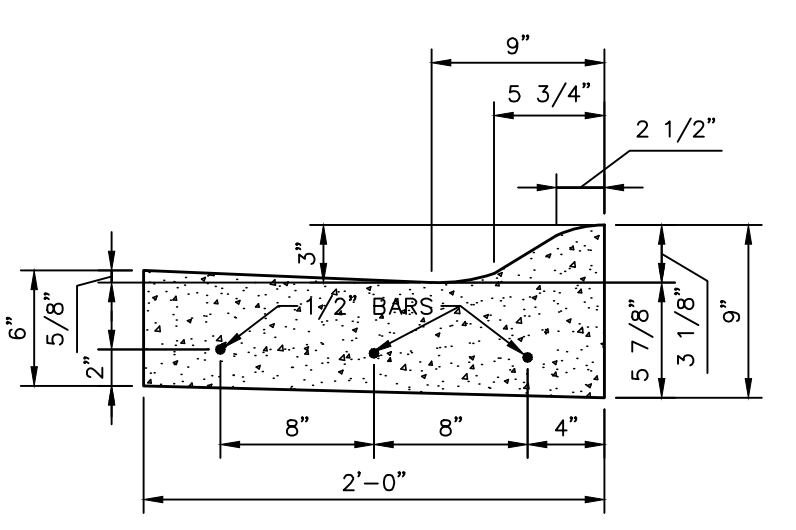
SIDEWALK RAMP (H) C6.0
(NOT TO SCALE)



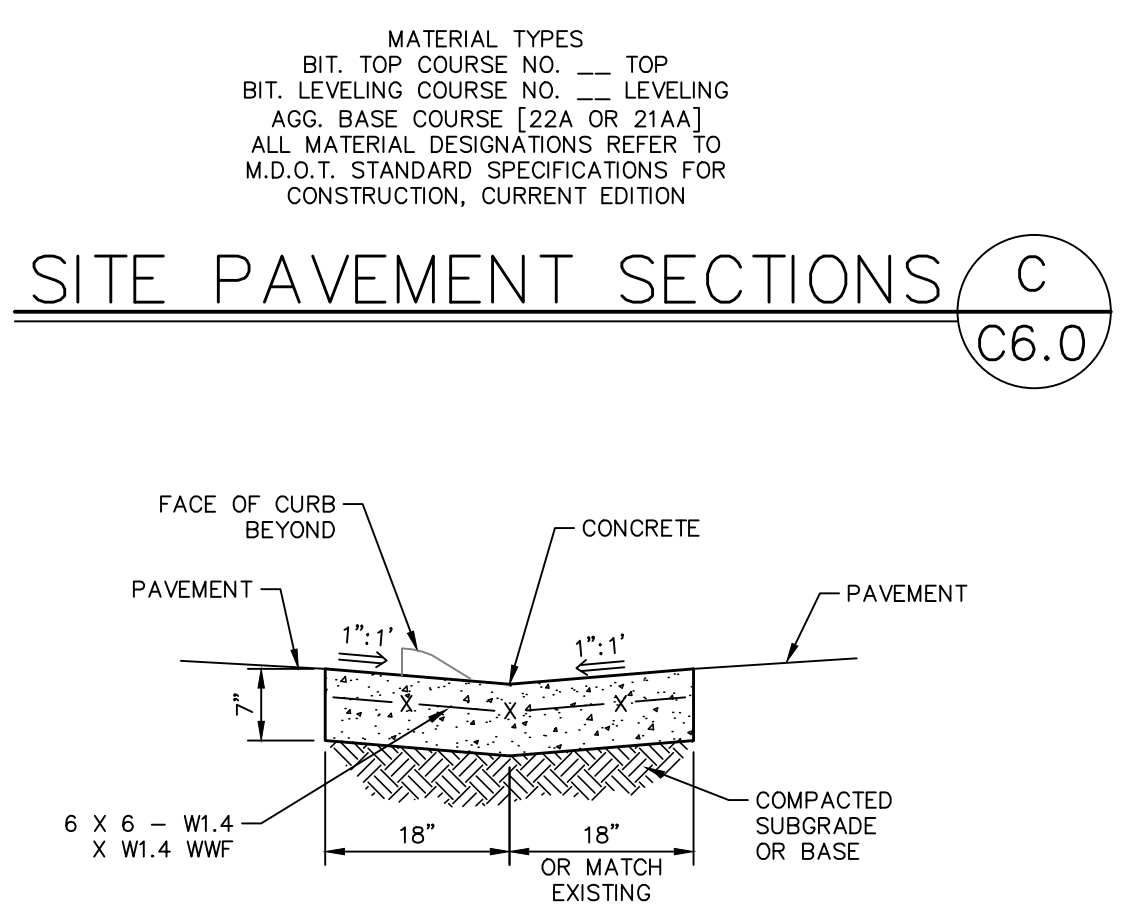
M.D.O.T. F-4 CURB & GUTTER DETAIL (F) C6.0
(NOT TO SCALE)



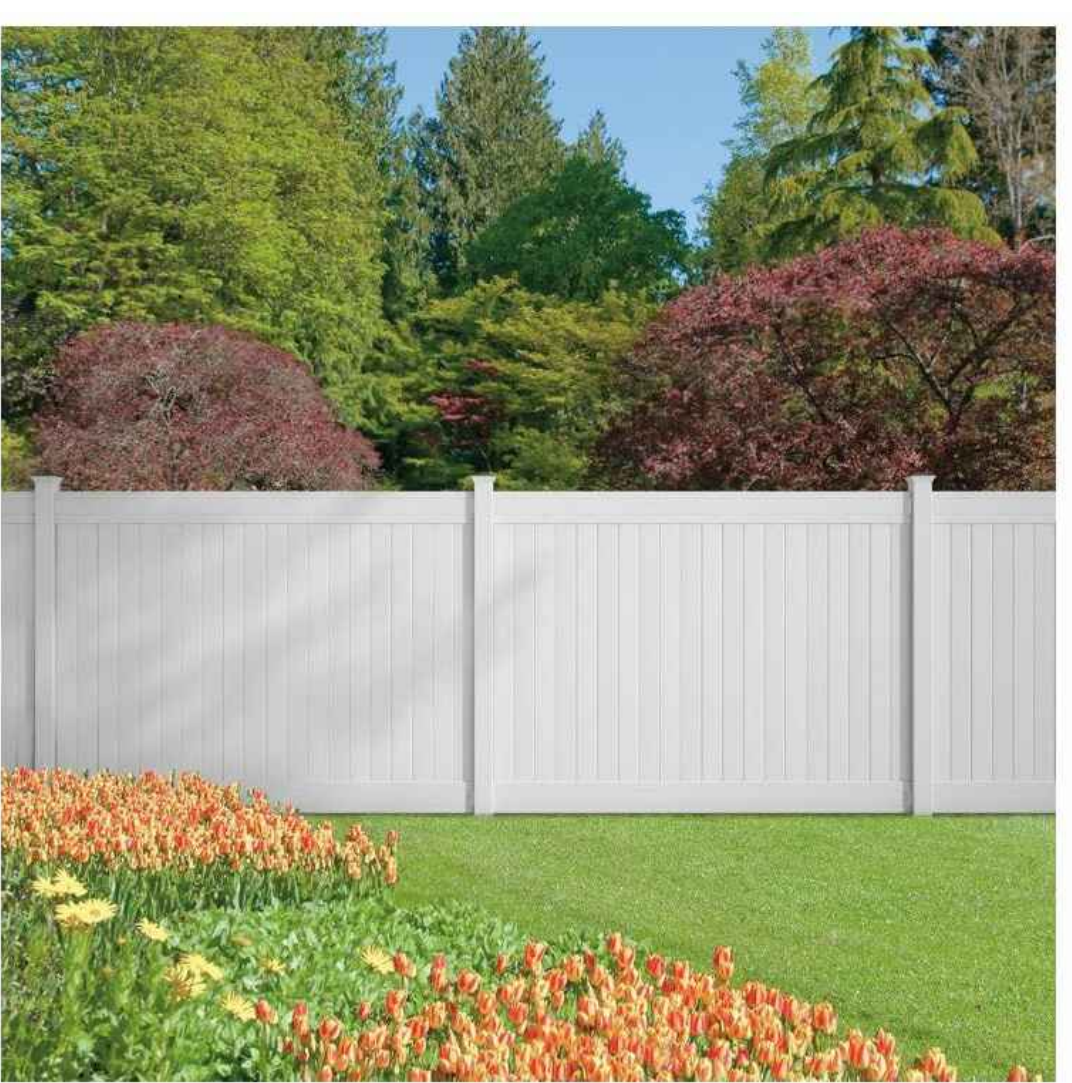
CONCRETE SURFACE (L) C6.0
(NOT TO SCALE)



ROLL CURB & GUTTER (I) C6.0
(TYPICAL CROSS SECTION)

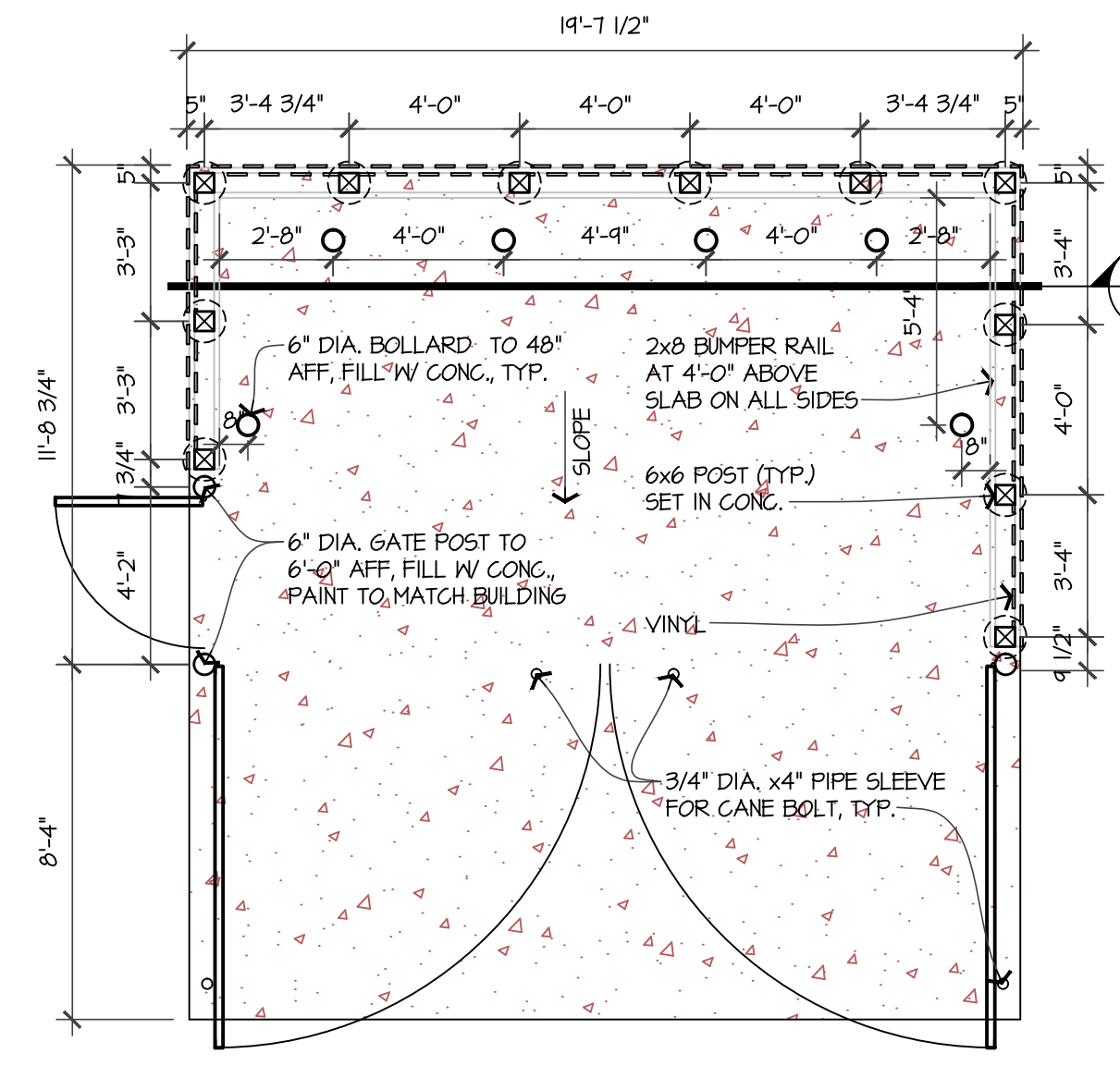


SITE PAVEMENT SECTIONS (C) C6.0
STANDARD VALLEY GUTTER DETAIL (D) C6.0

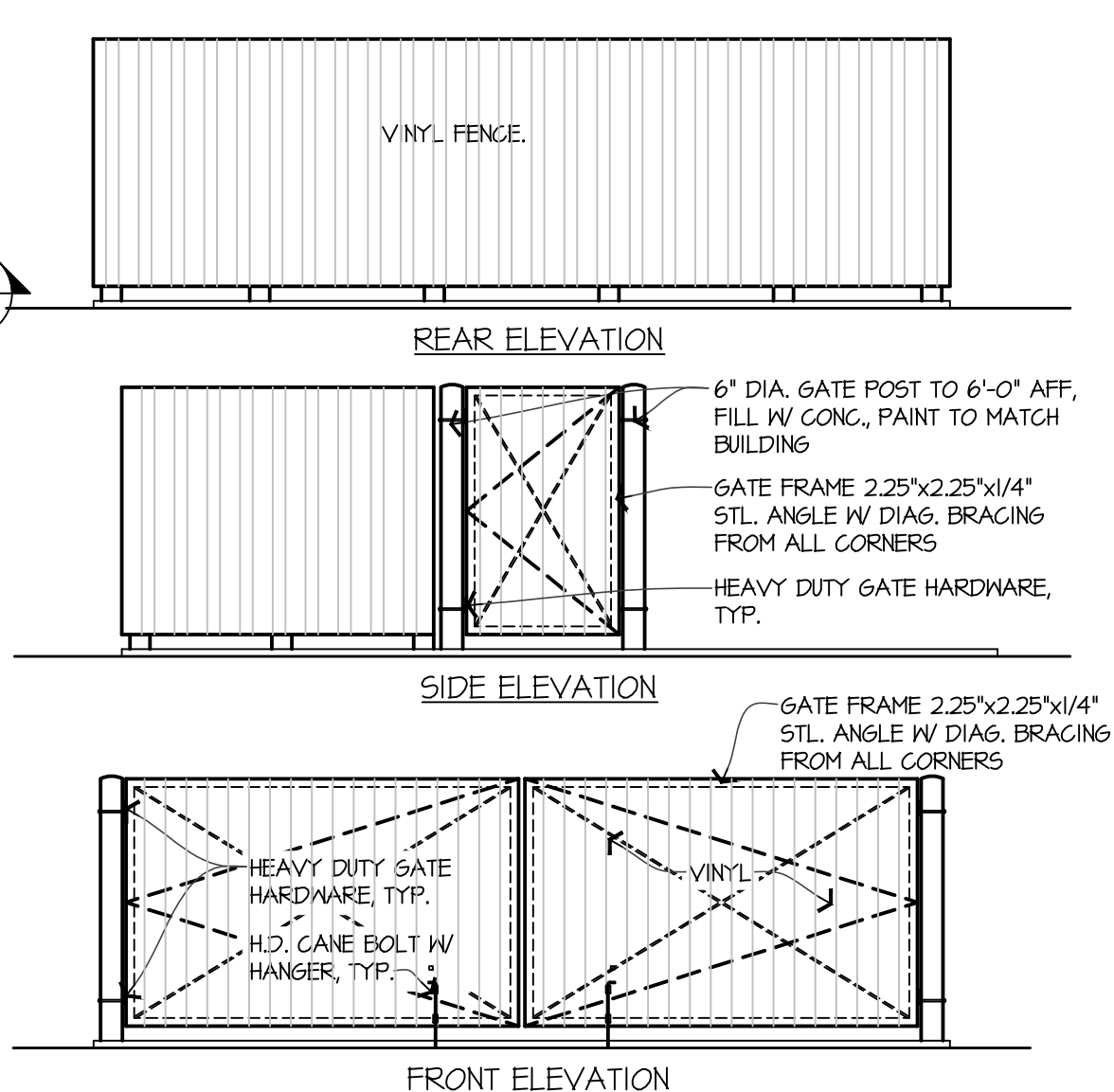


VERANDA DOVER 6' H x 8' W VINYL PRIVACY FENCE PANEL KIT OR EQUAL IF APPROVED BY OWNER AND CITY

FENCE DETAIL (K) C6.0



TRASH ENCLOSURE PLAN (A) C6.0 SCALE: 1/4" = 1'-0"



TRASH ENCLOSURE ELEVATIONS (B) C6.0 SCALE: 1/4" = 1'-0"

NO.	DATE	DESCRIPTION	BY

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ROBERTS REAL ESTATE OF CHARLOTTE
640 E. KALAMO HIGHWAY
CHARLOTTE, MICHIGAN 48813
PHONE: (734) 441-1111

MISCELLANEOUS DETAILS FOR CHARLOTTE DAIRY QUEEN
407 S. COCHRAN AVENUE
CHARLOTTE, MICHIGAN 48813

MISS DIG 811
Know what's below. Call before you dig.

FILE	C6-0.DWG
DESIGNED BY	MLS
DRAWN BY	MLS
CHECKED BY	ADB
DATE	AUGUST 24, 2017
SCALE	N/A
HOR.	N/A
VERT.	N/A
PROJECT NO.	2004
SHEET NO.	C6.0

FILE: L:\2004 (00 CHARLOTTE)\C6 PLANS\C6-0.DWG - PLOT DATE: 8/24/2017 3:14 PM BY: Michelle Shumaker SCALE: 1:1

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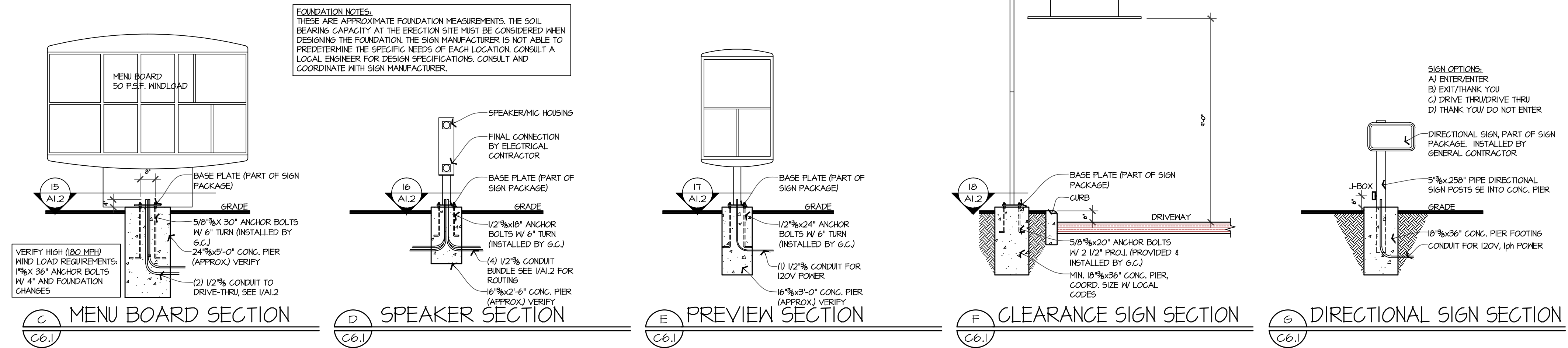
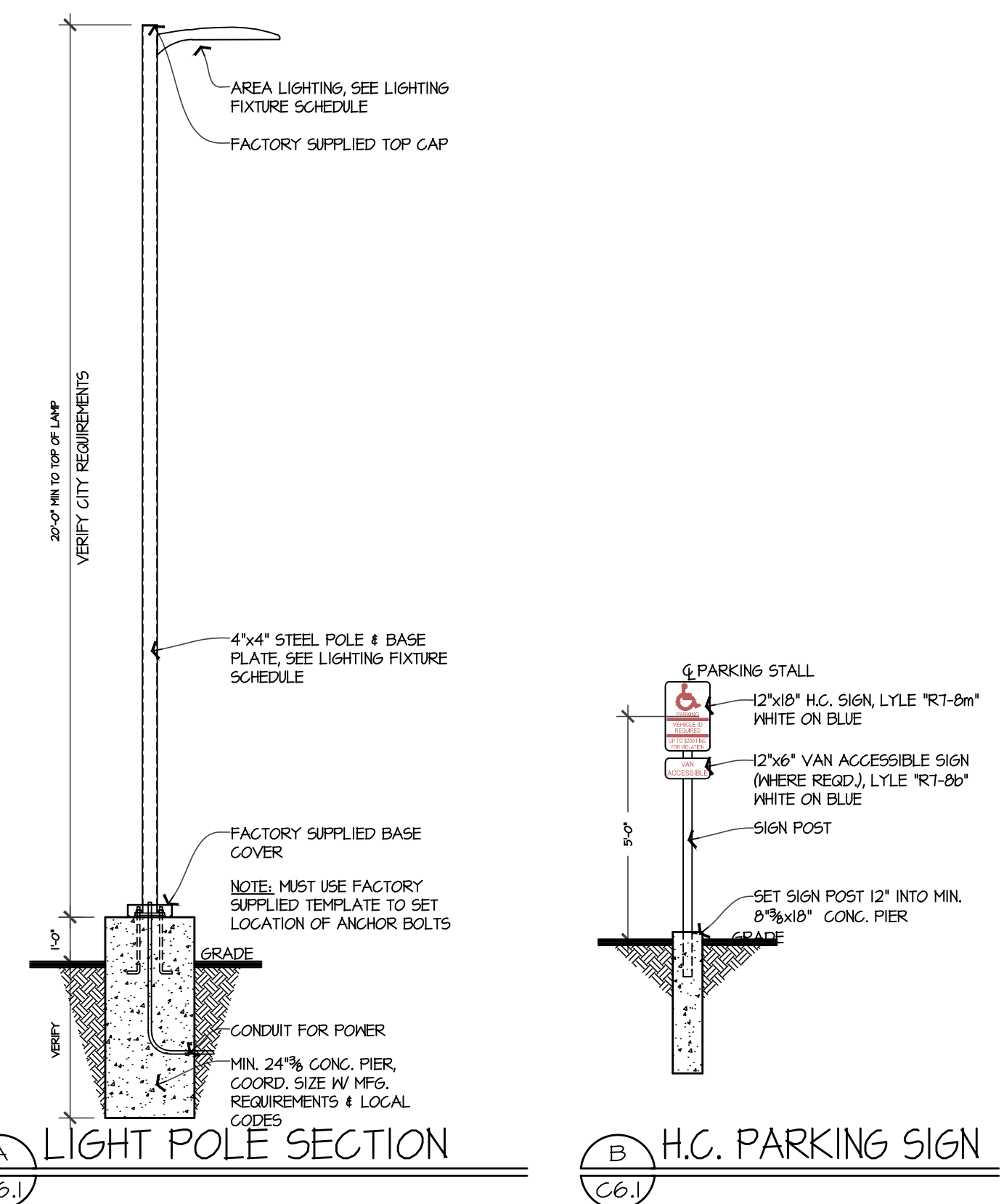
DATE	DESCRIPTION	BY

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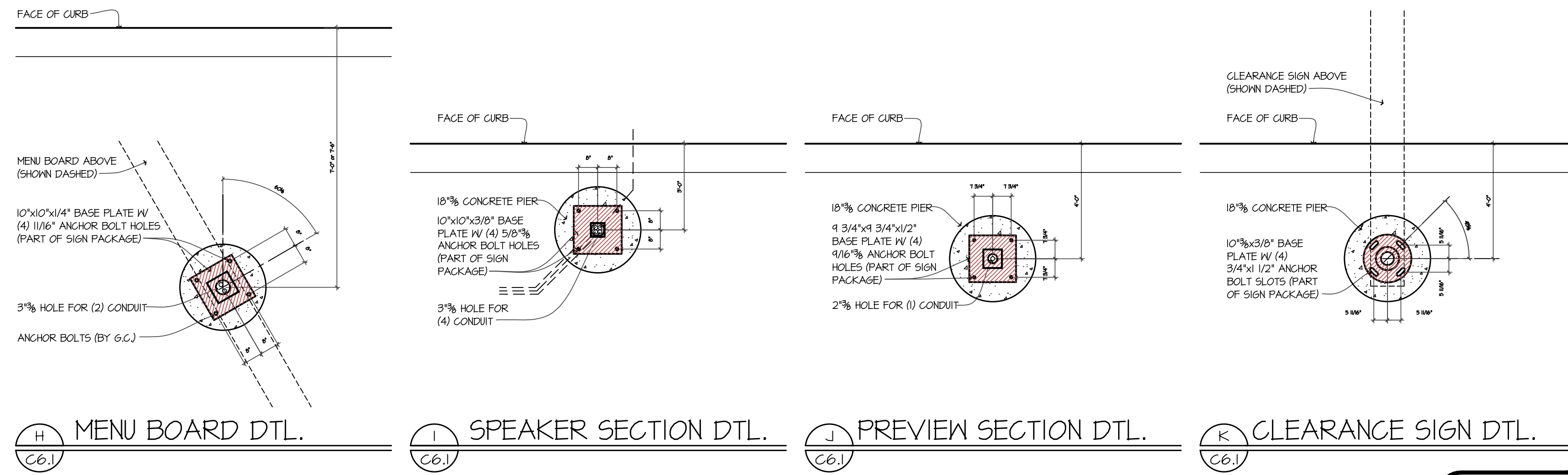
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MICELANEOUS DETAILS
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FOUNDATION NOTES:
THESE ARE APPROXIMATE FOUNDATION MEASUREMENTS. THE SOIL BEARING CAPACITY AT THE ERECTION SITE MUST BE CONSIDERED WHEN DESIGNING THE FOUNDATION. THE SIGN MANUFACTURER IS NOT ABLE TO PREDETERMINE THE SPECIFIC NEEDS OF EACH LOCATION. CONSULT A LOCAL ENGINEER FOR DESIGN SPECIFICATIONS. CONSULT AND COORDINATE WITH SIGN MANUFACTURER.



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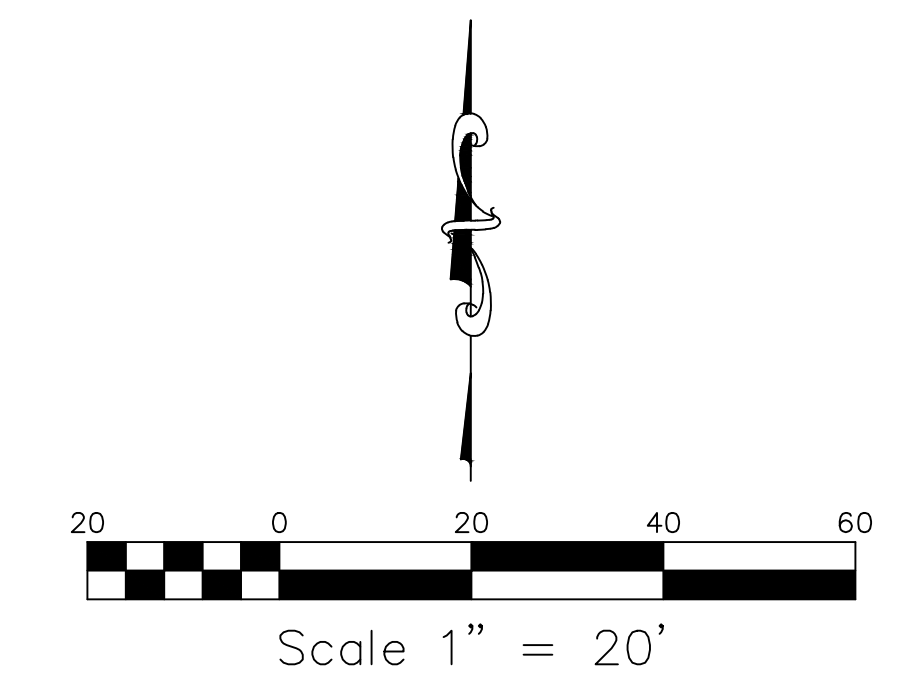
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DESIGNED BY	MLS
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DATE	AUGUST 24, 2017
SCALE	N/A
HOR.	N/A
VERT.	N/A
PROJECT NO.	2004
SHEET NO.	C6.1

COCHRAN AVENUE (HIGHWAY M-50) (US-27 B.R.)
(VARIABLE WIDTH PUBLIC R.O.W.)

Quantity	Key	Botanical	Common	Size
DECIDUOUS CANOPY				
3	QR	Quercus robur 'Fastigiata'	Columnar English Oak	25'
1	AR	Acer rubrum 'Red Sunset'	Red Sunset Maple	25'
EVERGREEN				
3	PS	Pinus strobus	Eastern White Pine	7'
6	PD	Pinus amabilis	Serbian Spruce	7'
SHRUBS				
14	BB	Euonymus alatus 'Compactus'	Compact Burning Bush	#3 Container
12	TD	Thuja occidentalis 'Smaragd'	Emerald Green Arborvite	#3 Container

LANDSCAPE REQUIREMENTS

AREA	REQUIRED	PROPOSED
PARKING LOT		
1 CANOPY TREE PER 20 PARKING SPACES	2 TREES	2 TREES (30 SPACES)
GREENBELT		
1 TREE/75 LINEAL FEET OF FRONTAGE	2 TREES	1 TREE (105' FRONTAGE)
4 SHRUBS PER 20 LINEAL FEET OF FRONTAGE	24 SHRUBS	24 SHRUBS (105' FRONTAGE)
SCREENING BETWEEN LAND USES		
1 TREE/75 FEET OF SHARED LOT LINE	NORTH BUILDING 2 TREES NORTH PARKING 4 TREES SOUTH BUILDING 3 TREES	0 TREES (156') 6 TREES (246') 3 TREES (160')
BUILDING FRONT AND INTERIOR		
5% OF TOTAL BUILDING MAIN FLOOR AREA	98 SF	600 SF EAST OF BUILDING (1,969 SF)
1 TREE/1,000 SF INTERIOR LANDSCAPE AREA	1 TREE	1 TREE
1 SHRUB/250 SF INTERIOR LANDSCAPE AREA	1 SHRUB	2 SHRUBS

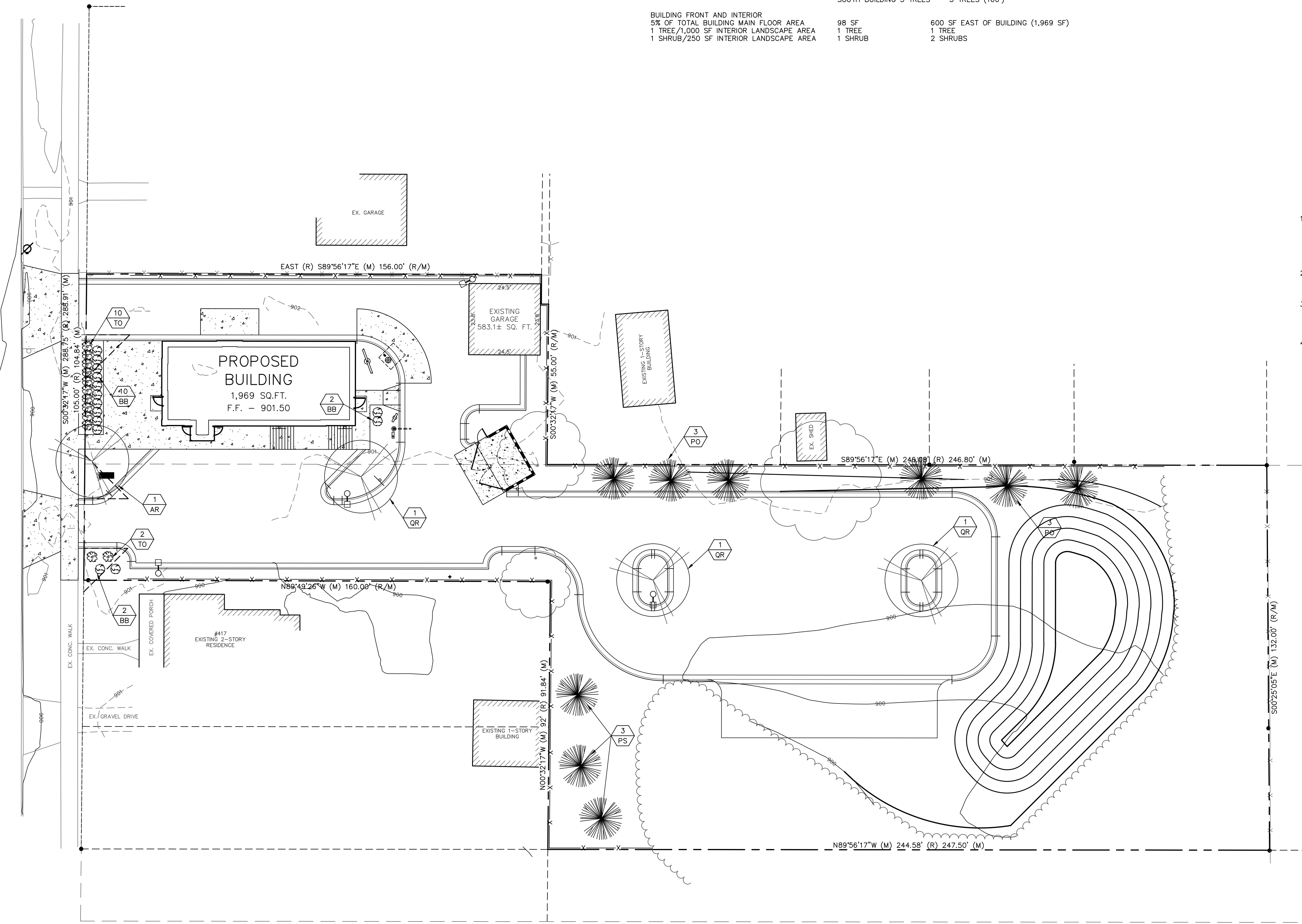


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LEGEND

- PLANT QUANTITY → 10 MS
- PLANT ABBREVIATION → 10 MS
- DECIDUOUS TREES → 10 MS
- EVERGREEN TREE → 10 MS
- SHRUBS → 10 MS
- TREES/SHRUBS TO BE REMOVED → 10 MS



DATE	DESCRIPTION	BY

LSG
Engineers & Surveyors

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PREPARED FOR:
ROBERTS REAL ESTATE
OF CHARLOTTE
640 E. KALAMO HIGHWAY
CHARLOTTE, MICHIGAN 48813
PHONE: _____

PROPOSED LANDSCAPE PLAN
FOR
CHARLOTTE DAIRY QUEEN
407 S. COCHRAN AVENUE
CHARLOTTE, MICHIGAN 48813

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DRAWN BY	MLS
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