GREEN OAK CHARTER TOWNSHIP

10001 Silver Lake Road, Brighton Michigan 48116
(810) 231-1333 FAX (810) 231-5080

Regular Board Meeting, February 19, 2025, at 7:00 p.m.

1. Call to Order
2. Pledge of Allegiance to Flag
3. Roll Call of the Board
4. Approval of the Agenda
5. Call to the Public: Comment on **Agenda Related Items Only**
6. Consent Agenda
    a) Approval of February 5, 2025, Regular Board Meeting Minutes
    b) Approval of the submitted bills list: $326,488.64
7. Department Head Reports & Request:
8. Correspondence: As needed
9. Business Items:
    a) Appeal, FOIA #181-24
    b) Approval or Denial of the Costco Gas Station Relocation and the proposed Amendment to the Planned Unit Agreement for Costco # 4716-05-300-074. 4716-05-300-076 and 4716-05-300-040
    c) Compensation Commission Recommendation
10. Discussion: As needed
11. Committee Reports: As needed.
12. Executive Session: As needed.
13. Call to the Public
14. Adjournment

GREEN OAK CHARTER TOWNSHIP

BOARD POLICY

Subject: Public Comment

Date adopted:	**AMENDED:**
October 7, 1997	December 2, 2020

Reason:

To set a procedure for public comment which is equitable to all citizens who wish to comment at Public meetings and to form a policy that promotes orderly conduct of business by the Township Board.

Call to the Public:

1. Public Comment is limited to Call to the Public section on the agenda.

2. Call to the Public is limited to three (3) minutes per speaker, unless otherwise determined by the Township Board based on the number of persons wishing to speak.

3. Written material should be presented to the Township Board rather than read if it would exceed the 3-minute limit.

4. Comments and questions are to be addressed to the Chairperson, rather than to other individuals in the audience.

Citizen Participation during Electronic Meetings:

During Township Board meetings conducted electronically, members of the public attending the meeting, once recognized by the chair, shall identify themselves for the record and indicate whether they are a Township resident. Comments by the public will be limited in the same manner as provided for audience comment for non-electronic meetings to three minutes for each speaker unless the time is extended by the chair or by vote of the Board. Comments by the public during meetings held electronically will be limited to the Audience Comment portion of the meeting.

Public Hearing:

1. Comment is limited to three (3) minutes per speaker, unless otherwise determined by the Township Board based on the number of persons wishing to speak.

2. Written material should be presented to the Township Board rather than read if it would exceed the three (3) minute limit.

3. Comments and questions are to be addressed to the Chairperson, rather than to other individuals.

Green Oak Charter Township
Board of Trustees
Regular Meeting Minutes
February 5, 2025

The meeting was called to order at 7:00 p.m. by Supervisor St. Charles.

Roll Call: Randall Brake, Trustee
Tracey Edry, Trustee
Daniel Rainko, Trustee
Michael Sedlak, Clerk
Mark St. Charles, Supervisor
James Tuthill, Trustee
Tricia Wiggle-Bazzy, Treasurer

Guests: 0

APPROVAL OF AGENDA

Motion by Tuthill, second by Edry
To approve the agenda as amended.

Voice Vote: Ayes: Unanimous
Nays: None

MOTION APPROVED

PUBLIC COMMENT - None

APPROVAL OF CONSENT AGENDA

1) Approval of the January 15, 2025 Regular Board Meeting Minutes
2) Approval of the submitted bills list: $1,148,537.26

Motion by Wiggle-Bazzy, second by Rainko
To approve the Consent Agenda as presented.

Voice Vote: Ayes: Unanimous
Nays: None

MOTION APPROVED

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DEPARTMENT HEAD REPORTS

Treasurer – Treasurer Wiggle-Bazzy reported they have about 9 days left of tax collection, the due date is February 14, and the Township will be open. Utility bills are due tomorrow. She met with a few people to look at saving money for residents with regard to payment processing.

Clerk – None

Supervisor – Supervisor St. Charles reported in the last 2 weeks, they had to replace an older furnace at the old Township Hall. They had the bladder tank for the well to replace as well, they pretty much wiped out their funds from the budget this year.

They are looking for a Director for the Center for Active Adults, applicants can inquire through the South Lyon School District.

He met with the HOA from Stone Ridge regarding their sanitary sewer plant and laid out the ground rules. They conveyed to the HOA in any event, if EGLE citations come with the deal, there is no deal.

He received another request from Oakwood Meadows to refresh the numbers to repave their roads.

He read an application from Boss Engineering regarding a flood plain for Mr. Duncan.

CORRESPONDENCE – None

BUSINESS ITEMS

A. Resolution Number 01-2025, to Transfer Police Budget Funds 2024-2025

Clerk Sedlak explained this is a budgeted line item.

Motion by Sedlak, second by Rainko
To adopt Resolution 01-2025 a Resolution to transfer yearly budgeted police funds.

Roll Call Vote: Ayes: Unanimous
Nays: Nays

MOTION APPROVED

B. IMEG Proposal EQ Basin Odor Control

Supervisor St. Charles referenced his memo. He explained as they have previously discussed at the board table, they have been looking for the source of the odors in and

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around the wastewater Treatment Plant (WWTP). They have resealed the EQ tank, adjusted the timers of the processing, have invested in three updated new hi efficiency blowers for the SBR tanks and have resolved several sanitary system collection line issues within the Hidden Lake Subdivision. The problem is the H2S and the positive pressure within the EQ tank and relying on the 4 carbon filters on top of the tank.

The Township requested IMEG and Kennedy Industries to work with our operator to find a solution to the odor complaints. The first measurements of the H2S were conducted. The solution is a Syneco, Peacemaker Dry Air Scrubber. It is a simple process which will remove the 4 carbon filters and utilize two of the openings to vent H2S into the scrubber, through the media and resolve the odor complaints.

There are two parts to the quote, the air scrubber and installation. Total cost of the scrubber and installation is $156,950. The Utility committee is recommending the approval of this proposal and to budget and install this after April 1, 2025.

Supervisor St. Charles commented he can put the warranty with the documents. He noted there is a long-life span. He noted they will have to budget every 3 years, it's part of running the system.

Clerk Sedlak questioned maintaining a negative pressure inside the EQ tank, he asked how many inches of water with negative pressure will it maintain. He also questioned how many CFM is the motor? Trustee Edry noted the CFM is 600.

Motion by Wiggle-Bazzy, second by Tuthill
To accept the recommendation of the Utility Committee and approve the proposal for Odor Control from IMEC and Midwest Power not to exceed $156,950 and this expenditure will be incorporated in Fund 490 Capital Improvements for the 2025-2026 Budget after April 1, 2025

Roll Call Vote: Ayes: Unanimous
Nays: Nays

MOTION APPROVED

C. Replacement E/ONE Grinder Pumps

Supervisor St. Charles explained their stock of replacement Grinder pumps is down to zero. They will need to place another order which should get them through the fiscal year in which they will budget additional pumps in the upcoming year. Many of the pumps that are failing now are at 20 years of age, which is past their normal life cycle. The utility committee has authorized this expenditure and would wish a concurrence or a motion authorizing this expenditure. This expenditure is containable in fund 490 for this year without a budget amendment.

Motion by Sedlak, second by Edry

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To concur and approve the utility committee's authorization for the replacement order of E/ONE grinder pumps per quote #222530 in the amount of $57,000.00.

Roll Call Vote: Ayes: Unanimous
Nays: Nays

MOTION APPROVED

D. Resolution Number 02-2025, First Resolution Regarding Certain Proposed Weed Control Improvements for Mirror Lake Weed Control Improvements Special Assessment District 2025

Supervisor St. Charles explained he received the petitions and those were certified. The required percentage was obtained. To move forward, this is a simple weed control SAD.

Motion by Rainko, second by Brake
To approve Resolution 02-2025 Adoption Supported First Resolution Regarding Certain Proposed Weed Control Improvements for Mirror Lake Weed Control Improvements Special Assessment District 2025.

Roll Call Vote: Ayes: Unanimous
Nays: None

MOTION APPROVED

E. Set Public Hearing for Proposed 2025/2026 Budget

Motion by Edry, second by Tuthill
To set the date for the public hearing for the 2025-2026 Budget for March 5, 2025, at 7:00 pm as part of our regular scheduled meeting.

Voice Vote: Ayes: Unanimous
Nays: None

MOTION APPROVED

Supervisor St. Charles reviewed the new layout and spreadsheet with the Board for the budget.

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DISCUSSION

Treasurer Wiggle-Bazzy explained the Axe my Tax is coming back into the mix again for 2026. There are a lot of things happening and she will be keeping an eye on things, it was a lot to take in.

Supervisor St. Charles noted he is keeping an eye on House Bill 4002 regarding sick leave payment and the tracking of it. It was changed in the House, and the Senate has come up with their version which is slightly different. He wants to know if they are taking action on it since it should go into effect 2/21/25. He can't get a response from the Senator.

He also noted the monitoring wells are being tested for PFAS and PFOS.

COMMITTEE REPORTS – None

EXECUTIVE SESSION – None

CALL TO THE PUBLIC - None

ADJOURNMENT

The Board of Trustees meeting was adjourned at 7:45 p.m. due to no further business.

Respectfully Submitted,

Kellie Angelosanto
Recording Secretary

Approved as submitted February 19, 2025.

_____	_____
Michael H. Sedlak, MiPMC, CMC	Mark St. Charles
Township Clerk	Township Supervisor

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Bills List

$326,488.64

CHECK PROOF FOR GREEN OAK TOWNSHIP

BANK ACCOUNT CODE: DISP - CHECK DATE: 02/12/2025
INVOICE EXPECTED CHECK RUN DATE 02/12/2025 - 02/12/2025

Check Date	Bank	Check #	Vendor Code	Vendor Name	Invoice Total	Credit Total	Total Amount	# Invoices
02/12/2025	DISP	00000075602	123.NET	123.NET, INC	1,109.84	0.00	1,109.84	1
02/12/2025	DISP	00000075603	ABSOPURE	ABSOPURE WATER COMPANY	57.20	0.00	57.20	2
02/12/2025	DISP	00000075604	ACE	GREAT LAKES ACE HARDWARE	168.79	0.00	168.79	1
02/12/2025	DISP	00000075605	ADP, INC	ADP, INC.	498.20	0.00	498.20	1
02/12/2025	DISP	00000075606	ALLSTAR	ALLSTAR ALARM LLC	2,746.89	0.00	2,746.89	1
02/12/2025	DISP	00000075607	AMERICAN A	AMERICAN AWARDS & ENGRAVING	36.00	0.00	36.00	1
02/12/2025	DISP	00000075608	APPLIED IN	APPLIED INNOVATION	563.44	0.00	563.44	2
02/12/2025	DISP	00000075609	AUTO VALUE	AUTO-WARES GROUP	1,267.62	0.00	1,267.62	4
02/12/2025	DISP	00000075610	BOB'S	BOB'S TIRE & AUTO SERVICE INC.	64.49	0.00	64.49	1
02/12/2025	DISP	00000075611	BOUND TREE	BOUND TREE MEDICAL, LLC	1,581.39	0.00	1,581.39	8
02/12/2025	DISP	00000075612	BREVALLE	BREVALLE PROPERTIES LLC	6,100.00	0.00	6,100.00	1
02/12/2025	DISP	00000075613	BRIGHTAUTO	BRIGHTON AUTO REPAIR	113.42	0.00	113.42	1
02/12/2025	DISP	00000075614	C & L LAND	C & L LANDSCAPE, INC.	2,800.00	0.00	2,800.00	1
02/12/2025	DISP	00000075615	CHARTER CO	CHARTER COMMUNICATIONS	417.14	0.00	417.14	2
02/12/2025	DISP	00000075616	CHASE JPM	JPMORGAN CHASE BANK NA	43,268.67	0.00	43,268.67	1
02/12/2025	DISP	00000075617	CLS	CLS	97.65	0.00	97.65	1
02/12/2025	DISP	00000075618	COLLINS, J	JAMES W. COLLINS	635.00	0.00	635.00	1
02/12/2025	DISP	00000075619	COMFORT ME	COMFORT MECHANICAL LLC	5,525.00	0.00	5,525.00	1
02/12/2025	DISP	00000075620	CONSTELL	CONSTELLATION NEW ENERGY, INC.	4,222.05	0.00	4,222.05	1
02/12/2025	DISP	00000075621	CONSUMERS	CONSUMERS ENERGY	10,885.57	0.00	10,885.57	12
02/12/2025	DISP	00000075622	CORRIGAN	CORRIGAN	737.96	0.00	737.96	1
02/12/2025	DISP	00000075623	CRYSTAL	CRYSTAL GLASS INC	1,550.00	0.00	1,550.00	1
02/12/2025	DISP	00000075624	CSI LEASIN	CSI LEASING, INC.	4,095.97	0.00	4,095.97	3
02/12/2025	DISP	00000075625	CUMMINS SA	CUMMINS INC	1,172.26	0.00	1,172.26	2
02/12/2025	DISP	00000075626	D'ANGELO	D'ANGELO BROTHERS INC.	7,855.00	0.00	7,855.00	1
02/12/2025	DISP	00000075627	DART TEAM	DART	125.50	0.00	125.50	1
02/12/2025	DISP	00000075628	DIGICOM	DIGICOM GLOBAL INC.	18.00	0.00	18.00	1
02/12/2025	DISP	00000075629	DRAGON	DRAGON UNDERGROUND LLC	576.00	0.00	576.00	1
02/12/2025	DISP	00000075630	DTE ENER	DTE ENERGY	1,582.00	0.00	1,582.00	1
02/12/2025	DISP	00000075631	DTE ENERGY	DTE ENERGY	13.99	0.00	13.99	1
02/12/2025	DISP	00000075632	DU BOIS-CO	DU BOIS-COOPER ASSOCIATES, INC	5,767.00	0.00	5,767.00	1
02/12/2025	DISP	00000075633	ECTO HR	ECTO HR, INC	6,799.00	0.00	6,799.00	5
02/12/2025	DISP	00000075634	ER VEHICLE	EMERGENCY VEHICLES PLUS	3,131.78	0.00	3,131.78	2
02/12/2025	DISP	00000075635	EWS	ENVIRONMENTAL WOOD SOLUTIONS	95.00	0.00	95.00	1
02/12/2025	DISP	00000075636	FALLERT	FALLERT CONTRACTING LLC	1,315.00	0.00	1,315.00	1
02/12/2025	DISP	00000075637	FELDMAN	FELDMAN CHEVROLET OF NEW HUDSON	104.99	0.00	104.99	2
02/12/2025	DISP	00000075638	FIRE SAVVY	FIRE SAVVY CONSULTANTS & SERVICES	3,100.00	0.00	3,100.00	2
02/12/2025	DISP	00000075639	FLEETPRIDE	FLEETPRIDE	185.01	0.00	185.01	2
02/12/2025	DISP	00000075640	FRAGALE, J	JOHN FRAGALE	25.00	0.00	25.00	1
02/12/2025	DISP	00000075641	FRANK RE	FRANK REWOLD AND SON, INC.	129,802.55	0.00	129,802.55	1
02/12/2025	DISP	00000075642	G2 CONSULT	G2 CONSULTING GROUP, LLC	750.00	0.00	750.00	1
02/12/2025	DISP	00000075643	GALLS	GALLS, LLC	172.53	0.00	172.53	3

CHECK PROOF FOR GREEN OAK TOWNSHIP

BANK ACCOUNT CODE: DISP - CHECK DATE: 02/12/2025
INVOICE EXPECTED CHECK RUN DATE 02/12/2025 - 02/12/2025

Check Date	Bank	Check #	Vendor Code	Vendor Name	Invoice Total	Credit Total	Total Amount	# Invoices
02/12/2025	DISP	00000075644	GOFFUL80	GREEN OAK FIREFIGHTERS LOCAL 80	1,515.00	0.00	1,515.00	1
02/12/2025	DISP	00000075645	HALT	HALT FIRE	892.12	0.00	892.12	2
02/12/2025	DISP	00000075646	HEALTHJOY	HEALTHJOY	342.02	0.00	342.02	1
02/12/2025	DISP	00000075647	HIGHLAND T	HIGHLAND TREATMENT INC.	11,475.03	0.00	11,475.03	1
02/12/2025	DISP	00000075648	HVG	HURON VALLEY GUNS	18.00	0.00	18.00	1
02/12/2025	DISP	00000075649	JAX	JAX KAR WASH	168.00	0.00	168.00	1
02/12/2025	DISP	00000075650	K LECHT	KAITLYN LECHTANSKI	350.00	0.00	350.00	1
02/12/2025	DISP	00000075651	KANGAS, R	RICK KANGAS	1,381.25	0.00	1,381.25	1
02/12/2025	DISP	00000075652	LLCLEANING	DAVID PERKETT	5,049.26	0.00	5,049.26	2
02/12/2025	DISP	00000075653	LUMENSERVE	LUMENSERVE	477.00	0.00	477.00	1
02/12/2025	DISP	00000075654	MAA	MICHIGAN ASSESSORS ASSOCIATION	95.00	0.00	95.00	1
02/12/2025	DISP	00000075655	MANN IT	MANN INFORMATION TECHNOLOGY	1,003.00	0.00	1,003.00	1
02/12/2025	DISP	00000075656	MAP	MICHIGAN ASSOCIATION OF POLICE	1,078.88	0.00	1,078.88	1
02/12/2025	DISP	00000075657	MARTIN'S D	MARTIN'S DO IT BEST HARDWARE	101.37	0.00	101.37	5
02/12/2025	DISP	00000075658	MES	MUNICIPAL EMERGENCY SERVICES	4,331.78	0.00	4,331.78	2
02/12/2025	DISP	00000075659	MYERS	MYERS GROUP ENTERPRISES LLC	1,441.00	0.00	1,441.00	1
02/12/2025	DISP	00000075660	NAEMT/PHTL	NAEMT/PHTLS	180.00	0.00	180.00	1
02/12/2025	DISP	00000075661	NORTHERN	NORTHERN TOOL & EQUIPMENT	412.94	0.00	412.94	2
02/12/2025	DISP	00000075662	NORTHFIELD	NORTHFIELD TOWNSHIP	211.22	0.00	211.22	4
02/12/2025	DISP	00000075663	O'REILLY A	O'REILLY AUTO PARTS	138.59	0.00	138.59	2
02/12/2025	DISP	00000075664	OFFICE DEP	OFFICE DEPOT	186.76	28.32	158.44	4##
02/12/2025	DISP	00000075665	OGLE, D.R.	DONALD RICHARD OGLE JR.	25.00	0.00	25.00	1
02/12/2025	DISP	00000075666	PARAGON	PARAGON BRIDGE WORKS	19,601.31	0.00	19,601.31	1
02/12/2025	DISP	00000075667	PETER'S	PETER'S TRUE VALUE HARDWARE	31.98	0.00	31.98	2
02/12/2025	DISP	00000075668	PIETILA, D	DON PIETILA	675.00	0.00	675.00	1
02/12/2025	DISP	00000075669	PRO-TECH	PRO-TECH	6,668.00	0.00	6,668.00	4
02/12/2025	DISP	00000075670	R LECHT	ROBERT LECHTANSKI	350.00	0.00	350.00	1
02/12/2025	DISP	00000075671	ROLLISON,K	KORY D. ROLLISON	422.67	0.00	422.67	1
02/12/2025	DISP	00000075672	RSLI	RELIANCE STANDARD LIFE INS COMPANY	935.24	0.00	935.24	1
02/12/2025	DISP	00000075673	SOHN	SOHN LINEN SERVICE, INC.	71.98	0.00	71.98	1
02/12/2025	DISP	00000075674	STAPLES	STAPLES	991.07	0.00	991.07	3
02/12/2025	DISP	00000075675	STRYKER	STRYKER SALES CORPORATION	534.30	0.00	534.30	1
02/12/2025	DISP	00000075676	THIN BLUE	THIN BLUE LINE OF MICHIGAN	10.00	0.00	10.00	1
02/12/2025	DISP	00000075677	TOWING	CORRIGAN TOWING	504.05	0.00	504.05	1
02/12/2025	DISP	00000075678	TRI COUNTY	TRI COUNTY SUPPLY, INC.	387.09	0.00	387.09	2
02/12/2025	DISP	00000075679	VOLGER, M	MARK VOLGER	350.00	0.00	350.00	1
02/12/2025	DISP	00000075680	VZW	VERIZON WIRELESS	1,681.19	0.00	1,681.19	1
02/12/2025	DISP	00000075681	WASTE MGT	WM CORPORATE SERVICES, INC.	904.51	0.00	904.51	1
02/12/2025	DISP	00000075682	WEBB	WEBB CHEMICAL SERVICE CORP	2,664.00	0.00	2,664.00	1
02/12/2025	DISP	00000075683	WIGGLE-BAZ	TRICIA WIGGLE-BAZZY	82.60	0.00	82.60	1
02/12/2025	DISP	00000075684	WITMER PSG	WITMER PUBLIC SAFETY GROUP, INC.	3,448.71	0.00	3,448.71	4
02/12/2025	DISP	00000075685	WS DARLEY	W.S. DARLEY & CO	3,357.14	0.00	3,357.14	1

Check Date	Bank	Check #	Vendor Code	Vendor Name	Invoice Total	Credit Total	Total Amount	# Invoices
02/12/2025	DISP	00000075686	ZIRKLE,LAR	LARRY ZIRKLE	840.00	0.00	840.00	1

Num Checks: 85 Num Stubs: 0 Num Invoices: 147 Total Amount: 326,488.64

Denotes that check has vendor credit applied.

OK to Pay
MHS 2/12/2025
JMS 2/12/2025

J.P.Morgan

JPMORGAN CHASE BANK NA
P.O. BOX 15918
MAIL SUITE DE1-1404
WILMINGTON DE 19850

ACCOUNT NUMBER	[redacted]
PAYMENT DUE DATE	02/25/2025
AMOUNT DUE	$43,268.67
CURRENT BALANCE	$43,268.67

Remit To: JPMORGAN CHASE BANK NA
P.O. BOX 4475
CAROL STREAM, IL 60197-4475

AMOUNT ENCLOSED $

GREEN OAK TWP
TRICIA WIGGLE-BAZZY
10001 SILVER LAKE RD
BRIGHTON MI 48116-8361

** 0000000

[redacted]

PLEASE TEAR PAYMENT COUPON AT PERFORATION

STATEMENT MESSAGES

COMMERCIAL ACCOUNT SUMMARY

ORGANIZATION NAME: GREEN OAK TWP

ACCOUNT NUMBER: [redacted]

CLOSING DATE	01-31-25
CREDIT LIMIT	100,000
AVAILABLE CREDIT	56,731

FOR CUSTOMER SERVICE CALL:
1-800-316-6056

FOR TTY/TDD SERVICE CALL:
1-800-955-8060

SEND BILLING INQUIRIES TO:

JPMORGAN CHASE BANK NA
COMMERCIAL CARD SOLUTIONS
P.O. BOX 2015
MAIL SUITE IL1-6225
ELGIN, IL 60121

PREVIOUS BALANCE	30,654.22
PURCHASES AND OTHER CHARGES	44,771.46
CASH ADVANCES	.00
CREDITS	1,502.79
PAYMENTS	30,654.22-
LATE PAYMENT CHARGES	.00
CASH ADVANCE FEE	.00
FINANCE CHARGES	.00
NEW BALANCE	**43,268.67**
TOTAL PAYMENT DUE	43,268.67
DISPUTED AMOUNT	.00

ACCT. NUMBER: [redacted] GREEN OAK TWP

COMMERCIAL ACCOUNT ACTIVITY

GREEN OAK TWP [redacted] **TOTAL COMMERCIAL ACTIVITY** $30,654.22CR

ACCOUNTING CODE:

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-21	01-21	74715635021000700070674	PAYMENT RECEIVED -- THANK YOU	30,654.22 PY

INDIVIDUAL CARDHOLDER ACTIVITY

TRACY CHAMBERLAIN [redacted]

CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
$0.00	$344.77	$0.00	$344.77

ACCOUNTING CODE:

Fleet Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-07	01-06	24445005006300444224158	WILSON MARINE SERVICE HOWELL MI P.O.S.: 114623 SALES TAX: 0.00	344.77
			Total Fleet Activity	$344.77

CYNTHIA BLASKA [redacted]

CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
$0.00	$140.67	$0.00	$140.67

ACCOUNTING CODE:

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-13	01-10	24692165010101451906364	AMZN MKTP US*Z57T725G2 AMZN.COM/BILL WA P.O.S.: Cynthia SALES TAX: 0.00	55.00
01-13	01-12	24692165012103070390051	AMAZON.COM*ZD1D57GT1 AMZN.COM/BILL WA P.O.S.: Cynthia SALES TAX: 0.00	24.56
01-27	01-26	24692165026101502541154	AMAZON.COM*ZG3S02MS1 AMZN.COM/BILL WA P.O.S.: Cynthia SALES TAX: 0.00	19.91
01-31	01-29	24027625031067436660349	STAMPMAKER 734-451-7300 MI P.O.S.: 43666034 SALES TAX: 0.00	41.20
			Total Purchasing Activity	$140.67

POLICE DEPARTMENT [redacted]

CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
$435.00	$5,049.39	$0.00	$4,614.39

ACCOUNTING CODE:

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-06	01-03	24692165004105717234774	IN *BLUE LINE CUSTOMS LLC 248-6409640 MI P.O.S.: 7553 SALES TAX: 0.00	249.00
01-06	01-04	24692165004106320637981	SQ *MICHIGAN PUBLIC SAFET GOSQ.COM MI P.O.S.: 00011529215149642 SALES TAX: 11.99	199.88
01-06	01-06	24692165006107632516309	AMAZON.COM*ZD0TB22F2 AMZN.COM/BILL WA P.O.S.: 111-7170960-77802 SALES TAX: 0.00	405.00

Continued on next page

ACCT. NUMBER: [redacted] GREEN OAK TWP

INDIVIDUAL CARDHOLDER ACTIVITY

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-07	01-06	24011345007500005018963	JOHN E. REID & ASSOCIA REID.COM IL P.O.S.: in1QUJmCEUbDuNpe2KvTM5pO SALES TAX: 0.00	580.00
01-07	01-06	24692165006108090609495	SQ *MICHIGAN PUBLIC SAFET GOSQ.COM MI P.O.S.: 00011529215149710 SALES TAX: 11.99	199.88
01-08	01-07	24692165007108996678973	IN *BLUE LINE CUSTOMS LLC 248-6409640 MI P.O.S.: 7591 SALES TAX: 0.00	360.00
01-08	01-08	24692165008109286350520	AMAZON.COM*ZD1CI3060 AMZN.COM/BILL WA P.O.S.: 111-3101441-07962 SALES TAX: 0.00	45.00
01-15	01-14	24210735015047353741227	GLOCK INC 678-314-6557 GA P.O.S.: 77900030 SALES TAX: 0.00	83.00
01-16	01-15	24559305015900015940853	MICHIGAN ASSOC OF CHIEFS 517-3499420 MI P.O.S.: 18084127960 SALES TAX: 0.00	715.00
01-17	01-16	24692165016106303181292	AMAZON MKTPL*Z574R9CP1 AMZN.COM/BILL WA P.O.S.: Besso SALES TAX: 0.00	86.56
01-17	01-15	74559305016900016040855	MICHIGAN ASSOC OF CHIEFS 517-3499420 MI P.O.S.: 25011518084127960 SALES TAX: 0.00	435.00 CR
01-20	01-17	24692165017106747899540	AMAZON MKTPL*Z519M1L21 AMZN.COM/BILL WA P.O.S.: 112-3880105-48378 SALES TAX: 0.00	171.80
01-20	01-18	24692165018107453400159	AMZN MKTP US*ZG5AL92N2 AMZN.COM/BILL WA P.O.S.: JAIN SALES TAX: 0.00	71.42
01-24	01-24	24055235024222029815048	WALMART.COM 800-925-6278 AR P.O.S.: 75265504 SALES TAX: 0.00	328.50
01-24	01-22	24073145023900019317808	EVIDENT INC 540-5763512 VA P.O.S.: W116117 SALES TAX: 0.00	23.36
01-24	01-22	24073145023900019378628	EVIDENT INC 540-5763512 VA P.O.S.: 57451 SALES TAX: 0.00	111.75
01-24	01-23	24692165023102084627539	AMAZON MKTPL*ZG7E78F01 AMZN.COM/BILL WA P.O.S.: 112-1168692-71210 SALES TAX: 0.00	35.52
01-27	01-24	24325455026900012600065	VORTEX OPTICS 800-4260048 WI P.O.S.: INVPMT SALES TAX: 0.00	419.99
01-27	01-24	24692165024102899515712	THOMSON WEST*TCD 800-328-4880 MN P.O.S.: 1200189955 SALES TAX: 0.00	183.75
01-30	01-29	24692165029103954690890	AMAZON MKTPL*Z77387V92 AMZN.COM/BILL WA P.O.S.: BEACH SALES TAX: 0.00	125.97
01-30	01-29	24692165029104229990719	IN *BLUE LINE CUSTOMS LLC 248-6409640 MI P.O.S.: 7613 SALES TAX: 0.00	328.00
			Total Purchasing Activity	$4,288.38

Travel Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-08	01-07	24116415007716313795028	HOTELBOOKING*SERVFEE 8007279059 UT 01JH14J5T89NE0G8007279059 ARRIVAL: 01-07-25	17.99
01-09	01-08	24692165008109782148873	HTL*COMFORTINNSUIT 800-468-3578 TX P.O.S.: ITN57709984 SALES TAX: 0.00	308.02
			Total Travel Activity	$326.01

Continued on next page

ACCT. NUMBER: [redacted] GREEN OAK TWP

INDIVIDUAL CARDHOLDER ACTIVITY

FIRE DEPARTMENT [redacted]

CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
$0.00	$1,301.81	$0.00	$1,301.81

ACCOUNTING CODE:

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-06	01-04	24492165005500001394998	FUELCLOUD FUELCLOUD.COM OR P.O.S.: in1QdYaJKQMRBj5vQfBOJCeJ SALES TAX: 0.00	169.99
			Total Purchasing Activity	$169.99

Travel Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-03	01-02	24755425002260029069287	EMERGENT HEALTH PARTNERS 734-9714733 MI P.O.S.: 2516823 SALES TAX: 0.00	305.00
01-22	01-21	24692165021100517520307	HTL*HOLIDAYINNMIDL 800-468-3578 TX P.O.S.: ITN57960531 SALES TAX: 0.00	482.16
01-27	01-23	24761975024097039002068	SOARING EAGLE HOTEL 9897757777 MI 00040477159897757777 ARRIVAL: 01-22-25	344.66
			Total Travel Activity	$1,131.82

TRICIA WIGGLE-BAZZY [redacted]

CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
$0.00	$1,134.11	$0.00	$1,134.11

ACCOUNTING CODE:

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-10	01-08	24207855009160201299964	APT US&C 989-8205205 MI P.O.S.: 000000102958001 SALES TAX: 0.00	599.00
01-14	01-13	24064665013500009184109	GREATER BRIGHTON AREA WWW.BRIGHTONC MI P.O.S.: 9318279 SALES TAX: 0.00	49.00
01-15	01-14	24692165014104460054784	AMAZON MKTPL*Z53W95EF0 AMZN.COM/BILL WA P.O.S.: Tricia Treasurer´ SALES TAX: 0.00	107.67
01-17	01-15	24207855016165701603608	MMTA 989-8208389 MI P.O.S.: 000000103180055 SALES TAX: 0.00	99.00
01-28	01-27	24906415027220402855009	EIG*CONSTANTCONTACT.COM 855-2295506 MA P.O.S.: 1120194366041 SALES TAX: 0.00	49.00
01-30	01-29	24692165029103928299950	INTUIT *QBOOKS ONLINE CL.INTUIT.COM CA P.O.S.: T1-16488c0c-1 SALES TAX: 0.00	99.00
			Total Purchasing Activity	$1,002.67

Travel Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-20	01-17	24755425018160181348440	HILTON GARDEN INN 517-9999930 MI 66239638 ARRIVAL: 01-16-25	131.44
			Total Travel Activity	$131.44

CLERK DEPARTMENT [redacted]

CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
$0.00	$21,319.55	$0.00	$21,319.55

ACCOUNTING CODE:

Continued on next page

ACCT. NUMBER: [redacted] GREEN OAK TWP

INDIVIDUAL CARDHOLDER ACTIVITY

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-02	12-31	24088664366218103993709	2PITNEY BOWES INC. 844-2566444 CT P.O.S.: 0012009807 SALES TAX: 0.00	240.12
01-10	01-09	24019115009900014946781	NET EXPRESS 800-4481097 MI P.O.S.: 111111 SALES TAX: 22.52	225.22
01-10	01-09	24493985010064443637236	STERICYCLE INC/SHRED-IT 866-647-4733 IL P.O.S.: NA SALES TAX: 0.00	120.68
01-13	01-10	24906415010219059334697	DTE ENERGY 800-4774747 MI P.O.S.: 043004714914 SALES TAX: 0.00	244.28
01-13	01-10	24906415010219059334739	DTE ENERGY 800-4774747 MI P.O.S.: 043004714926 SALES TAX: 0.00	101.92
01-13	01-10	24906415010219059470988	DTE ENERGY 800-4774747 MI P.O.S.: 043004714923 SALES TAX: 0.00	8,298.01
01-13	01-10	24906415010219059471028	DTE ENERGY 800-4774747 MI P.O.S.: 043004714930 SALES TAX: 0.00	302.82
01-13	01-10	24906415010219059717370	DTE ENERGY 800-4774747 MI P.O.S.: 055004293173 SALES TAX: 0.00	13.93
01-13	01-10	24906415010219059736248	DTE ENERGY 800-4774747 MI P.O.S.: 055004293156 SALES TAX: 0.00	13.93
01-13	01-10	24906415010219059792936	DTE ENERGY 800-4774747 MI P.O.S.: 055004293168 SALES TAX: 0.00	13.93
01-24	01-23	24692165023102090401721	SPECTRUM 855-707-7328 VA P.O.S.: AW0C0D3A69C7 SALES TAX: 8.74	154.58
01-24	01-23	24692165023102090401739	SPECTRUM 855-707-7328 VA P.O.S.: AD0C0D3D6A0E SALES TAX: 31.07	549.00
01-24	01-23	24692165023102090401747	SPECTRUM 855-707-7328 VA P.O.S.: AW0C0D3A6CC2 SALES TAX: 7.35	129.98
01-24	01-23	24692165023102090401762	SPECTRUM 855-707-7328 VA P.O.S.: AD0C0D3D6BE8 SALES TAX: 13.29	234.94
01-24	01-23	24692165023102090401770	SPECTRUM 855-707-7328 VA P.O.S.: AP0C9BFD0CF0 SALES TAX: 46.41	820.00
01-24	01-23	24692165023102090401796	SPECTRUM 855-707-7328 VA P.O.S.: AZ0C0D3A61E7 SALES TAX: 22.58	399.00
01-27	01-24	24088665024220159985234	2PITNEY BOWES INC. 844-2566444 CT P.O.S.: 0012485625 SALES TAX: 0.00	265.59
01-29	01-28	24906415028220535745290	DTE ENERGY 800-4774747 MI P.O.S.: 040605373841 SALES TAX: 0.00	118.99
01-29	01-28	24906415028220535763822	DTE ENERGY 800-4774747 MI P.O.S.: 040605373854 SALES TAX: 0.00	300.53
01-29	01-28	24906415028220535773763	DTE ENERGY 800-4774747 MI P.O.S.: 040605373847 SALES TAX: 0.00	8,670.11
01-29	01-28	24906415028220535860453	DTE ENERGY 800-4774747 MI P.O.S.: 040605373833 SALES TAX: 0.00	101.99
			Total Purchasing Activity	$21,319.55

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ACCT. NUMBER: [redacted] GREEN OAK TWP

INDIVIDUAL CARDHOLDER ACTIVITY

CARRIE HUMBLE [redacted]

CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
$0.00	$294.61	$0.00	$294.61

ACCOUNTING CODE:

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-08	01-07	24692165007108843912930	AMZN MKTP US*ZP5TK8681 AMZN.COM/BILL WA P.O.S.: 114-2689299-70762 SALES TAX: 0.00	79.19
01-17	01-16	24431065017132645596184	MICHIGAN TOWNSHIPS 517-321-6467 MI P.O.S.: 25860003 SALES TAX: 0.00	50.00
01-23	01-22	24755425023130232932578	IIMC 909-9444162 CA P.O.S.: 724012300080075 SALES TAX: 0.00	135.00
			Total Purchasing Activity	$264.19

Travel Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-31	01-30	24055245030228187425893	BUFFALO WILD WNGS 3887 HARTLAND MI P.O.S.: 35053523 SALES TAX: 0.00	30.42
			Total Travel Activity	$30.42

MICHAEL H SEDLAK [redacted]

CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
$0.00	$3,136.14	$0.00	$3,136.14

ACCOUNTING CODE:

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-03	01-02	24492165003500001138751	WWW.MICHIGANCLERKS.ORG WWW.MICHIGANC MI P.O.S.: ch3crkpgf11pg4 SALES TAX: 0.00	100.00
01-14	01-13	24431065014130785616237	MICHIGAN TOWNSHIPS 517-321-6467 MI P.O.S.: 25830001 SALES TAX: 0.00	90.00
			Total Purchasing Activity	$190.00

Telecommunication Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-27	01-26	24906415026220319838974	NEXTIVA*VOIP SERVICE 800-9834289 AZ P.O.S.: 0 SALES TAX: 356.60	2,888.35
			Total Activity	$2,888.35

Fleet Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-15	01-14	24692165014104550260119	EXXON 7-ELEVEN 33030 BRIGHTON MI P.O.S.: STAN00036780 SALES TAX: 0.00	57.79
			Total Fleet Activity	$57.79

TREASURY DEPARTMENT [redacted]

CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
$0.00	$90.09	$0.00	$90.09

ACCOUNTING CODE:

Continued on next page

ACCT. NUMBER: [redacted] GREEN OAK TWP

INDIVIDUAL CARDHOLDER ACTIVITY

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-23	01-21	24207855022169001130090	APT US&C 989-8205205 MI P.O.S.: 000000103348711 SALES TAX: 0.00	69.00
			Total Purchasing Activity	$69.00

Travel Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-20	01-16	24431065017132867180790	CHEDDAR'S ZK 0202034 LANSING MI P.O.S.: 328292251195173234963 SALES TAX: 0.00	21.09
			Total Travel Activity	$21.09

BRIAN STALEY [redacted]

CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
$0.00	$2,199.24	$0.00	$2,199.24

ACCOUNTING CODE:

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-09	01-09	24692165009100048545159	ULINE *SHIP SUPPLIES 800-295-5510 WI P.O.S.: BRIAN SALES TAX: 0.00	564.03
01-10	01-09	24943005010128236341992	COSTCO WHSE #0786 BRIGHTON MI P.O.S.: 00003495 SALES TAX: 4.83	85.25
01-10	01-09	24943005010128236342008	COSTCO WHSE #0786 BRIGHTON MI P.O.S.: 00003496 SALES TAX: 12.45	219.99
01-23	01-22	24943005023136040227831	COSTCO WHSE #0786 BRIGHTON MI P.O.S.: 00003039 SALES TAX: 14.99	264.73
01-30	01-29	24755425030730301518009	GRAINGER 800-4724643 IL P.O.S.: 6659123271 SALES TAX: 0.00	84.89
01-31	01-30	24011345030500049548653	MR. MOLD MRMOLDMI.COM MI P.O.S.: pi3Qmw9jKXLQIAg16L1IEh0o SALES TAX: 0.00	389.00
			Total Purchasing Activity	$1,607.89

Fleet Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-08	01-07	24559165007027015638895	TIM S QUALITY AUTO REPAIR WHITMORE LAKE MI	200.00
01-10	01-09	24137465010001433636955	TRACTOR SUPPLY #1209 WHITMORE LAKE MI	391.35
			Total Fleet Activity	$591.35

KEVIN GENTRY [redacted]

CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
$744.75	$7,717.23	$0.00	$6,972.48

ACCOUNTING CODE:

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-03	01-02	24692165002104608599223	AMAZON MKTPL*ZD5U28ZP2 AMZN.COM/BILL WA P.O.S.: 113-4631820-26442 SALES TAX: 0.00	66.68
01-03	01-02	74692165002104361310623	AMAZON MKTPLACE PMTS AMZN.COM/BILL WA P.O.S.: 113-8775669-99146 SALES TAX: 0.00	384.08 CR

Continued on next page

ACCT. NUMBER: [redacted] GREEN OAK TWP

INDIVIDUAL CARDHOLDER ACTIVITY

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-06	01-04	24164075005105442118010	STAPLES 00107730 BRIGHTON MI P.O.S.: 000445676 SALES TAX: 0.00	69.99
01-06	01-03	24692165003105432474045	AMZN MKTP US*ZD75H9ER2 AMZN.COM/BILL WA P.O.S.: 111-6075090-88178 SALES TAX: 0.00	171.50
01-06	01-05	24692165005107191354168	AMAZON MKTPL*ZP2NS60O1 AMZN.COM/BILL WA P.O.S.: 114-4255857-06866 SALES TAX: 0.00	42.98
01-06	01-05	74692165005106928218220	AMAZON MKTPLACE PMTS AMZN.COM/BILL WA P.O.S.: 113-1006551-62370 SALES TAX: 0.00	6.99 CR
01-06	01-05	74692165005106946757910	AMAZON MKTPLACE PMTS AMZN.COM/BILL WA P.O.S.: 113-8775669-99146 SALES TAX: 0.00	192.04 CR
01-07	01-06	24692165006107682287793	AMAZON MKTPL*ZP6882X01 AMZN.COM/BILL WA P.O.S.: 111-2004965-22322 SALES TAX: 0.00	41.94
01-08	01-08	24692165008109120091066	AMAZON MKTPL*ZD9FO2EZ0 AMZN.COM/BILL WA P.O.S.: 111-2987618-45810 SALES TAX: 0.00	51.98
01-08	01-08	24692165008109130627438	AMAZON MKTPL*Z53NT74H2 AMZN.COM/BILL WA P.O.S.: 111-4988457-29538 SALES TAX: 0.00	46.64
01-08	01-08	24692165008109135083447	AMAZON MKTPL*Z57P96F92 AMZN.COM/BILL WA P.O.S.: 111-8941354-16226 SALES TAX: 0.00	44.49
01-08	01-08	24692165008109136510992	AMAZON MKTPL*Z57KD8F32 AMZN.COM/BILL WA P.O.S.: 111-6373865-27874 SALES TAX: 0.00	20.69
01-10	01-10	24692165010100896332459	AMAZON MKTPL*ZD28P3OE1 AMZN.COM/BILL WA P.O.S.: 111-6087321-43282 SALES TAX: 0.00	38.19
01-13	01-11	24692165011101658490658	AMAZON MKTPL*Z54S28HX2 AMZN.COM/BILL WA P.O.S.: 112-9503399-05538 SALES TAX: 0.00	206.89
01-13	01-12	24692165012103048101200	AMAZON MKTPL*Z55JL5CD0 AMZN.COM/BILL WA P.O.S.: 111-7797598-61370 SALES TAX: 0.00	31.94
01-15	01-14	24692165014104699886493	AMAZON MKTPL*ZD64X1SE1 AMZN.COM/BILL WA P.O.S.: 111-9916267-47898 SALES TAX: 0.00	15.96
01-17	01-16	24692165016106490270981	AMAZON MKTPL*Z53TD2D30 AMZN.COM/BILL WA P.O.S.: 114-2260532-12274 SALES TAX: 0.00	37.52
01-17	01-16	24692165016106491150794	AMAZON MKTPL*ZG7H39H42 AMZN.COM/BILL WA P.O.S.: 111-8933117-32306 SALES TAX: 0.00	26.98
01-20	01-19	24692165019108736187539	AMZN MKTP US*ZG3ZY0YS2 AMZN.COM/BILL WA P.O.S.: 113-9529872-70514 SALES TAX: 0.00	151.11
01-20	01-17	74692165017106997463919	AMZN MKTP US AMZN.COM/BILL WA P.O.S.: 111-4651362-93114 SALES TAX: 0.00	161.64 CR
01-21	01-20	24692165020109473487998	SPI*DIRECTV STREAM 800-531-5000 CA P.O.S.: 32096276 SALES TAX: 6.50	129.99
01-22	01-21	24943005022135448230661	COSTCO WHSE #0786 BRIGHTON MI P.O.S.: 00007003 SALES TAX: 13.59	239.99
01-23	01-22	24692165022100884755717	AMAZON MKTPL*ZG8D275F0 AMZN.COM/BILL WA P.O.S.: 112-1990822-99858 SALES TAX: 0.00	71.99
01-23	01-22	24943005023136040227849	COSTCO WHSE #0786 BRIGHTON MI P.O.S.: 00006142 SALES TAX: 22.08	389.98
01-24	01-23	24692165023102010778984	AMZN MKTP US*ZG36Q6FS1 AMZN.COM/BILL WA P.O.S.: 111-1987518-38290 SALES TAX: 0.00	55.11

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ACCT. NUMBER: [redacted] GREEN OAK TWP

INDIVIDUAL CARDHOLDER ACTIVITY

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-24	01-23	24692165023102078928703	AMAZON MKTPL*ZG4NW9FU1 AMZN.COM/BILL WA P.O.S.: 111-4014319-63082 SALES TAX: 0.00	22.98
01-27	01-24	24692165024102834903023	AMZN MKTP US*ZC89R7K12 AMZN.COM/BILL WA P.O.S.: 111-9183974-89578 SALES TAX: 0.00	79.98
01-27	01-26	24692165026101119524049	AMZN MKTP US*ZG4LV8X01 AMZN.COM/BILL WA P.O.S.: 113-1574929-17706 SALES TAX: 0.00	400.00
01-27	01-26	24692165026101331848002	AMAZON MKTPL*ZG4UJ8M31 AMZN.COM/BILL WA P.O.S.: 113-6035835-76834 SALES TAX: 0.00	12.98
01-27	01-26	24692165026101343406872	AMAZON MKTPL*ZC7EB24Q0 AMZN.COM/BILL WA P.O.S.: 113-3613954-23226 SALES TAX: 0.00	16.94
01-27	01-27	24692165027102062508327	AMAZON.COM*ZG5P32QR1 AMZN.COM/BILL WA P.O.S.: 111-7674259-51138 SALES TAX: 0.00	54.39
01-30	01-30	24204295030000202315085	FUBOTV INC 844-4413826 NY P.O.S.: 762406f5d9ea2318dd4d7a423 SALES TAX: 0.00	101.98
01-30	01-29	24692165029104194108644	AMAZON.COM*ZC15B5LR1 AMZN.COM/BILL WA P.O.S.: 113-6740394-58922 SALES TAX: 0.00	21.98
			Total Purchasing Activity	$1,919.02

Fleet Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-29	01-28	24323045028183200362884	RIGHT AWAY REPAIR 173-44786293 MI P.O.S.: 10355320314 SALES TAX: 50.03	5,053.46
			Total Fleet Activity	$5,053.46

DEBRA MCKENZIE [redacted]	CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
	$0.00	$60.00	$0.00	$60.00

ACCOUNTING CODE:

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-07	01-06	24207855007325300297746	MICHIGAN ASSOCIATION OF P 734-9132000 MI P.O.S.: 3853-T1 SALES TAX: 0.00	60.00
			Total Purchasing Activity	$60.00

DOUG BUERS [redacted]	CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
	$0.00	$219.19	$0.00	$219.19

ACCOUNTING CODE:

Fleet Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-09	01-08	24435655008050810008212	CHAMPION BUICK GMC INC BRIGHTON MI P.O.S.: 0000098654 SALES TAX: 0.00	219.19
			Total Fleet Activity	$219.19

Continued on next page

ACCT. NUMBER: [redacted] GREEN OAK TWP

INDIVIDUAL CARDHOLDER ACTIVITY

ASSESSOR DEPARTMENT [redacted]	CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
	$0.00	$20.00	$0.00	$20.00

ACCOUNTING CODE:

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-22	01-21	24801975021219629484978	BIG FROG CUSTOM T-SHIRTS BRIGHTON MI P.O.S.: PO 521713038547 SALES TAX: 0.80	20.00
			Total Purchasing Activity	$20.00

BUILDING GROUNDS DEPT [redacted]	CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
	$318.50	$1,135.52	$0.00	$817.02

ACCOUNTING CODE:

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-10	01-08	24445005009200178524665	GFS STORE #0116 BRIGHTON MI	13.98
01-16	01-15	24692165016105760775919	RED WING SHOES #517 BRIGHTON MI P.O.S.: 032143 SALES TAX: 0.00	364.48
01-17	01-16	24801975016214665816818	GREAT DEAL PRODUCTS BRIGHTON MI P.O.S.: 61200010 SALES TAX: 0.00	328.06
01-20	01-17	24801975017215720938603	GREAT DEAL PRODUCTS BRIGHTON MI P.O.S.: 61400009 SALES TAX: 0.00	429.00
01-20	01-17	74801975017215720938590	GREAT DEAL PRODUCTS BRIGHTON MI P.O.S.: 80368 SALES TAX: 0.00	318.50 CR
			Total Purchasing Activity	$817.02

ALAN HOGAN [redacted]	CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
	$4.54	$247.14	$0.00	$242.60

ACCOUNTING CODE:

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-10	01-09	24801975009207735586634	BIG FROG CUSTOM T-SHIRTS BRIGHTON MI P.O.S.: PO 009638453268 SALES TAX: 1.60	40.07
01-10	01-09	24801975009207735586642	BIG FROG CUSTOM T-SHIRTS BRIGHTON MI P.O.S.: PO 009288353442 SALES TAX: 1.60	40.07
01-10	01-09	24801975009207735586659	BIG FROG CUSTOM T-SHIRTS BRIGHTON MI P.O.S.: PO 009288353597 SALES TAX: 6.68	167.00
01-13	01-10	74801975010208752819942	BIG FROG CUSTOM T-SHIRTS BRIGHTON MI P.O.S.: 79044550 SALES TAX: 0.13	2.27 CR
01-13	01-10	74801975010208752819959	BIG FROG CUSTOM T-SHIRTS BRIGHTON MI P.O.S.: 40244594 SALES TAX: 0.13	2.27 CR
			Total Purchasing Activity	$242.60

STEVEN KRAMER [redacted]	CREDITS	PURCHASES	CASH ADV	TOTAL ACTIVITY
	$0.00	$362.00	$0.00	$362.00

ACCOUNTING CODE:

Continued on next page

ACCT. NUMBER: [redacted] GREEN OAK TWP

INDIVIDUAL CARDHOLDER ACTIVITY

Purchasing Activity

Post Date	Tran Date	Reference Number	Transaction Description	Amount
01-09	01-08	24559305008900015239917	MICHIGAN ASSOC OF CHIEFS 517-3499420 MI P.O.S.: 09592523774 SALES TAX: 0.00	280.00
01-22	01-21	24270745021900018284710	IN STOCK MARKETING SVCS 734-8554271 MI P.O.S.: 6188 SALES TAX: 0.00	82.00
			Total Purchasing Activity	$362.00

From: T P
To: foia
Subject: Appeal for FOIA Request #181-24
Date: Tuesday, October 29, 2024 6:50:30 AM

Green Oak Township Board of Trustees,

The reasons given for the denial were MCL 15.235(4)(b), public record(s) do not exist, and 15.243(a), information is of a personal nature and disclosure would constitute a clearly unwarranted invasion of an individual's privacy. (Both citations appear to be incorrectly cited, 15.235(5)(b) and 15.243(1)(a) probably were the intended reasons for denial). I appeal that decision and request that the denied information is provided.

There appears to be a contradiction between a statement in the denial and the actual materials provided. The denial states "Your request for planning and zoning records after 1/16/24 is denied ... records do not exist..." yet the materials provided included records after that date. The provided records include building regulation enforcement documents which should have reasonably been know as "planning and zoning records", yet the denial stated records to not exist. This certificate needs to be clarified.

No building regulation documents prior to 1/17/24 were provided yet the request specially requested "violations and enforcement actions prior to 1/17/24". Nor was there a certificate that "no records exist" in denial statement given for this period. I suspect there are building regulations enforcement documents created after the 9/9/23 final inspection and before the variance request that was reviewed by the board on 1/16/24. Why would variances be requested after a "final" if there were no open issues from inspections or enforcement actions? It's also possible there were records before 9/9/23 since my recollection is that there were open issues and some type of resolution prior to the 9/9/23 final inspection. Reportedly the resolution process involved the Zoning Administrator and the Township Supervisor.

No NOVs were provided to me as part of my request yet the provided 4/1/24 Inspection note says a NOV was mailed on 4/4. So there's at least one NOV however it's hard to believe there's only one. I would suspect there also had to be one after the 9/9/23 final inspection and before the variance request that was reviewed by the ZBA on 1/16/24. Something had to happen during that period, a NOV would be appropriate. My recollection doesn't serve me perfectly and I was not provided clear information but I believe there were issues and some type of resolution prior to the 9/9/23 final inspection. Possibly a NOV exists from this period.

If NOVs were not issued either before and after the final inspection, but only on 4/4, there had to been some other type of communication. Considering the size and activity in the township it would be reasonable to expect any inspector to at least take cursory notes. I've been told there have been meetings on the project by township representatives on interpretation of the ordinances and the direction that was going to be pursued. It seems reasonable to expect some type meeting documentation to exist. Shouldn't notes and emails regarding the project from any period be made available since my request was for "violations and enforcement actions" and "zoning and planning records"

The records provided to me do not contain any information regarding the origination or need for the variance/clarification requested by the Zoning Administrator of the ZBA on 9/17/24. Again it seems something should have drove this need for a variance/clarification and that

information should have been provided. The records provided also did not include any requesting or application information for this variance/clarification yet it was a matter of a public notice of the public meeting. My request was submitted after the deadline for matters to be placed on the 9/17/24 agenda and the requesting/application information should have been provided.

Based on the denial, information was withheld from me for being personal in nature and or because it doesn't exist. Of the information provided to me it is easy to see the personal information that was redacted/denied, it was obvious personal in nature yet comprised only a small portion of the record. Entire records should not be denied if they contain some personal information, as seems to be the case.

I do acknowledge that information contained in the ZBA packets posted online did not need to be submitted in response to my request.

This appeal was delayed at the request of Township officials and their counsel for almost 2 months. Attempts to resolve the issues for which I was seeking information where promised in the interim. No serious attempts where made for resolution and the delay now appears quite deliberate.

For reasons stated above I now appeal the denial of information requested. Please provide the requested information.

Tom Palmer
10079 Koneta
Brighton, MI 48116

ZONING/MASTER PLAN AMENDMENT FORM

Livingston County Planning Commission, 304 East Grand River, Suite 206, Howell, MI 48843-2323

LOCAL CASE NUMBER R01-2024 COUNTY CASE NUMBER _____

The Green Oak Charter Township Planning Commission is submitting the following amendment for review and comment.

REZONING (MAP AMENDMENT) Property description and location (attach a map of the proposed amendment as required by law).

Size: 7.438 Property tax identifier: 4716-05-300-040

Location: 9325 Maltby Road

Existing Zoning District is: GB Proposed Zoning District: GB/ PUD

Name of Petitioner: Costco Name of Property Owner: 9325 Maltby Road LLC

Purpose of Change: Gas Station Relocation

Existing Land Use: Commercial Warehouse

ZONING ORDINANCE TEXT AMENDMENT The following Article(s) and Section(s) to be amended:

Article Number(s): _____ Article Name(s): _____

Section Number(s): _____ Section Name(s): _____

Please attach a copy of the proposed zoning ordinance changes.

PUBLIC NOTICE AND PUBLICATION SCHEDULE

Legal notice of the public hearing was published on March 1, 2024 In the Brighton Argus
(not less than 15 days before the public hearing per Michigan Zoning Enabling Act, Act 110 of 2006, MCL 125.3103)

_____ Newspaper, which has general circulation in the jurisdiction. The Green Oak Charter Township Planning Commission held a public hearing on March 21, 2024 to hear the views of the public on the proposed amendment.

MINUTES OF PUBLIC HEARING (Please check "a" or "b" below)

a. ☑ The meeting minutes are attached.
b. ☐ The minutes of the meeting will be sent later. The case information has been sent so that the Livingston County Planning Department staff can be working on the case while the minutes are being prepared. The facts brought out at the hearing are: (use additional sheets as necessary)

_____

MASTER PLAN

☐ Adoption of new or revised plan ☐ Amendment (Section/Chapter) _____

Note: For all master plan cases, the municipality must submit a statement signed by the Planning Commission Secretary stating that all of the necessary legislative bodies have been sent notice of the public hearing and copies of the proposed language/map, along with the name and address of each, and date of submittal.

PUBLIC NOTICE AND PUBLICATION SCHEDULE

Legal notice of the public hearing was published on _____
(not less than 15 days before the public hearing per Michigan Planning Enabling Act, Act 33 of 2008, MCL 125.3843)

in the _____ Newspaper, which has general circulation in the jurisdiction.

The Green Oak Charter Township Planning Commission held a public hearing on _____ (date) to hear the views of the public on the proposed amendment.

MINUTES OF PUBLIC HEARING (Please check "a" or "b" below)

a. ☐ The meeting minutes are attached.
b. ☐ The minutes of the meeting will be sent later. The case information has been sent so that the Livingston County Planning Department staff can be working on the case while the minutes are being prepared. The facts brought out at the hearing are: (use additional sheets as necessary)

_____

LOCAL JURISDICTION PLANNING COMMISSION ACTION

The recommendation of the Green Oak Charter Township Planning Commission, at its meeting of March 21, 2024 (date), was:

☑ Approval ☐ Disapproval ☐ Approval under the following conditions: (use additional sheets as necessary)

_____



(Chair Signature)

E. **Costco Gas Station Relocation. Recommend Approval or Denial to the Township Board for the proposed Amendment to the Planned Unit Agreement for Costco** 4716-05-300-074, 4716-05-300-076, 4716-05-300-040.

Mr. Miner stated there are minor items that need to cleaned up on the engineering plans but they are in compliance.

Mr. Burkhalter stated he sees that the east Costco entrance is already a mess and it will be a bigger mess.

Mr. Janke stated he found there would be less traffic, less trips from the traffic report.

Larry Dziurdzik stated they have satisfied all of the requirements, and they are addressing Mr. Miner's comments now. The construction and gas team are ready to submit, they are ready to move forward.

Clerk Sedlak questioned how is the emergency exit coming? Mr. Dziurdzik stated they have two property owners sign the documents, and 4 verbal's, they do need the Holiday Inn but that will be a process because of the way their loan is structured. He stated their legal group is working on it and will continue to push for it.

Motion by Janke, second by Marshall
Motion to recommend approval to the Township Board for the proposed Amendment to the Planned Unit Agreement for Costco on parcel #s 4716-05-300-074, 4716-05-300-076, and 4716-05-300-040.

Roll Call Vote: **Ayes: Pearsall, Marshall, Janke, Burkhalter, Beyer**
Nays: Sedlak

MOTION APPROVED

F. **Discussion on the Joint Meeting February 20, 2025 at 7:00 p.m.**

Mr. Burkhalter noted this meeting is set for 2/20/25 at 7:00 p.m. They will discuss the broader visions for 2025, planning priorities and housing unit size.

Mr. Burkhalter received notice that Northfield Township has provided notice that they are intending to update their Master Plan and if they have thoughts they can reach out to them.

REPORTS

Chairman – None
Township Board Representative – Clerk Sedlak brought the Commission up to date regarding the last Board meeting.
Zoning Board of Appeals Representative – Ms. Pearsall stated the last meeting was about housekeeping items and they have 3 applicants for next month's meeting.
Planning Consultant – None

Correspondence – None

CALL TO THE PUBLIC - None

ADJOURNMENT

The Planning Commission meeting was adjourned at 8:41 p.m. due to no further business.

Respectfully Submitted,

Kellie Angelosanto

Kellie Angelosanto
Recording Secretary

Carlisle | Wortman
ASSOCIATES, INC.

117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

TO: Debra McKenzie, Planning and Zoning Administrator

FROM: Paul Montagno, AICP & Michelle Marin, AICP

DATE: January 29, 2025

RE: Costco Refueling Facility – Traffic Impact Study Review

At the October 16, 2024, Township Board meeting, the Board voted to approve the proposed Planned Unit Development amendment for the Costco fueling facility relocation and expansion with the condition that the applicant complete an external traffic study that is submitted for administrative review and approval by Carlisle Wortman Associates. The applicant provided a traffic impact study dated December 12, 2024, that includes an assessment of the anticipated traffic impacts from the proposed fueling facility on the surrounding roadways. This review summarizes our findings and recommendations.

Study Area and Existing Traffic Conditions

The traffic study identifies five intersections that serve the project area for which traffic impacts were analyzed. The intersection of Whitmore Lake Road and East Costco Driveway references an incorrect lane configuration, as demonstrated below.



The existing right-of-way descriptions in Table 2 incorrectly identify the Maltby Road intersections as being within private property. Maltby Road is a public road in an easement.

Benjamin R. Carlisle, *President* Douglas J. Lewan, *Executive Vice President* John L. Enos, *Vice President*
David Scurto, *Principal* Sally M. Elmiger, *Principal* R. Donald Wortman, *Principal*
Paul Montagno, *Principal* Megan Masson-Minock, *Principal* Laura Kreps, *Principal*
Richard K. Carlisle, *Past President/Senior Principal*

Background Traffic Growth

The study identifies historical growth rates for three sections of roadway surrounding the subject site. This historical growth rate demonstrates a small increase in growth on Whitmore Lake Road from Maltby to Lee Road. The growth rates on Maltby Road and Lee Road surrounding the subject site show a reduction in traffic. Forecasts, including the previously approved 230 dwelling units south of Maltby Road within the Parc at Green Oak, show expected growth rates between 0. To 1.3 percent.

The total future background volume increases are shown to be greatest at the following intersections:

- Southbound and northbound Whitmore Lake Road
- Westbound, turning left on Witmore Lake Road from Lee Road
- Eastbound Lee Road, heading past the intersection with North Costco Driveway

The planned background traffic growth demonstrates volume increases surrounding the proposed development. The impacts of the fueling facility itself do not appear to disproportionately affect the traffic growth of the analyzed intersections.

Trip Generation

The forecasted trip generation references the methodology used by Kittleson in the internal traffic study, referencing the Costco transportation database and the five 40-pump Costco fueling facilities in Arizona and California.

Trip Distribution

An expected buildout identified the expected locations of new trips on the surrounding roadways. This expected distribution identifies the majority of pass-by and diverted trips to be from the Whitmore Lake Road and East Costco Driveway intersection. The study does not identify any change in diverted trips from the Maltby Road; this appears to be an error based on the existing turning movement volumes identified previously in the report.

Buildout Traffic Growth

The expansion buildout trips in Figure 11 reference volumes/trips which appear low from the figures in the Trip Distribution section of the report.

Impact Analysis

As identified in the review by the Livingston County Road Commission, the Level of Service (LOS) analysis at the intersections uses the incorrect software type for the roundabout at Lee Road and Whitmore Lake Road. The applicant should correct the LOS analysis using the Rodel software.

The traffic study identifies signalization at the intersection of Whitmore Lake Road and East Costco Driveway as a traffic mitigation measure; the proximity to Lee Road renders this recommendation an impossibility. Alternative traffic mitigation measures include improved signage throughout the subject site or a single-lane roundabout at this intersection.

Recommendations

The traffic impact study appears to demonstrate that outside mitigation measures are not warranted at this time. There are some inconsistencies within the traffic impact study that have been identified, as summarized in this review, but the correction of these inconsistencies should not significantly affect the overall anticipated traffic impacts. In the future, mitigation measures may be warranted.

We believe that this condition of preliminary approval for the PUD amendment has, therefore, been satisfied. Please let us know if you have any questions.

Sincerely,

CARLISLE/WORTMAN ASSOC., INC.
Paul Montagno, AICP
Principal

CARLISLE/WORTMAN ASSOC., INC.
Michelle Marin, AICP
Community Planner

#175-2400

cc. Mark St. Charles, Township Supervisor
Debra McKenzie, Planning & Zoning Administrator
Kristin Bricker Kolb, Township Attorney
Matthew Zalewski, Township Attorney
Leslie Zawada, Township Engineer
Rick Miner, Township Engineer
Kevin Gentry, Township Fire Chief
Al Hogan, Township Building Official
Larry Dziurdzik, Applicant, (ldziurdzik@jnlgroup.net)

GREEN OAK TOWNSHIP

CONTINENTAL 105 FUND, LLC
NINTH AMENDMENT TO PLANNED UNIT DEVELOPMENT AGREEMENT

THIS AGREEMENT made this ____ day of _____, 2025, by and between GREEN OAK CHARTER TOWNSHIP, a Michigan municipal corporation, whose address is 10001 Silver Lake Road, Brighton, MI 48116 (the "Township") and COSTCO WHOLESALE CORPORATION, a Washington corporation, whose address is 999 Lake Drive, Issaquah, Washington 98027 ("Costco").

RECITALS

A. The Township previously approved development of certain property described on the attached Exhibit A (the "PUD Property").

B. The Township and Proprietor entered into the Continental 105 Fund LLC Planned Unit Development Agreement ("PUD Agreement") for the Gateway Shoppes at Green Oak on October 29, 2003, recorded at Liber 4249, Page 0286, Livingston County Register of Deeds, which Agreement sets forth the conditions pursuant to which the Property could be developed and used under the PUD Agreement.

C. The Subject Property is a four-acre parcel that is a portion of tax identification number 4716-05-300-040. The legal description of the Subject Property is attached as Exhibit B. The Subject Property is adjacent to the existing Costco Warehouse property.

D. The Subject Property is currently vacant. There is an existing Costco fueling facility in the southeast corner of the primary Costco parcel which will be developed into additional parking spaces, and the fueling facility will then be relocated to the south on the Subject Property (the "Project"). Work on the Project shall commence according to the sequence of construction on the approved final site plan and engineering plans (the "Approved Plans").

E. Costco sought an amendment to the PUD Agreement to add the Subject Property to the PUD Agreement and to amend the final site plan to allow for the fueling facility relocation and expansion and the parking lot expansion.

F. On March 21, 2024, the Planning Commission conducted a public hearing on the application filed for the Costco Refueling Station and recommended approval subject to all the conditions in the Planner's Report dated March 20, 2024, and the Engineer's Report dated March 4, 2024, being satisfied prior to submission of the application to the Township Board.

G. On June 20, 2024, the Planning Commission again considered the application for the proposed amendment to the PUD Agreement, considered additional information submitted by Costco, and postponed further action until Costco provided a traffic study.

H. On September 5, 2024, the Planning Commission considered the further submission of Costco and moved to recommend approval of the amendment of the PUD Agreement to the Township Board.

I. On October 16, 2024, the Township Board approved the amendment to the PUD Agreement subject to further review by the Planning Commission.

J. On February 6, 2025, the Planning Commission moved to recommend approval of the amendment of the PUD Agreement to the Township Board.

K. On February 19, the Township Board approved the amendment to the PUD and this Ninth Amendment to the PUD Agreement ("Ninth Amendment"), permitting redevelopment of the Subject Property for the Costco Refueling Station.

NOW, THEREFORE, IT IS HEREBY AGREED AS FOLLOWS:

1. The foregoing Recitals are incorporated into this Ninth Amendment to the PUD Agreement as though set forth in their entirety.

2. All capitalized terms contained in this Ninth Amendment shall have the same meaning as in the Planned Unit Development Agreement dated October 29, 2003, unless otherwise specified herein.

3. The Approved Plans for the Costco Refueling Station, prepared by _____, Job No. _____, with revision date of _____, are hereby approved ("Approved Plans") for the redevelopment of a portion of Tax Parcel ID 4716-05-300-040, being the Subject Property located in Green Oak Township, Livingston County, Michigan, for the development of the Costco Refueling Station. The Approved Plans, attached as Exhibit C, contain the following:

a. (LIST PAGES WHEN DONE)

4. This Ninth Agreement is subject to the following condition:

a. Developer shall prepare and supply an external traffic study to be reviewed and approved administratively. No development shall take place on the Subject Property until such administrative approval has been granted by the Township.

5. This Ninth Amendment shall run with the land and bind the parties, their heirs, successors, and assigns. This Ninth Amendment shall be recorded in the Livingston County Register of Deeds by the Township, with all costs of recording to be paid by Costco.

Except as amended by this Ninth Amendment, all provisions of the PUD Agreement dated October 29, 2003, as amended, shall remain in full force and effect

GREEN OAK CHARTER TOWNSHIP,
A Michigan municipal corporation

_____

By: Mark St. Charles
Its: Township Supervisor

_____

By: Michael H. Sedlak
Its: Township Clerk

ACKNOWLEDGMENT

STATE OF MICHIGAN)
) ss
COUNTY OF LIVINGSTON)

The foregoing document was acknowledged before me on the ____ day of _____, 2025, by Mark St. Charles and Michael H. Sedlak, the duly authorized Township Supervisor and Township Clerk of Green Oak Charter Township.

_____

Notary Public
_____ County, Michigan
Acting in _____ County, Michigan
My Commission Expires: _____

[Signatures continued on next page]

~~9325 MALTBY ROAD, LLC,~~
~~a Michigan limited liability company~~
COSTCO WHOLESALE CORPORATION,
a Washington corporation

_____

By:
Its:

ACKNOWLEDGMENT

STATE OF ~~_____~~WASHINGTON)
) ss
COUNTY OF ~~_____~~KING)

The foregoing document was acknowledged before me on the ____ day of _____, 2025, by _____, the duly authorized _____ of ~~9325 Maltby Road, LLC~~Costco Wholesale Corporation.

_____
Notary Public
~~_____~~King County,

~~_____~~Washington

Acting in ~~_____~~King County,

~~_____~~Washington

My Commission Expires: _____

EXHIBIT A

Legal Description of the PUD Property

EXHIBIT B

Legal Description of the Subject Property

Land in the Township of Green Oak, Livingston County, MI, described as follows:

Part of the land described in Instrument Number 2020R-003600, being located in the Southwest Quarter of Section 5, Township 1 North, Range 6 East, Green Oak Township, Livingston County, Michigan, being more particularly described as follows:

Commencing at the South Quarter corner of said Section 5; thence South 87 degrees 26 minutes 47 seconds West, along the South line of said Section 5, a distance of 331.80 feet to the Southeast corner of land recorded in said Instrument Number 2020R-003600, for the Point of Beginning; thence continuing along said South line, South 87 degrees 26 minutes 47 seconds West, a distance of 50.00 feet; thence North 02 degrees 27 minutes 54 seconds West, a distance of 326.50 feet; thence South 87 degrees 26 minutes 47 seconds West, a distance of 212.08 feet; thence North 01 degrees 58 minutes 56 seconds West, a distance of 74.49 feet; thence South 88 degrees 01 minutes 04 seconds West, a distance of 373.74 feet; thence North 02 degrees 27 minutes 54 seconds West, a distance of 215.29 feet; thence North 87 degrees 26 minutes 47 seconds East, a distance of 635.18 feet; thence South 02 degrees 27 minutes 54 seconds East, a distance of 620.00 feet to the Point of Beginning.

EXHIBIT C

The Approved Plans

CONSTRUCTION DRAWINGS

COSTCO WAREHOUSE

PARKING EXPANSION AND FUEL FACILITY RELOCATION

6700 WHITMORE LAKE ROAD

GREEN OAK CHARTER TOWNSHIP, MI 48116

PROJECT DATA:

CLIENT:	COSTCO WHOLESALE 730 LAKE DRIVE ISSAQUAH, WA 98027
PROJECT ADDRESS:	WHITMORE LAKE RD GREEN OAK TOWNSHIP, MI
ZONING:	PLANNED UNIT DEVELOPMENT (PUD)
EXISTING SITE AREA:	15.56 ACRES (677,960 SF) INCLUDES: 2.2 ACRES (95,832 SF) LANDSCAPE / BERM
PROPOSED SITE AREA:	3.63 ACRES (157,966 SF)
TOTAL SITE AREA:	19.19 ACRES (835,926 SF)
JURISDICTION:	GREEN OAK TOWNSHIP
SETBACKS:	AS NOTED
BOUNDARIES INFORMATION:	THIS PLAN HAS BEEN PREPARED BY USING A SITE PLAN PROVIDED BY CONTINENTAL PROPERTIES COMPANY INC., DATED 6/7/2003

EXIST. BUILDING DATA:	
BUILDING AREA	135,140 S.F.
TIRE CENTER	5,214 S.F.
TOTAL BUILDING	140,354 S.F.
EXIST. ENCLOSED CANOPY	4,156 S.F.

PARKING DATA:	
EXISTING PARKING PROVIDED:	
10' WIDE STALLS	682 STALLS
HANDICAP STALLS	28 (4 VAN) STALLS
TOTAL PARKING PROVIDED	710 STALLS
NO OF STALLS PER 1000 S.F. OF BUILDING AREA:	5.06 STALLS
PROPOSED PARKING PROVIDED:	
10' WIDE STALLS	888 STALLS
HANDICAP STALLS	28 (4 VAN) STALLS
TOTAL PARKING PROVIDED	916 STALLS
NO OF STALLS PER 1000 S.F. OF BUILDING AREA:	6.53 STALLS
TOTAL PARKING GAINED	206 STALLS
JURISDICTIONAL PARKING REQUIRED	1 STALL/200 S.F. 702 STALLS

NOTES:
1. EXISTING CONDITIONS TO BE FIELD VERIFIED.
2. SITE PLAN COORDINATED WITH CIVIL DRAINAGE & GRADING PLAN / C3 AND UTILITY PLAN / C5 DATED 1/22/04

LEGAL DESCRIPTION (PARENT PARCEL)

BASED UPON FIRST AMERICAN TITLE INSURANCE COMPANY NATIONAL COMMERCIAL SERVICES TITLE COMMITMENT NO.: NCS–1197415–WA1
COMMITMENT DATE: DECEMBER 28, 2023 AT 8:00 A.M.

Land in the Township of Green Oak, Livingston County, MI, described as follows:
Part of the Southwest 1/4 of Section 5, Town 1 North, Range 6 East, Green Oak Township, Livingston County, Michigan, described as: Beginning at a point on the South line of said Section 5, distant North 89 degrees 46 minutes 19 seconds West, 331.80 feet from the South 1/4 corner of said Section 5; thence North 89 degrees 46 minutes 19 seconds West, along said South line of Section 5, 50.00 feet; thence North 0 degrees 19 minutes 00 seconds East, 326.50 feet; thence North 89 degrees 46 minutes 19 seconds West, 126.47 feet; thence South 00 degrees 19 minutes 00 seconds West, 326.50 feet; thence North 89 degrees 46 minutes 19 seconds West, along said South line of Section 5, 355.71 feet, thence North 00 degrees 19 minutes 00 seconds East, 276.50 feet; thence North 89 degrees 46 minutes 19 seconds West, 103.00 feet; thence North 00 degrees 19 minutes 00 seconds East, 343.50 feet; thence South 89 degrees 46 minutes 19 seconds East, 635.18 feet; thence South 00 degrees 19 minutes 00 seconds West, 620.00 feet to the point of beginning.

PARCEL SPLIT (SUBJECT PARCEL)

Part of the land described in Instrument Number 2020R–003600, being located in the Southwest Quarter of Section 5, Town 1 North, Range 6 East, Green Oak Township, Livingston County, Michigan, being more particularly described as follows:
Commencing at the South Quarter Corner of said Section 5; thence South 87 degrees 26 minutes 47 seconds West (recorded as North 89 degrees 46 minutes 19 seconds West) along the South line of said Section 5, a distance of 331.80 feet to the Southeast Corner of land recorded in said Instrument Number 2020R–003600, for the POINT OF BEGINNING;
thence continuing along said south line, South 87 degrees 26 minutes 47 seconds West (recorded as North 89 degrees 46 minutes 19 seconds West), 50.00 feet;
thence North 02 degrees 27 minutes 54 seconds West (recorded as North 0 degrees 19 minutes 00 seconds East), 326.50 feet;
thence South 87 degrees 26 minutes 47 seconds West (recorded as North 89 degrees 46 minutes 19 seconds West), 212.08 feet;
thence North 01 degrees 58 minutes 56 seconds West, 74.49 feet;
thence South 88 degrees 01 minutes 04 seconds West, 373.74 feet to the east line of parcel recorded in Liber 4505, Page 245;
thence along said east line, North 02 degrees 27 minutes 54 seconds West (recorded as North 0 degrees 19 minutes 00 seconds East), 215.29 feet to the south line of said parcel (L.4505, P.245);
thence along said south line, North 87 degrees 26 minutes 47 seconds East (Recorded as South 89 degrees 46 minutes 19 seconds East), 635.18 feet to the west line of Gateway Shoppes at Green Oak, Condominium Subdivision Plan No. 363, Recorded in Document No. 2006R–018740, Livingston County Register of Deeds Office;
thence along said west line, South 02 degrees 27 minutes 54 seconds East (Recorded as South 0 degrees 19 minutes 00 seconds West), 620.00 feet to the Point of Beginning, containing 4.000 acres of land, more or less

REMAINING PARCEL DESCRIPTION

Part of the land described in Instrument Number 2020R–003600, being located in the Southwest Quarter of Section 5, Town 1 North, Range 6 East, Green Oak Township, Livingston County, Michigan, being more particularly described as follows:
Commencing at the South Quarter Corner of said Section 5; thence South 87 degrees 26 minutes 47 seconds West (recorded as North 89 degrees 46 minutes, 19 seconds West), along the South line of said Section 5, a distance of 508.27 feet to a southerly corner of land recorded in said Instrument Number 2020R–003600, for the POINT OF BEGINNING;
thence continuing along said south line, South 87 degrees 26 minutes 47 seconds West (recorded as North 89 degrees 46 minutes 19 seconds West), 355.71 feet to the east line of parcel described in instrument no. 2022R–025101;
thence along said east line, North 02 degrees 27 minutes 54 seconds West (Recorded as North 0 degrees 19 minutes 00 seconds East), 276.50 feet to the north line of said parcel;
thence South 87 degrees 26 minutes 47 seconds West (Recorded as North 89 degrees 46 minutes 19 seconds West), 103.00 feet to the east line of parcel recorded in Liber 4505, Page 245;
thence along said east line, North 02 degrees 27 minutes 54 seconds West (Recorded as North 0 degrees 19 minutes 00 seconds East), 128.21 feet;
thence North 88 degrees 01 minutes 04 seconds East, 373.74 feet;
thence South 01 degrees 58 minutes 56 seconds East, 74.49 feet;
thence North 87 degrees 26 minutes 47 seconds East, 85.61 feet to the west line of parcel recorded in Liber 2285, Page 529;
thence along said west line, South 02 degrees 27 minutes 54 seconds East (Recorded as South 0 degrees 19 minutes 00 seconds West), 326.50 feet to the point of beginning, Containing 3.439 acres of land, more or less

REFERENCE

1. TOPOGRAPHIC SURVEY IS BASED ON A FIELD SURVEY PERFORMED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC. IN DECEMBER 2023. SEE ALTA SURVEY BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC., DATED JANUARY 2024, FOR COMPLETE ALTA SURVEY DRAWINGS.
2. THE RIGHT–OF–WAY OF MALTBY ROAD IS TO BE 66 FEET WIDE, WITH THE NORTH RIGHT–OF–WAY LINE BEING ALONG THE SOUTH LINE OF SECTION 5, PER LIBER 4465, PAGE 241 & LIBER 4758, PAGE 530 DESCRIPTIONS.
3. THE SUBJECT PARCEL HAS DIRECT ACCESS VIA MALTBY ROAD AS WELL AS INDIRECT ACCESS TO MALTBY ROAD VIA LIBER 1275, PAGE 465.

FLOOD NOTE:

THE PARCEL DESCRIBED AND SHOWN HEREIN LIES WITHIN ZONE "X" (UN–SHADED) AS SAID PARCEL PLOTS ON MAP NUMBER 26093C0345D (DATED SEPTEMBER 17, 2008) OF THE FLOOD INSURANCE RATE MAPS FOR GREEN OAK CHARTER TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN. THE ACCURACY OF THIS FLOOD HAZARD STATEMENT IS SUBJECT TO MAP SCALE UNCERTAINTY AND TO ANY OTHER UNCERTAINTY IN LOCATION OR ELEVATION ON THE REFERENCED FLOOD INSURANCE RATE MAP.

UTILITY NOTE:

THE UNDERGROUND UTILITIES SHOWN WERE PROVIDED BY A THIRD PARTY, VIA A SURVEY, GIS OR OTHER. PRIOR TO ANY EXCAVATION FOR UNDERGROUND UTILITIES, CONTRACTOR SHALL EXPOSE AND VERIFY LOCATIONS (HORIZONTAL AND VERTICAL) OF ALL EXISTING UTILITIES INCLUDING BUT NOT LIMITED TO GAS, WATER, STORM SEWER AND SANITARY SEWER. ANY CONFLICTS SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER AND THE APPROPRIATE AUTHORITIES.

OWNER

COSTCO WHOLESALE
730 LAKE DRIVE
ISSAQUAH, WASHINGTON 98027
CONTACT: ED NAVARRO
(425) 313-8100
(425) 313-6770 (fax)

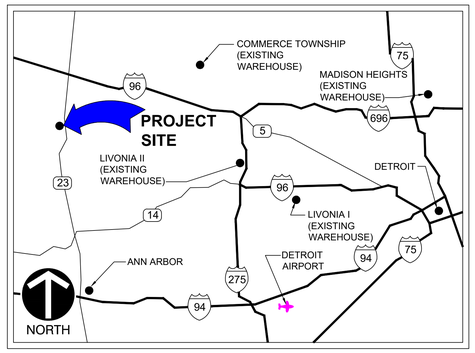
ENGINEER

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
10300 ALLIANCE ROAD, SUITE 300
CINCINNATI, OHIO 45242
CONTACT: AARON HURT, P.E., AICP
(513) 985-0226
(513) 985-0228 (fax)

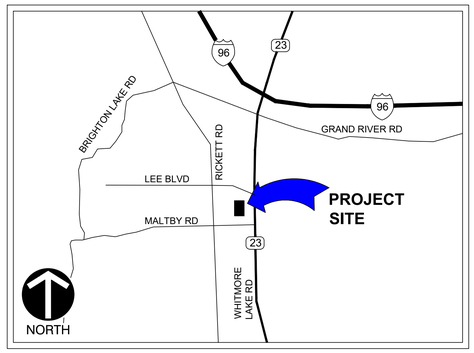
ARCHITECT

MG2 CORPORATION
1101 SECOND AVENUE, SUITE 100
SEATTLE, WASHINGTON 98101
CONTACT: JARED BASSETTI
(206) 962-6512

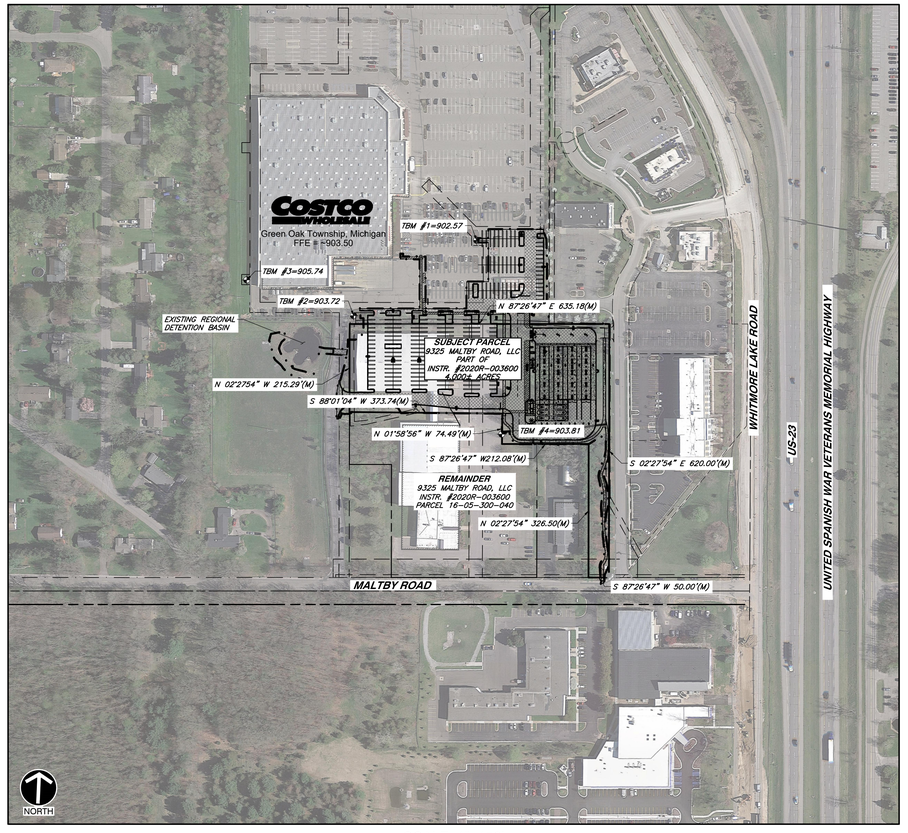
REGIONAL MAP



VICINITY MAP



SITE MAP



SCALE: 1"=150'

BENCHMARKS:
THE NORTHING AND EASTING SHOWN ARE APPROXIMATE AND ONLY INTENDED TO PROVIDE RECOVERY OF THE BENCHMARK. THESE COORDINATES ARE NOT INTENDED TO BE USED FOR THE HORIZONTAL CONTROL OF THE PROJECT. THE HORIZONTAL CONTROL FOR THE PROJECT SHALL BE CONTROLLED BY THE MONUMENTS FOUND OR SET BY A PROFESSIONAL SURVEYOR.

SOURCE BENCHMARK:
TOP OF A 5/8" SOLID REBAR THIRTY INCHES IN LENGTH WITH A PINK PLASTIC CAP BEARING THE INITIALS "CEC INC TRAVERSE", CEC POINT #1. THE ELEVATION WAS DETERMINED USING STATIC GPS OBSERVATIONS PERFORMED ON DECEMBER 12 OF THE YEAR 2023 AS BASED ON USING M.D.O.T. CORS NETWORK, MICHIGAN SOUTH ZONE NAD 83 (2011 ADJUSTMENT), NAVD 88 (GEOID12B / 18) DATUM.
NORTHING: 365852.35
EASTING: 13286145.61
ELEVATION: 901.90

BENCHMARK 1:
CROSS ON WEST BONNET BOLT OF FIRE HYDRANT LOCATED +– 100 FT NORTHWESTERLY OF THE COSTCO GAS STATION AND +– 200 FT EASTERLY OF THE SOUTHWEST CORNER OF COSTCO ON A PARKING LOT ISLAND.
ELEVATION: 902.57 (NAVD 88)

BENCHMARK 2:
CROSS ON NORTHEAST BONNET BOLT OF FIRE HYDRANT LOCATED ON THE EAST SIDE OF THE SOUTH COSTCO ENTRANCE DRIVE LEADING TO MALTBY ROAD.
ELEVATION: 903.72 (NAVD 88)

BENCHMARK 3:
CROSS ON TOP OF SOUTHWESTERLY BONNET BOLT OF FIRE HYDRANT LOCATED ON THE WEST SIDE OF DRIVE LOCATED NEAR THE SOUTHWEST CORNER OF COSTCO BEING +– 10 FT WEST FROM THE WEST EDGE OF ASPHALT.
ELEVATION: 905.74 (NAVD 88)

BENCHMARK 4:
CROSS ON NORTHWEST BOLT OF LIGHT POLE LOCATED ON THE EAST SIDE OF THE PARKING LOT OF BRIVAR CONSTRUCTION +– 300 FT NORTHWESTERLY OF THE SOUTHWEST CORNER OF THE BUILDING.
ELEVATION: 903.81 (NAVD 88)

REFERENCE

1. AERIAL PHOTOGRAPHY BY GOOGLE EARTH, PROVIDED BY PLEXEARTH, ACCESSED 01/12/2024, DATED 05/2022.

DRAWING INDEX

Sheet Number	Sheet Title
C000	COVER SHEET
C001	ALTA NSPS LAND TITLE SURVEY
C002	ALTA NSPS LAND TITLE SURVEY
C100	EXISTING CONDITIONS & DEMOLITION PLAN
C200	SITE LAYOUT PLAN
C201	CURB ISLAND DIMENSION PLAN
C300	GRADING PLAN
C301	EROSION & SEDIMENT CONTROL PLAN
C302	EROSION & SEDIMENT CONTROL NOTES & DETAILS
C303	EROSION & SEDIMENT CONTROL NOTES & DETAILS
C400	STORM SEWER PLAN
C401	STORM SEWER PROFILES
C500	UTILITY PLAN
C501	WATER & SANITARY PROFILES AND GRINDER PUMP DETAILS
C700	FUEL FACILITY SITE PLAN
C701	FUEL FACILITY GRADING PLAN
C702	FUEL FACILITY DETAILS, SECTIONS & NOTES
C800	SITE DETAILS
C801	SITE DETAILS
C802	SITE DETAILS
C803	LCWA WATER DETAILS & NOTES
C804	LCWA WATER DETAILS & NOTES
C805	LCWA WATER DETAILS & NOTES
C806	LIVINGSTON COUNTY STANDARD STORM SEWER DETAILS

PROJECT CONTACTS:

PLANNING & ZONING:
GREEN OAK CHARTER TOWNSHIP
PLANNING AND ZONING DEPARTMENT
10001 SILVER LAKE RAOD
BRIGHTON, MI 48116
CONTACT: DEBRA MCKENZIE
PH: (810) 231-1333 EXT: 104
DEBRA.MCKENZIE@GREENOAKTWP.COM

FIRE MARSHALL
GREEN OAK TOWNSHIP FIRE DEPARTMENT
9384 WHITMORE LAKE ROAD
BRIGHTON, MI 48116
CONTACT: KEVIN GENTRY
PH: (810) 231-3663
KEVIN.GENTRY@GREENOAKFIRE.COM

WATER SERVICE:
GREEN OAK CHARTER TOWNSHIP
LIVINGSTON COMMUNITY WATER AUTHORITY
10001 SILVER LAKE ROAD
BRIGHTON, MI 48116
CONTACT: RICH HOBGOOD
PH: (734) 466-4492

STORM SEWER SERVICE:
LIVINGSTON COUNTY DRAIN COMMISSIONER
CIVIL ENGINEERING SOLUTIONS, INC.
1150 CORPORATE OFFICE DRIVE, SUITE 210
MILFORD, MI 48381
CONTACT: RICK MINER
PH: (586) 961-9254, EXT. 2002

ELECTRIC SERVICE
DTE ENERGY
2000 SECOND AVENUE
DETROIT, MI 48226
CONTACT: BRIAN GARLAND
PH: (313) 235-6421

GAS SERVICE:
CONSUMERS ENERGY
1015 S. LATSON ROAD
HOWELL, MI 48843
PH: (810) 231-1333

TELEPHONE SERVICE:
SBC MIDWEST
421 E. GRAND RIVER
HOWELL, MI 48843
PH: (517) 548-6911

SANITARY SERVICE:
GREEN OAK CHARTER TOWNSHIP
10001 SILVER LAKE ROAD
BRIGHTON, MI 48116
CONTACT: MARK ST. CHARLES
PH: (810) 231-1333, EXT. 102

QUANTITY LIST:

Item	Description	Quantity	Unit	Material
1	Light Duty Asphalt	8441	SY	Per Detail
2	Heavy Duty Asphalt	5803	SY	Per Detail
3	Concrete Pavement	2987	SY	Per Detail
4	Concrete Curb	4253	LF	Per Detail
5	Concrete Curb and Gutter	3498	LF	Per Detail
6	Concrete Sidewalk	935	SY	Per Detail
7	Storm Inlet Structure	7	EA	4' Dia. Catch Basin
8	Storm Landscaping Drain	1	EA	Detail 03/C800
9	Storm Headwall	1	EA	MDOT Precast Conc. End Section
10	Storm Cleanout	7	EA	Detail 03/C702
11	Oil Water Separator	1	EA	1,000 Gallon - Detail 02/C702
12	4" Underdrain	1887	LF	Perforated HDPE Pipe
13	6" PVC Storm Pipe	818	LF	Sch. 40 PVC
14	8" PVC Storm Pipe	158	LF	Sch. 40 PVC
15	12" HDPE Storm Pipe	203	LF	N-12 HDPE (or approved equal)
16	15" HDPE Storm Pipe	538	LF	N-12 HDPE (or approved equal)
17	24" HDPE Storm Pipe	222	LF	N-12 HDPE (or approved equal)
18	24" RCP Storm Pipe	111	LF	Class IV RCP
19	E-One DH071-93 Grinder Pump	1	EA	Per Manufacturer Requirements
20	Terminal End Flushing Assembly	1	EA	Per Manufacturer Requirements
21	Lateral Assembly Pit	1	EA	Per Manufacturer Requirements
22	Sanitary Monitoring Manhole	1	EA	Per Township Details & Requirements
23	Sanitary Cleanout/Air Release Valve	1	EA	Per Manufacturer Requirements
24	1-1/4" Sanitary Line	527	LF	SDR 11 HDPE
25	4" Sanitary Line	16	LF	SDR 26 PVC
26	Fire Hydrant and Valve Box Assembly	3	EA	EJ Model 5-BR-250 (Sheets C803-C805)
27	New 1" Water Line	98	LF	HDPE SDR-9
28	New 6" Waterline	175	LF	Class 52, Polyethylene-Wrapped D.I.P.
29	New 8" Waterline	329	LF	Class 52, Polyethylene-Wrapped D.I.P.
30	Upright Post Indicator Valve	1	EA	Nibco "NIP-1AU" (or approved equal)
31	45 Degree Waterline Bend	2	EA	See Sheets C803, C804, & C805
32	1" Corp Stop and Curb Box	1	EA	See Sheets C803, C804, & C805
33	8x8x6 Tee	1	EA	See Sheets C803, C804, & C805
34	8x8x8 Tee	2	EA	See Sheets C803, C804, & C805
35	6" valve box	3	EA	See Sheets C803, C804, & C805
36	8" valve box	2	EA	See Sheets C803, C804, & C805
37	8" to 6" Reducer	2	EA	See Sheets C803, C804, & C805
38	Double Check Detector Assembly	1	EA	See Sheets C803, C804, & C805

NOTES & ASSUMPTIONS
1. Estimate does not include fuel station canopy, tanks, kiosk, and other fuel center equipment.

NOTE: THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION AND SHALL CONTACT THE MICHIGAN UTILITIES PROTECTION SERVICE A MINIMUM OF TWO (2), BUT NO MORE THAN TEN (10) WORKING DAYS PRIOR TO DIGGING AT TELEPHONE NO. 1–800–482–7171. NO EXCAVATION SHALL COMMENCE UNTIL ALL APPLICABLE UTILITIES HAVE BEEN CLEARED. NON–MEMBER UTILITIES MUST BE CONTACTED DIRECTLY.

NOTE: PRIOR TO ANY EXCAVATION FOR UNDERGROUND UTILITIES, CONTRACTOR SHALL EXPOSE AND VERIFY LOCATIONS (HORIZONTAL AND VERTICAL) OF ALL EXISTING UTILITIES INCLUDING BUT NOT LIMITED TO GAS, WATER, AND SANITARY SEWER. ANY CONFLICTS SHALL BE REPORTED, IMMEDIATELY, TO THE ENGINEER AND THE APPROPRIATE AUTHORITIES.

MISS DIG 811

STATE OF MICHIGAN
PATRICK T. BENNETT
ENGINEER
NO. 6201052209
LICENSED PROFESSIONAL ENGINEER

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	10/30/2024	ISSUED FOR PRELIMINARY PUD REVIEW
	03/18/2024	REISSUED FOR PRELIMINARY PUD REVIEW
	05/03/2024	ISSUED FOR PRELIMINARY SITE PLAN / PUD REVIEW
	11/01/2024	ISSUED FOR ENGINEERING REVIEW
	12/13/2024	ISSUED FOR PLANNING REVIEW RE-SUBMITTAL #1

10300 Alliance Road
Suite 300
Cincinnati, OH 45242
Ph: 513.985.0226
www.cecinc.com

Civil & Environmental Consultants, Inc.

COSTCO WHOLESALE
Green Oak Charter Township, Michigan

COVER SHEET

DATE:	NOVEMBER 2024
DRAWN BY:	PES
CHECKED BY:	ACH
DWG SCALE:	AS SHOWN
PROJECT NO:	336-603
APPROVED BY:	PTB*

*SIGNATURE ON FILE.

DRAWING NO.: C000

P:\336-603\336-603_CADD\Dwg\Civil\336603-C001-COVER SHEET(12/2/2024 - pbennett) - LP: 2/5/2025 3:59 PM

ALTA / NSPS LAND TITLE SURVEY

PART OF THE SOUTHWEST QUARTER OF SECTION 5,
TOWNSHIP 1 NORTH, RANGE 6 EAST,
GREEN OAK TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN



VICINITY MAP
NOT TO SCALE

NORTH
MICHIGAN STATE PLANE
SOUTH ZONE BEARINGS

EXISTING BUILDING
CONCRETE CURB
CURB ISLAND
GAS PIPES
CONCRETE
EDGE OF CONCRETE
CONCRETE
CURB ISLAND
CURB ISLAND
CURB ISLAND
EMERGENCY SHUT OFF
CONCRETE
ADJOINER
COSTCO WHOLESALE CORPORATION
LIBER 4505 PAGE 245
APPROXIMATE LOCATION OF GAS LINE PER PLANS PROVIDED
25' WATER MAIN EASEMENT
LIBER 4743, PAGE 140
11
EDGE OF CONCRETE
ASPHALT
ASPHALT
GATEWAY SHOPPES AT GREEN OAK
INSTR. #2006R-018740
KNOWN AS LIVINGSTON COUNTY
CONDOMINIUM SUBDIVISION PLAN NO. 363
UNIT 4
12' OVERHEAD WIRE EASEMENT
2006R-018740
UNIT 3
TRANSFORMER
FD. CONCRETE MONUMENT
S 89°46'19" E 635.18'(R)
N 87°26'47" E 635.18'(M)
4" PVC PIPES
12
10' WIDE DETROIT EDISON EASEMENT
LIBER 4743, PAGE 0140
FD. 1/2" REBAR
0.5' SOUTH OF CORNER
0.5' DEED OVERLAP
FENCE WITHIN 1.0' OF LINE
ASPHALT
CONCRETE CURB
25' WATER MAIN EASEMENT
LIBER 4743, PAGE 140
11
GRASS
GRASS
LOADING DOCK
ASPHALT
CONCRETE CURB
12
10' WIDE DETROIT EDISON EASEMENT
LIBER 4743, PAGE 0140
SEPTIC FIELD PER PLANS PROVIDED
EDGE OF ASPHALT
PARENT PARCEL
9325 MALTBY ROAD, LLC
PART OF
INSTR. #2020R-003600
7.439± ACRES
SUBJECT PARCEL
LAND DIVISION
4.000± ACRES
FENCE WITHIN 1.0' OF LINE
4" PVC PIPES
EXISTING BUILDING
GRASS
EDGE OF ASPHALT
LOADING DOCK
CONCRETE
33' UTILITY & INGRESS/EGRESS EASEMENT
LIBER 1275, PAGE 465
10
ASPHALT
UNIT 5
392.8'
GRASS
ASPHALT
CONCRETE CURB
DRIVE A
TRANSFORMER
S 88°01'04" W 373.74'(M)
N 88°01'04" E 373.74' (M)
0.7' DEED OVERLAP
GRASS
CONCRETE
S 01°58'56" E 74.49'(M)
N 01°58'56" W 74.49'(M)
FENCE 5.6'-6.3' NORTH OF LINE
S 87°26'47" W 212.08'(M)
S 87°26'47" W 126.47'(M)
N 89°46'19" W 126.47'(R)
4.4' DEED GAP
N 87°26'47" E 85.61'
4.4' DEED OVERLAP
FENCE GENERALLY ALONG LINE
GATEWAY SHOPPES AT GREEN OAK
INSTR. #2006R-018740
KNOWN AS LIVINGSTON COUNTY
CONDOMINIUM SUBDIVISION PLAN NO. 363
ADJOINER
COSTCO WHOLESALE CORPORATION
LIBER 4505 PAGE 245
FD. 1/2" REBAR
0.9' EAST OF CORNER
FD. 1/2" REBAR
0.8' EAST & 0.1' NORTH OF CORNER
S 87°26'47" W 103.00'(M)
N 89°46'19" W 103.00'(R)
0.8' DEED OVERLAP
0.8' DEED OVER LAP
REMAINDER
9325 MALTBY ROAD, LLC
INSTR. #2020R-003600
PARCEL 16-05-300-040
3.439± ACRES
EAST LINE
LIBER 1275, PAGE 465
COMMITMENT PARCEL LINE
SUBJECT LINE
ADJOINER
9449 MALTBY, BRIGHTON, MICHIGAN 48116
LIBER 2285 PAGE 529
PARCEL 16-05-300-036
S 02°27'54" E 620.00'(M)
S 01°19'00" W 620.02'(R)
UNIT 6
EXISTING BUILDING
ADJOINER
GIULIO J. COGO
INSTR. #2022R-025101
PARCEL 16-05-300-071
33'
12' OVERHEAD WIRE EASEMENT
2006R-018740
S 2°27'54" E 326.50'(M)
S 01°19'00" W 326.50'(R)
N 01°19'00" E 326.50'(R)
N 02°27'54" W 326.50'(M)
RIPRAP
CONCRETE CURB
APPROXIMATE LOCATION OF GAS AND WATER LINES PER PLANS PROVIDED
N 01°19'00" E 276.50'(R)
N 2°27'54" W 276.50'
25'
GRASS
ASPHALT
GRASS
POINT OF BEGINNING
FD. CONC. MONUMENT
POINT OF COMMENCEMENT
S 1/4 CORNER
SEC. 5, T.1N., R.6E.
45' UTILITY EASEMENT
LIBER 4758, PAGE 530
13
(ACCESS)
(ACCESS)
POINT OF BEGINNING
(REMAINING PARCEL)
7
S 87°26'47" W 508.27'
S 87°26'47" W 126.47'(M)
S 87°26'47" W 331.80'(M)
N 89°46'19" W 331.80'(R)
FD. 1/2" REBAR
1.0' EAST & 0.3' NORTH OF CORNER
SOUTH LINE SECTION 5, T.1N., R.6E.
S 87°26'47" W 355.71'(M)
N 89°46'19" W 355.71'(R)
1.1' DEED OVERLAP
40' GAS MAIN EASEMENT
LIBER 1275, PAGE 465
S 87°26'47" W 50.00'(M)
N 89°46'19" W 50.00'(R)
SE CORNER
SEC. 5, T.1N., R.6E.
S 87°26'47" W 1807.37'(M)
ASSUMED CENTERLINE MALTBY ROAD
ASSUMED NORTH R/W OF 66' WIDE MALTBY ROAD
MALTBY ROAD
(66' PUBLIC RIGHT-OF-WAY)

LEGEND:

- EXISTING PROPERTY LINE
- EXISTING ADJACENT PROPERTY LINE
- EXISTING SECTION LINE
- EXISTING EASEMENT
- EXISTING RIGHT-OF-WAY
- EXISTING CHAINLINK FENCE LINE
- EXISTING GUARDRAIL
- EXISTING WATER LINE
- EXISTING UNDERGROUND TELEPHONE
- EXISTING FIBER OPTIC LINE
- EXISTING UNDERGROUND ELECTRIC
- EXISTING OVERHEAD LINES
- EXISTING SANITARY SEWER LINE
- EXISTING COMBO SEWER LINE
- EXISTING STORM SEWER LINE
- EXISTING GAS LINE
- SEC. COR., R/W MARKER, MAG NAIL FD., IRON ROD FD., MON. SET* *REBAR/CAP OR NAIL/WASHER STAMPED "CEC INC FIRM #0122"
- ELEC. LIGHT POLE, PULL BOX, POWER POLE, UTILITY POLE, GUY WIRE, ELEC. TRANSFORMER
- GAS VALVE, GAS METER, GAS LINE MARKER
- WATER MANHOLE, IRRIGATION CONTROL BOX, WATER TAP, WATER METER, FIRE HYDRANT, PIV VALVE, FIRE DEPT. CONNECTION, WATER VALVE
- ELECTRIC MANHOLE, TELEPHONE PEDESTAL, CABLE PEDESTAL, FIBER OPTIC PULL BOX
- BEEHIVE INLET, CURB INLET, RECESSED CURB INLET, DOWNSPOUT, SQUARE STORM INLET, CIRCULAR STORM INLET, DRAINAGE MANHOLE
- UNKNOWN MANHOLE, CLEANOUT, SANITARY MANHOLE, COMBINATION MANHOLE
- MAIL BOX, SIGN, AIR COND., ADA SYMBOL, BOLLARD
- PARKING METER, TRAFFIC POLE, TRAFFIC MANHOLE,
- (M) (R) MEASURED, RECORD

CALL MISS DIG 3 WORKING DAYS BEFORE
ANY EXCAVATION 1-800-482-7171

SCALE IN FEET
0 40' 80'

DRAFT

REVISION RECORD

NO	DATE	DESCRIPTION
1	1/25/2024	UPDATE ALTA SURVEY FROM REVISED TITLE COMMITMENT - NO SURVEY RELATED CHANGES
2	3/22/2024	FROM UTILITIES FROM UTILITY LOCATE
3	3/27/2024	ADD RECORDED BEARINGS TO DESCRIPTIONS AND ADD DESCRIPTION FOR REMAINING PARCEL
4	7/12/2024	ILLUSTRATE DETROIT EDISON RIGHT-OF-WAY FROM CHAPTER REVIEW OF RECORDED DOCUMENT

Civil & Environmental Consultants, Inc.
One SeaGate · Suite 2050 · Toledo, OH 43604
Ph: 419.724.5281 · Fax: 419.724.5286
www.cecinc.com

COSTCO WHOLESALE
PARKING AND FUEL
6700 WHITMORE LAKE ROAD
BRIGHTON, MICHIGAN

ALTA/NSPS LAND TITLE SURVEY

DATE:	JANUARY 5, 2024
DRAWN BY:	CJV
DWG SCALE:	1"=40'
CHECKED BY:	SAW
PROJECT NO:	336-603
APPROVED BY:	DRAFT

DRAWING NO.: ALTA
SHEET 1 OF 2

P:\336-0001\336-603\1-Survey\Dwg\336603-SHT1-Alta Survey.dwg(ALTA-1) 1/5/7/12/2024 - swenke) - LP 7/12/2024 10:00 AM

ALTA / NSPS LAND TITLE SURVEY

PART OF THE SOUTHWEST QUARTER OF SECTION 5,
TOWNSHIP 1 NORTH, RANGE 6 EAST,
GREEN OAK TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

LEGAL DESCRIPTION (PARENT PARCEL)
BASED UPON FIRST AMERICAN TITLE INSURANCE COMPANY NATIONAL COMMERCIAL SERVICES TITLE COMMITMENT NO.: NCS–1197415–WA1
COMMITMENT DATE: DECEMBER 28, 2023 AT 8:00 A.M.

Land in the Township of Green Oak, Livingston County, MI, described as follows:
Part of the Southwest 1/4 of Section 5, Town 1 North, Range 6 East, Green Oak Township, Livingston County, Michigan, described as: Beginning at a point on the South line of said Section 5, distant North 89 degrees 46 minutes 19 seconds West, 331.80 feet from the South 1/4 corner of said Section 5; thence North 89 degrees 46 minutes 19 seconds West, along said South line of Section 5, 50.00 feet; thence North 0 degrees 19 minutes 00 seconds East, 326.50 feet; thence North 89 degrees 46 minutes 19 seconds West, 126.47 feet; thence South 00 degrees 19 minutes 00 seconds West, 326.50 feet; thence North 89 degrees 46 minutes 19 seconds West, along said South line of Section 5, 355.71 feet, thence North 00 degrees 19 minutes 00 seconds East, 276.50 feet; thence North 89 degrees 46 minutes 19 seconds West, 103.00 feet; thence North 00 degrees 19 minutes 00 seconds East, 343.50 feet; thence South 89 degrees 46 minutes 19 seconds East, 635.18 feet; thence South 00 degrees 19 minutes 00 seconds West, 620.00 feet to the point of beginning.

PARCEL SPLIT (SUBJECT PARCEL)
Part of the land described in Instrument Number 2020R–003600, being located in the Southwest Quarter of Section 5, Town 1 North, Range 6 East, Green Oak Township, Livingston County, Michigan, being more particularly described as follows:
Commencing at the South Quarter Corner of said Section 5; thence South 87 degrees 26 minutes 47 seconds West (recorded as North 89 degrees 46 minutes 19 seconds West) along the South line of said Section 5, a distance of 331.80 feet to the Southeast Corner of land recorded in said Instrument Number 2020R–003600, for the POINT OF BEGINNING;
thence continuing along said south line, South 87 degrees 26 minutes 47 seconds West (recorded as North 89 degrees 46 minutes 19 seconds West), 50.00 feet;
thence North 02 degrees 27 minutes 54 seconds West (recorded as North 0 degrees 19 minutes 00 seconds East), 326.50 feet;
thence South 87 degrees 26 minutes 47 seconds West (recorded as North 89 degrees 46 minutes 19 seconds West), 212.08 feet;
thence North 01 degrees 58 minutes 56 seconds West, 74.49 feet;
thence South 88 degrees 01 minutes 04 seconds West, 373.74 feet to the east line of parcel recorded in Liber 4505, Page 245;
thence along said east line, North 02 degrees 27 minutes 54 seconds West (recorded as North 0 degrees 19 minutes 00 seconds East), 215.29 feet to the south line of said parcel (L.4505, P.245);
thence along said south line, North 87 degrees 26 minutes 47 seconds East (Recorded as South 89 degrees 46 minutes 19 seconds East), 635.18 feet to the west line of Gateway Shoppes at Green Oak, Condominium Subdivision Plan No. 363, Recorded in Document No. 2006R–018740, Livingston County Register of Deeds Office;
thence along said west line, South 02 degrees 27 minutes 54 seconds East (Recorded as South 0 degrees 19 minutes 00 seconds West), 620.00 feet to the Point of Beginning, containing 4.000 acres of land, more or less

REMAINING PARCEL DESCRIPTION
Part of the land described in Instrument Number 2020R–003600, being located in the Southwest Quarter of Section 5, Town 1 North, Range 6 East, Green Oak Township, Livingston County, Michigan, being more particularly described as follows:
Commencing at the South Quarter Corner of said Section 5; thence South 87 degrees 26 minutes 47 seconds West (recorded as North 89 degrees 46 minutes, 19 seconds West), along the South line of said Section 5, a distance of 508.27 feet to a southerly corner of land recorded in said Instrument Number 2020R–003600, for the POINT OF BEGINNING;
thence continuing along said south line, South 87 degrees 26 minutes 47 seconds West (recorded as North 89 degrees 46 minutes 19 seconds West), 355.71 feet to the east line of parcel described in instrument no. 2022R–025101;
thence along said east line, North 02 degrees 27 minutes 54 seconds West (Recorded as North 0 degrees 19 minutes 00 seconds East), 276.50 feet to the north line of said parcel;
thence South 87 degrees 26 minutes 47 seconds West (Recorded as North 89 degrees 46 minutes 19 seconds West), 103.00 feet to the east line of parcel recorded in Liber 4505, Page 245;
thence along said east line, North 02 degrees 27 minutes 54 seconds West (Recorded as North 0 degrees 19 minutes 00 seconds East), 128.21 feet;
thence North 88 degrees 01 minutes 04 seconds East, 373.74 feet;
thence South 01 degrees 58 minutes 56 seconds East, 74.49 feet;
thence North 87 degrees 26 minutes 47 seconds East, 85.61 feet to the west line of parcel recorded in Liber 2285, Page 529;
thence along said west line, South 02 degrees 27 minutes 54 seconds East (Recorded as South 0 degrees 19 minutes 00 seconds West), 326.50 feet to the point of beginning, Containing 3.439 acres of land, more or less

2021 MINIMUM STANDARD ALTA/NSPS TABLE A ITEMS:

ITEM 1: MONUMENTS FOUND OR SET AS SHOWN ON THE SURVEY.

ITEM 2: 9325 MALTBY ROAD, BRIGHTON, MICHIGAN 48116

ITEM 3: THE PARCEL DESCRIBED AND SHOWN HEREIN LIES WITHIN ZONE "X" (UN–SHADED) AS SAID PARCEL PLOTS ON MAP NUMBER 26093C0345D (DATED SEPTEMBER 17, 2008) OF THE FLOOD INSURANCE RATE MAPS FOR THE TOWNSHIP OF GREEN OAK, LIVINGSTON COUNTY, MICHIGAN. THE ACCURACY OF THIS FLOOD HAZARD STATEMENT IS SUBJECT TO MAP SCALE UNCERTAINTY AND TO ANY OTHER UNCERTAINTY IN LOCATION OR ELEVATION ON THE REFERENCED FLOOD INSURANCE RATE MAP.

ITEM 4: THE AREA OF THE COMMITMENT PARCEL IS 7.439± ACRES
THE AREA OF THE SUBJECT PARCEL IS 4.000 ACRES

ITEM 5: ELEVATIONS SHOWN HEREON ARE BASED UPON AN OPUS SOLUTION AND ARE ON THE 1988 NORTH AMERICAN VERTICAL DATUM (NAVD88) GEOID 18. IT IS MY OPINION THAT THE UNCERTAINTY IN THE ELEVATION OF THE PROJECT BENCHMARK DOES NOT EXCEED 0.10 FOOT.

ITEM 7(a): THE DIMENSIONS OF THE BUILDINGS AT GROUND LEVEL (FOOTPRINT) ARE AS SHOWN ON THE SURVEY.

ITEM 8: SUBSTANTIAL FEATURES OBSERVED IN THE PROCESS OF CONDUCTING THE SURVEY ARE AS SHOWN ON THE SURVEY.

ITEM 9: THERE ARE 16 PARKING SPACES LOCATED ON THE SUBJECT PARCEL.

ITEM 11(a): THE UTILITIES SHOWN HEREON HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND/OR EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UTILITIES LOCATED HEREON COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UTILITIES LOCATED ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. MICHIGAN 811 ONE–CALL PUBLIC UTILITY LOCATE SERVICE TICKET NUMBER 2023121100897 WAS ISSUED FOR THIS SITE.

WITH REGARD TO TABLE A, ITEM 11 SOURCE INFORMATION FROM PLANS AND MARKINGS WILL BE COMBINED WITH OBSERVED EVIDENCE OF UTILITIES PURSUANT TO SECTION 5.E.IV. TO DEVELOP A VIEW OF THE UNDERGROUND UTILITIES. HOWEVER LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. IN ADDITION, SOME JURISDICTIONS, 811 OR OTHER SIMILAR UTILITY LOCATE REQUESTS FROM SURVEYORS MAY BE IGNORED OR RESULT IN AN INCOMPLETE RESPONSE, IN WHICH CASE THE SURVEYOR SHALL NOTE ON THE PLAT OR MAP HOW THIS AFFECTED THE SURVEYOR'S ASSESSMENT OF THE LOCATION OF THE UTILITIES. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION AND/OR A PRIVATE UTILITY LOCATE REQUEST MAY BE NECESSARY.

ITEM 13: NAMES OF ADJOINING OWNERS OF PLATTED LANDS ACCORDING TO PUBLIC RECORD ARE AS SHOWN ON THE SURVEY.

SCHEDULE B - PART II:

BASED UPON FIRST AMERICAN TITLE INSURANCE COMPANY NATIONAL COMMERCIAL SERVICES TITLE COMMITMENT NO.: NCS–1197415–WA1
COMMITMENT DATE: DECEMBER 28, 2023 AT 8:00 A.M.

ITEMS 1–6, 8, 9, & 14–19 ARE NOT SURVEY RELATED.

7. 7. Right of Way in favor of Consumers Power Company and the Covenants, Conditions and Restrictions contained in instrument recorded in Liber 461, page 610. **[LIES ON A SOUTHERN PORTION OF THE SUBJECT PARCEL. DEPICTED HEREON.]**

10. 10. Easements, Terms and Conditions contained in Warranty Deed as disclosed by instrument recorded in Liber 1275, page 465. **[33 FOOT WIDE UTILITY & INGRESS/EGRESS EASEMENT CROSSES THE SUBJECT PARCEL. DEPICTED HEREON.]**

11. 11. Water Main Easement in favor of Livingston Community Water Authority and the Covenants, Conditions and Restrictions contained in instrument recorded in Liber 4465, page 241. **[25 FOOT WIDE WATER MAIN EASEMENT LIES ALONG THE WEST LINE OF THE SUBJECT PARCEL. DEPICTED HEREON.]**

12. 12. Detroit Edison Overhead and Underground Easement (Right of Way) No. R–529653–5 in favor of The Detroit Edison Company and the Covenants, Conditions and Restrictions contained in instrument recorded in Liber 4743, page 140. **[RIGHT-OF-WAY DOCUMENT DOES NOT HAVE A PLOTTABLE WRITTEN DESCRIPTION, BUT RIGHT-OF-WAY WAS INTERPRETED FROM THE DRAWING ON PAGE 2. RIGHT-OF-WAY DOCUMENT, PAGE 1, CALLS FOR A TEN (10) FEET WIDE RIGHT-OF-WAY BUT SAID DRAWING NOTES "12 FOOT WIDE EASEMENT". THE RIGHT-OF-WAY LOCATION WAS INTERPRETED BETWEEN EXISTING POWER POLES AND SHOWN HEREON AS 10 FOOT WIDE.**

13. 13. Permanent Utility Easement in favor of Livingston Community Water Authority and the Covenants, Conditions and Restrictions contained in instrument recorded in Liber 4758, page 530. **[LIES ON A SOUTHERN PORTION OF THE SUBJECT PARCEL. DEPICTED HEREON.]**

BASIS OF BEARINGS:
THE BEARINGS SHOWN ON THIS SURVEY ARE BASED ON THE MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD83 (NSRS 2011 ADJUSTMENT). SAID BEARING WAS ESTABLISHED BY STATIC AND RTK GPS OBSERVATIONS CALCULATED USING NATIONAL GEODETIC SURVEY, OPUS–S SERVICE PERFORMED ON JANUARY 2, 2024.

IRON PINS:
ALL IRON PINS SET ARE 5/8" SOLID REBAR AT LEAST 24 INCHES IN LENGTH WITH AN ORANGE PLASTIC SURVEY BEARING THE INITIALS "CEC INC LPS 41913"

PERTINENT DOCUMENTS:
DEEDS OF RECORD ON FILE AT THE LIVINGSTON COUNTY RECORDER'S OFFICE, EXISTING SURVEYS OF RECORD & TAX MAPS ON FILE AT LIVINGSTON COUNTY.

NOTES:
1) THE RIGHT–OF–WAY OF MALTBY ROAD IS TO BE 66 FEET WIDE, WITH THE NORTH RIGHT–OF–WAY LINE BEING ALONG THE SOUTH LINE OF SECTION 5, PER LIBER 4465, PAGE 241 & LIBER 4758, PAGE 530 DESCRIPTIONS.

2) THE SUBJECT PARCEL HAS DIRECT ACCESS VIA MALTBY ROAD AS WELL AS INDIRECT ACCESS TO MALTBY ROAD VIA LIBER 1275, PAGE 465.

3) THE SUBJECT PARCEL DOES NOT HAVE ACCESS THROUGH DRIVE A OF THE GATE WAY SHOPPES AT GREEN OAK, CONDOMINIUM SUBDIVISION PLAN NO. 363

4) CALL MISS DIG 3 WORKING DAYS BEFORE ANY EXCAVATION 1–800–482–7171

THE UNDERSIGNED, BEING A REGISTERED SURVEYOR IN THE STATE OF MICHIGAN CERTIFIES TO:

(I) FIRST AMERICAN TITLE INSURANCE COMPANY NATIONAL COMMERCIAL SERVICES
(II) COSTCO WHOLESALE CORPORATION
(III) 9325 MALTBY ROAD, LLC, A MICHIGAN LIMITED LIABILITY COMPANY

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 "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, 7(a), 8, 9, 11(a), 13 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON: JANUARY 2024

DRAFT

SCOTT A. WARNKE, P.S. DATE
PROFESSIONAL LAND SURVEYOR
MICHIGAN LICENSE NO. 4001041913

DRAFT

REVISION RECORD

NO	DATE	DESCRIPTION
1	1/25/2024	UPDATE ALTA SURVEY FROM REVISED TITLE COMMITMENT - NO SURVEY RELATED CHANGES
2	2/22/2024	FROM UTILITIES FROM UTILITY LOCATES
3	3/7/2024	ADD RECORDED BEARINGS TO DESCRIPTIONS AND ADD DESCRIPTION FOR REMAINING PARCEL
4	7/12/2024	ILLUSTRATE DETROIT EDISON RIGHT-OF-WAY FROM FURTHER REVIEW OF RECORDED DOCUMENT

Civil & Environmental Consultants, Inc.
One SeaGate · Suite 2050 · Toledo, OH 43604
Ph: 419.724.5281 · Fax: 419.724.5286
www.cecinc.com

COSTCO WHOLESALE
PARKING AND FUEL
6700 WHITMORE LAKE ROAD
BRIGHTON, MICHIGAN

ALTA/NSPS LAND TITLE SURVEY

DATE:	JANUARY 5, 2024
DRAWN BY:	CJV
CHECKED BY:	SAW
DWG SCALE:	
PROJECT NO:	336-603
APPROVED BY:	DRAFT

DRAWING NO.: ALTA

SHEET 2 OF 2

P:\336-000\336-603_Survey\dwg\336603-SVY1-ALTA Survey.dwg[ALTA-2] LS(7/12/2024 - swarnke) - LP: 7/12/2024 10:50 AM

NORTH

COSTCO WHOLESALE

Green Oak Township, Michigan
FFE = ~903.50

KEY NOTES (#)

1. SAWCUT PAVEMENT EDGE IN NEAT, STRAIGHT LINES TO CREATE A CLEAN BUTT JOINT. REMOVE DAMAGED PAVEMENT AND DISPOSE OFF SITE. REFER TO LAYOUT PLAN FOR ASPHALT PLACING AND SEALING INFORMATION.
2. REMOVE EXISTING CONCRETE CURB & GUTTER.
3. REMOVE EXISTING CURB ISLAND AND LANDSCAPING BED.
4. REMOVE EXISTING ELECTRIC BOX, TRANSFORMER, OR UNDERGROUND ELECTRIC TO EXTENTS SHOWN.
5. REMOVE EXISTING LIGHT POLE. RETAIN FOR RELOCATION PENDING OWNER AND CITY APPROVAL.
6. REMOVE EXISTING STORM STRUCTURE AND UNDERGROUND STORM LINE TO EXTENTS SHOWN. ABANDON AND CAP LINE AT END OF PROPOSED CONSTRUCTION LIMITS.
7. REMOVE EXISTING PAINTED STRIPING.
8. REMOVE EXISTING CHAIN LINK FENCE.
9. REMOVE EXISTING FUEL PUMPS AND FUEL TANKS.
10. REMOVE EXISTING BOLLARDS.
11. REMOVE EXISTING SIGN.
12. REMOVE EXISTING AC UNIT.
13. REMOVE EXISTING FIRE HYDRANT, VALVE, AND 6" WATERLINE TO EXTENTS SHOWN. PLUG LINE AT CONNECTION TO WATER MAIN PER LCWA STANDARDS.
14. REMOVE EXISTING GUARDRAIL.
15. EXISTING STORM STRUCTURE TO REMAIN.
16. EXISTING TREE TO REMAIN. PROTECT DURING CONSTRUCTION.
17. EXISTING CONCRETE CURB TO REMAIN.
18. EXISTING CONCRETE CURB & GUTTER TO REMAIN.
19. STRIP AND REMOVE TOPSOIL.
20. EXISTING STORM MANHOLE TO REMAIN. REPLACE SOLID LID WITH GRATE.
21. EXISTING LIGHT POLE TO REMAIN.
22. BUILDING TO BE REMOVED.
23. EXISTING UNDERGROUND TELEPHONE AND CABLE/TV LINES TO BE REMOVED AND RELOCATED AS SHOWN ON SHEET C500. RECONNECT TO POLE PER UTILITY COMPANY REQUIREMENTS.
24. EXISTING POWER POLE TO REMAIN. PROTECT DURING CONSTRUCTION AND AVOID OVERHEAD LINES.
25. EXISTING TRANSFORMER TO REMAIN. PROTECT DURING CONSTRUCTION.

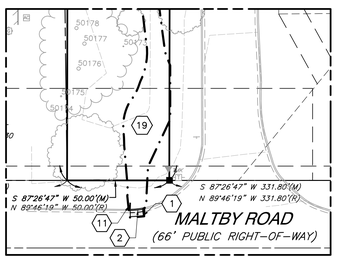
LEGEND

- EXISTING SUBJECT PROPERTY LINE
- EXISTING ADJACENT PROPERTY LINE
- EXISTING INDEX (MAJOR) CONTOUR
- EXISTING INTERMEDIATE (MINOR) CONTOUR
- EXISTING CONCRETE PAVEMENT
- EXISTING BUILDING
- ST — EXISTING STORM PIPE
- 8"W — EXISTING WATER LINE
- G — EXISTING GAS LINE
- EXISTING OVERHEAD WIRE
- UG-E — EXISTING UNDERGROUND ELECTRIC LINE
- COMM — EXISTING DATA/COMMUNICATIONS LINE
- C — EXISTING CABLE/TV LINE
- EXISTING TREE
- EXISTING BOLLARD
- EXISTING SIGN
- EXISTING LIGHT POLE
- EXISTING UTILITY POLE
- EXISTING GUY WIRE
- EXISTING ELECTRIC BOX
- EXISTING AC UNIT
- EXISTING CABLE BOX
- EXISTING GAS METER
- EXISTING VALVE BOX
- EXISTING HYDRANT
- EXISTING FIRE DEPARTMENT CONNECTION
- EXISTING SANITARY MANHOLE
- EXISTING STORM MANHOLE
- EXISTING STORM INLET
- EXISTING TREE TO BE REMOVED
- ASPHALT PAVEMENT TO BE REMOVED
- CONCRETE PAVEMENT TO BE REMOVED

DEMOLITION NOTES

1. ALL EXISTING ABOVE AND BELOW GROUND STRUCTURES WITHIN THE LIMITS OF CONSTRUCTION SHALL BE REMOVED UNLESS NOTED OTHERWISE WITHIN THIS CONSTRUCTION SET AND/OR PROJECT SPECIFICATIONS. THIS INCLUDES FOUNDATION SLABS, WALLS AND FOOTINGS. CAVITIES LEFT BY STRUCTURE REMOVAL SHALL BE BACKFILLED WITH SATISFACTORY MATERIALS AND COMPACTED TO THE GEOTECHNICAL ENGINEER'S RECOMMENDATION.
2. CLEARING LIMITS SHALL BE PHYSICALLY MARKED IN THE FIELD BY THE CONTRACTOR.
3. NO TREES SHALL BE REMOVED, NOR VEGETATION DISTURBED BEYOND THE LIMITS OF CONSTRUCTION WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE OWNER'S REPRESENTATIVE.
4. TREE PROTECTION FENCING SHALL BE IN ACCORDANCE WITH THE TOWNSHIP OF GREEN OAK AND LIVINGSTON COUNTY STANDARDS – OR – IN ACCORDANCE WITH THE DETAILED DRAWINGS. DO NOT OPERATE OR STORE EQUIPMENT, NOR HANDLE OR STORE MATERIALS WITHIN THE DRIP LINES OF THE TREES SHOWN TO REMAIN.
5. PROTECTION OF EXISTING TREES AND VEGETATION: PROTECT EXISTING TREES AND OTHER VEGETATION INDICATED TO REMAIN IN PLACE AGAINST UNNECESSARY CUTTING, BREAKING OR SKINNING OF ROOTS, SKINNING OR BRUISING OF BARK, SMOTHERING OF TREES BY STOCKPILING CONSTRUCTION MATERIALS OR EXCAVATED MATERIALS WITHIN DRIP LINE, EXCESS FOOT OR VEHICULAR TRAFFIC, OR PARKING OF VEHICLES WITHIN DRIP LINE. PROVIDE TEMPORARY GUARDS TO PROTECT TREES AND VEGETATION TO BE LEFT STANDING.
6. ALL DEMOLITION WASTE AND CONSTRUCTION DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE DESIGNATED AND SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF OFFSITE IN A STATE APPROVED WASTE SITE AND IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN. REPAIR DAMAGE ACCORDING TO THE APPROPRIATE UTILITY COMPANY STANDARDS AND AT THE CONTRACTOR'S EXPENSE.
7. ALL UTILITY DISCONNECTION, REMOVAL, RELOCATION, CUTTING, CAPPING AND/OR ABANDONMENT SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANY / AGENCY. UTILITY CONTACTS ARE LISTED ON THE COVER SHEET.
8. THE BURNING OF CLEARED MATERIAL AND DEBRIS SHALL NOT BE ALLOWED UNLESS CONTRACTOR OBTAINS PRIOR WRITTEN AUTHORIZATION FROM THE LOCAL AUTHORITIES.
9. EROSION & SEDIMENT CONTROL MEASURES AROUND AREAS OF DEMOLITION SHALL BE PROPERLY INSTALLED AND FUNCTION PROPERLY PRIOR TO INITIALIZATION OF DEMOLITION ACTIVITIES.
10. ASBESTOS OR HAZARDOUS MATERIALS ARE NOT EXPECTED, IF FOUND ON SITE, SUCH MATERIALS SHALL BE REMOVED BY A LICENSED HAZARDOUS MATERIALS CONTRACTOR. CONTRACTOR SHALL NOTIFY OWNER IMMEDIATELY IF HAZARDOUS MATERIALS ARE ENCOUNTERED.
11. CONTRACTOR SHALL ADHERE TO ALL LOCAL, STATE, FEDERAL AND OSHA REGULATIONS DURING ALL DEMOLITION ACTIVITIES.
12. CONTRACTOR SHALL PROTECT ALL CORNER PINS, MONUMENTS, PROPERTY CORNERS AND BENCHMARKS DURING DEMOLITION ACTIVITIES. IF DISTURBED, CONTRACTOR SHALL HAVE DISTURBED ITEMS RESET BY A LICENSED SURVEYOR AT NO ADDITIONAL COST TO THE OWNER.
13. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES, STRUCTURES, AND FEATURES TO REMAIN. ANY ITEMS TO REMAIN THAT HAVE BEEN DISTURBED OR DAMAGED AS A RESULT OF CONSTRUCTION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT CONTRACTOR'S EXPENSE.
14. CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC CONTROL MEASURES IN ACCORDANCE WITH STATE DEPARTMENT OF TRANSPORTATION REGULATIONS AND AS REQUIRED BY LOCAL AGENCIES WHEN WORKING IN AND/OR ALONG STREETS, ROADS, HIGHWAYS, ETC. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN APPROVAL AND COORDINATE WITH LOCAL AND/OR STATE AGENCIES REGARDING THE NEED, EXTENT AND LIMITATIONS ASSOCIATED WITH INSTALLING AND MAINTAINING TRAFFIC CONTROL MEASURES.
15. PROVIDE NEAT, STRAIGHT, FULL DEPTH, SAW CUTS OF EXISTING PAVEMENT WHERE INDICATED ALONG LIMITS OF PAVEMENT DEMOLITION.
16. ALL UTILITY AND STRUCTURE REMOVAL, RELOCATION, CUTTING, CAPPING AND/OR ABANDONMENT SHALL BE COORDINATED AND PROPERLY DOCUMENTED BY A CERTIFIED PROFESSIONAL, WHEN APPLICABLE, WITH THE APPROPRIATE UTILITY COMPANY, MUNICIPALITY AND/OR AGENCY. DEMOLITION OF REGULATED ITEMS MAY INCLUDE, BUT ARE NOT LIMITED TO WELLS, ASBESTOS, UNDER GROUND STORAGE TANKS, SEPTIC TANKS AND ELECTRIC TRANSFORMERS. DEMOLITION CONTRACTOR SHALL REFER TO ANY ENVIRONMENTAL STUDIES FOR DEMOLITION RECOMMENDATIONS AND GUIDANCE. AVAILABLE ENVIRONMENTAL STUDIES MAY INCLUDE, BUT ARE NOT LIMITED TO PHASE I ESA, PHASE II, WETLAND AND STREAM DELINEATION AND ASBESTOS SURVEY. ALL APPLICABLE ENVIRONMENTAL STUDIES SHALL BE MADE AVAILABLE UPON REQUEST.
17. ALL PAVEMENT, BASE COURSES, SIDEWALKS, CURBS, BUILDINGS, FOUNDATIONS, ETC., WITHIN THE AREA TO BE DEMOLISHED SHALL BE REMOVED TO FULL DEPTH. EXISTING BASE COURSE MATERIALS MAY BE WORKED INTO THE NEW PAVEMENT OR BUILDING SUBGRADE IF THE GRADATION, CONSISTENCY, COMPACTION, SUBGRADE CONDITION, ETC., ARE IN ACCORDANCE WITH THE SPECIFICATIONS AND RECOMMENDATIONS OF THE REPORT OF GEOTECHNICAL INVESTIGATION. BASE COURSE MATERIALS SHALL NOT BE WORKED INTO THE SUBGRADE AREAS TO RECEIVE LANDSCAPING.
18. THE CONTRACTOR SHALL USE SUITABLE METHODS TO CONTROL DUST AND DIRT CAUSED BY THE DEMOLITION ACTIVITIES.
19. REFER TO TREE SURVEY PREPARED BY MONUMENT ENGINEERING GROUP ASSOCIATES, INC. FOR FULL TREE SURVEY AND INVENTORY LIST, DATED 1/25/2024.

SIDEWALK EXTENSION MATCHLINE



SCALE IN FEET
0 30 60

BENCHMARKS:
THE NORTHING AND EASTING SHOWN ARE APPROXIMATE AND ONLY INTENDED TO PROVIDE RECOVERY OF THE BENCHMARK. THESE COORDINATES ARE NOT INTENDED TO BE USED FOR THE HORIZONTAL CONTROL OF THE PROJECT. THE HORIZONTAL CONTROL FOR THE PROJECT SHALL BE CONTROLLED BY THE MONUMENTS FOUND OR SET BY A PROFESSIONAL SURVEYOR.

SOURCE BENCHMARK:
TOP OF A 5/8" SOLID REBAR THIRTY INCHES IN LENGTH WITH A PINK PLASTIC CAP BEARING THE INITIALS "CEC INC TRAVERSE", CEC POINT #1. THE ELEVATION WAS DETERMINED USING STATIC GPS OBSERVATIONS PERFORMED ON DECEMBER 12 OF THE YEAR 2023 AS BASED ON USING M.D.O.T. CORS NETWORK, MICHIGAN SOUTH ZONE NAD 83 (2011 ADJUSTMENT), NAVD 88 (GEOID12B / 18) DATUM.
NORTHING: 365852.35
EASTING: 13286145.61
ELEVATION: 901.90

BENCHMARK 1:
CROSS ON WEST BONNET BOLT OF FIRE HYDRANT LOCATED +– 100 FT NORTHWESTERLY OF THE COSTCO GAS STATION AND +– 200 FT EASTERLY OF THE SOUTHWEST CORNER OF COSTCO ON A PARKING LOT ISLAND.
ELEVATION: 902.57 (NAVD 88)

BENCHMARK 2:
CROSS ON NORTHEAST BONNET BOLT OF FIRE HYDRANT LOCATED ON THE EAST SIDE OF THE SOUTH COSTCO ENTRANCE DRIVE LEADING TO MALTBY ROAD.
ELEVATION: 903.72 (NAVD 88)

BENCHMARK 3:
CROSS ON TOP OF SOUTHWESTERLY BONNET BOLT OF FIRE HYDRANT LOCATED ON THE WEST SIDE OF DRIVE LOCATED NEAR THE SOUTHWEST CORNER OF COSTCO BEING +– 10 FT WEST FROM THE WEST EDGE OF ASPHALT.
ELEVATION: 905.74 (NAVD 88)

BENCHMARK 4:
CROSS ON NORTHWEST BOLT OF LIGHT POLE LOCATED ON THE EAST SIDE OF THE PARKING LOT OF BRIVAR CONSTRUCTION +– 300 FT NORTHWESTERLY OF THE SOUTHWEST CORNER OF THE BUILDING.
ELEVATION: 903.81 (NAVD 88)

MISS DIG 811

PATRICK T. BENNETT ENGINEER
STATE OF MICHIGAN
LICENSED PROFESSIONAL ENGINEER
6201052209

NO	DATE	SUBMITTAL & REVISION RECORD DESCRIPTION
	10/30/2024	ISSUED FOR PRELIMINARY PLAN REVIEW
	12/18/2024	REISSUED FOR PRELIMINARY PUD REVIEW
	03/13/2025	ISSUED FOR PRELIMINARY SITE PLAN / PUD REVIEW
	11/21/2025	ISSUED FOR ENGINEERING REVIEW
	12/12/2025	ISSUED FOR ENGINEERING REVIEW RE-SUBMITTAL #1

CEC
Civil & Environmental Consultants, Inc.
10300 Alliance Road
Suite 300
Cincinnati, OH 45242
Ph: 513.985.0226
www.cecinc.com

COSTCO WHOLESALE
Green Oak Charter Township, Michigan

EXISTING CONDITIONS & DEMOLITION PLAN

DESIGNED BY:	PES
DRAWN BY:	ACH
CHECKED BY:	336-603
DATE:	NOVEMBER 2024
SCALE:	1" = 30'
DWG SCALE:	PTB*
PROJECT NO:	*SIGNATURE ON FILE
APPROVED BY:	

DRAWING NO.: C100

P:\30-000\336-603_CAD\dwg\0501\336603-C501-(100).dwg(C100 EXISTING CONDITIONS & DEMOLITION PLAN) LP: 3/6/2025 3:10 PM

NORTH

COSTCO WHOLESALE

Green Oak Township, Michigan
FFE = ~903.50

TBM #3 = 905.74

TBM #2 = 903.72

TBM #1 = 902.57

TBM #4 = 903.81

ADJOINER
COSTCO WHOLESALE CORPORATION
LIBER 4505 PAGE 245

REMAINDER
9325 MALTBY ROAD, LLC
INSTR. #20209R-003600
PARCEL 16-05-300-040

ADJOINER
GUILD J. COGO
INSTR. #20228-025101
PARCEL 16-05-300-071

ADJOINER
9449 MALTBY, BRIGHTON, MICHIGAN 48116
LIBER 2285 PAGE 529
PARCEL 16-05-300-036

GATE WAY SHOPPES AT GREEN OAK
INSTR. #2006R-018740
KNOWN AS LIVINGSTON COUNTY CONDOMINUM SUBDIVISION PLAN NO. 363

UNIT 3 · UNIT 4 · UNIT 5 · UNIT 6

DRIVE A

EXISTING BUILDING

25' WATER MAIN EASEMENT LIBER 4743, PAGE 140

10' WIDE DETROIT EDISON EASEMENT LIBER 4743, PAGE 140

12' OVERHEAD WIRE EASEMENT 2006R-018740

45' UTILITY EASEMENT LIBER 4758, PAGE 590

EAST LINE LIBER 1275, PAGE 465

6" SANITARY CLEANOUT INV.(N)= 896.14 (6" SDR 26) (ASSUMED PER RECORD)

EXISTING FOREBAY APPROX. WATER ELEVATION=892.50

APPROXIMATE LOCATION OF GAS AND WATER LINES PER PLANS PROVIDED

MALTBY ROAD
(66' PUBLIC RIGHT-OF-WAY)

ASSUMED NORTH R/W OF 66' WIDE MALTBY ROAD

SIDEWALK EXTENSION MATCHLINE

SCALE IN FEET
0 30 60

LEGEND

- EXISTING SUBJECT PROPERTY LINE
- EXISTING ADJACENT PROPERTY LINE
- EXISTING CONCRETE PAVEMENT
- EXISTING BUILDING
- EXISTING TREE
- EXISTING BOLLARD
- EXISTING SIGN
- EXISTING LIGHT POLE
- EXISTING UTILITY POLE
- EXISTING GUY WIRE
- PROPOSED ASPHALT PAVEMENT
- PROPOSED HD ASPHALT PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- PROPOSED BUILDING
- (#) PROPOSED STALL COUNT 10' WIDE (TYP.)
- (#) PROPOSED STALL COUNT (ADA)
- (A) CURB ISLAND TYPE (SEE SHEET C201)
- PROPOSED CART CORRAL
- PROPOSED LIGHT POLE, SEE ELECTRICAL PLANS
- INVERTED CURB AND GUTTER

SITE LAYOUT NOTES

1. ALL SITE WORK SHOWN HEREON SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT'S SPECIFICATIONS, THE CURRENT EDITION OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL BUILDING CODES AND ORDINANCES.
2. THE CONTRACTOR SHALL CHECK EXISTING GRADES, DIMENSIONS, AND INVERTS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK.
3. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES AND PROTECT UTILITIES THAT ARE TO REMAIN. RELOCATE EXISTING UTILITIES AS INDICATED, OR AS NECESSARY FOR CONSTRUCTION.
4. PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING PAVEMENT AND NEW PAVEMENT. FIELD ADJUSTMENT OF FINAL GRADES MAY BE NECESSARY. INSTALL ALL UTILITIES, INCLUDING IRRIGATION SLEEVES, PRIOR TO INSTALLATION OF PAVED SURFACES.
5. ALL DAMAGE TO EXISTING PAVEMENT TO REMAIN WHICH RESULTS FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED WITH LIKE MATERIALS AT THE CONTRACTOR'S EXPENSE.
6. SITE DIMENSIONS AND/OR COORDINATES SHOWN ARE TO THE FACE OF CURB, EDGE OF PAVEMENT, EXTERIOR BUILDING WALL, CENTER OF MANHOLE, CENTER AT FACE OF CURB FOR DRAIN INLETS AND CENTERLINE OF PIPE OR FITTING, UNLESS OTHERWISE NOTED. DISTANCES SHOWN ON PIPING ARE HORIZONTAL DISTANCES FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE, UNLESS OTHERWISE NOTED.
7. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND LOCATIONS OF UTILITY SERVICE ENTRANCES, BUILDING DRAINS, ROOF DRAINS, DOORS AND EXIT FEATURES.
8. CONTRACTOR SHALL MAINTAIN VEHICLE AND PEDESTRIAN ACCESS ON ADJACENT ROADWAYS AND DRIVES TO THE MAXIMUM EXTENT FEASIBLE THROUGHOUT THE DURATION OF THE PROJECT — COORDINATE WITH NEIGHBORING BUSINESSES AND WITH PUBLIC STREET AUTHORITIES HAVING JURISDICTION. PROVIDE TEMPORARY TRAFFIC CONTROL MEASURES TO MAINTAIN WORK SITE SAFETY AND TO PROTECT THE TRAVELING PUBLIC IN ACCORDANCE WITH APPLICABLE PROVISIONS OF THE CURRENT EDITION OF MICHIGAN MUTCD, MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. NO WORK WITHIN THE PUBLIC RIGHT-OF-WAY SHALL COMMENCE UNTIL APPROVAL TO DO SO IS RECEIVED FROM THE LOCAL JURISDICTION.

KEY NOTES (#)

1. 1'-7" CONCRETE CURB AND GUTTER. SEE DETAIL 11/C801.
2. FLUSH CURB AT PAVEMENT. SEE DETAIL 13/C801.
3. PAINTED STRIPING. SEE DETAIL 13/C802.
4. PAINTED STOP BAR. SEE ARCH PLANS FOR DETAILS.
5. CART STORAGE. SEE DETAILS 3/C801 & 4/C801.
6. 6' WIDE CONCRETE SIDEWALK. SEE DETAIL 4/C802 FOR ON-SITE (PRIVATE) SIDEWALK SECTION.
7. BOLLARDS. SEE DETAILS 1/C802 AND 8/C802.
8. STOP BAR, PAVEMENT ARROWS, AND STOP SIGN. SEE ARCH. PLANS FOR DETAILS.
9. LIGHT POLE. SEE LIGHTING PLAN BY OTHERS AND DETAIL 7/C801.
10. PROPOSED LIGHT POLE ISLAND. SEE DETAIL 6/C801.
11. ADA RAMPS AND PAINTED CROSSWALK.
12. HEAVY-DUTY CONCRETE FUEL SLAB AND HEAVY-DUTY CONCRETE FUEL TRUCK OFFLOAD AREA. SEE DETAIL 1/C702 AND 3/C800.
13. PROPOSED ASPHALT ABUTTING EXISTING ASPHALT. SEE DETAIL 10/C802.
14. PROPOSED GUARDRAIL. SEE DETAIL 9/C801.
15. RELOCATED "SPEED LIMIT 45" SIGN.
16. FUTURE EMERGENCY ACCESS DRIVEWAY CONTINGENT UPON COSTCO RECEIVING AN ACCESS AGREEMENT FROM THE PROPERTY OWNERS OF THE PRIVATE ROADWAY.
17. APPROXIMATELY 105 LF CHAIN LINK FENCE. MATCH EXISTING AND JOIN TO EXISTING FENCE.
18. ASSE APPROVED 1048 DOUBLE CHECK DETECTOR ASSEMBLY IN AN APPROVED ABOVE GROUND HEATED ENCLOSURE FOR FIRE PROTECTION SYSTEM. SEE SHEET C500 AND DETAIL 07/C800.
19. CONTROLLER ENCLOSURE AND LIGHT POLE FOUNDATION WITHIN TANK EXCAVATION AREA. CONTRACTOR TO SHORE TANK EXCAVATION PER DETAIL A/T3-2 ON SHEET T3-2 "TANK BURIAL AND ANCHORING DETAILS" PREPARED BY BARGHAUSEN.

BENCHMARKS:
THE NORTHING AND EASTING SHOWN ARE APPROXIMATE AND ONLY INTENDED TO PROVIDE RECOVERY OF THE BENCHMARK. THESE COORDINATES ARE NOT INTENDED TO BE USED FOR THE HORIZONTAL CONTROL OF THE PROJECT. THE HORIZONTAL CONTROL FOR THE PROJECT SHALL BE CONTROLLED BY THE MONUMENTS FOUND OR SET BY A PROFESSIONAL SURVEYOR.

SOURCE BENCHMARK:
TOP OF A 5/8" SOLID REBAR THIRTY INCHES IN LENGTH WITH A PINK PLASTIC CAP BEARING THE INITIALS "CEC INC TRAVERSE", CEC POINT #1. THE ELEVATION WAS DETERMINED USING STATIC GPS OBSERVATIONS PERFORMED ON DECEMBER 12 OF THE YEAR 2023 AS BASED ON USING M.D.O.T. CORS NETWORK, MICHIGAN SOUTH ZONE NAD 83 (2011 ADJUSTMENT), NAVD 88 (GEOID12B / 18) DATUM.
NORTHING: 365852.35
EASTING: 13286145.61
ELEVATION: 901.90

BENCHMARK 1:
CROSS ON WEST BONNET BOLT OF FIRE HYDRANT LOCATED +- 100 FT NORTHWESTERLY OF THE COSTCO GAS STATION AND +- 200 FT EASTERLY OF THE SOUTHWEST CORNER OF COSTCO ON A PARKING LOT ISLAND.
ELEVATION: 902.57 (NAVD 88)

BENCHMARK 2:
CROSS ON NORTHEAST BONNET BOLT OF FIRE HYDRANT LOCATED ON THE EAST SIDE OF THE SOUTH COSTCO ENTRANCE DRIVE LEADING TO MALTBY ROAD.
ELEVATION: 903.72 (NAVD 88)

BENCHMARK 3:
CROSS ON TOP OF SOUTHWESTERLY BONNET BOLT OF FIRE HYDRANT LOCATED ON THE WEST SIDE OF DRIVE LOCATED NEAR THE SOUTHWEST CORNER OF COSTCO BEING +- 10 FT WEST FROM THE WEST EDGE OF ASPHALT.
ELEVATION: 905.74 (NAVD 88)

BENCHMARK 4:
CROSS ON NORTHWEST BOLT OF LIGHT POLE LOCATED ON THE EAST SIDE OF THE PARKING LOT OF BRIVAR CONSTRUCTION +- 300 FT NORTHWESTERLY OF THE SOUTHWEST CORNER OF THE BUILDING.
ELEVATION: 903.81 (NAVD 88)

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	10/30/2024	ISSUED FOR PRELIMINARY PLAN REVIEW
	03/18/2024	REISSUED FOR PRELIMINARY PUD REVIEW
	05/03/2024	ISSUED FOR PRELIMINARY SITE PLAN / PUD REVIEW
	11/01/2024	ISSUED FOR ENGINEERING REVIEW
	11/21/2024	ISSUED FOR FINAL SITE PLAN RE-SUBMITTAL #1

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Suite 300
Cincinnati, OH 45242
Ph: 513.985.0226
www.cecinc.com

CEC Civil & Environmental Consultants, Inc.

COSTCO WHOLESALE
Green Oak Charter Township, Michigan

SITE LAYOUT PLAN

DATE:	NOVEMBER 2024
DWG SCALE:	1" = 30'
PROJECT NO.:	
APPROVED BY:	
DRAWN BY:	PES
CHECKED BY:	ACH
	338-603
	PTB*

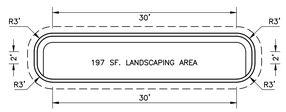
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DRAWING NO.: C200

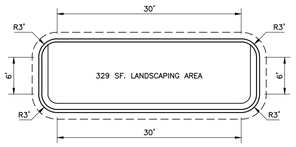
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PATRICK T. BENNETT ENGINEER INC. 6201052209 — STATE OF MICHIGAN — LICENSED PROFESSIONAL ENGINEER

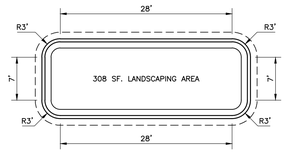
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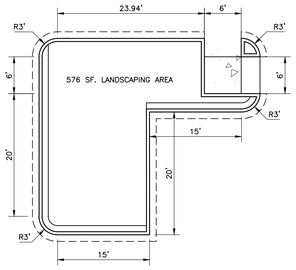
TYPE-A ISLAND
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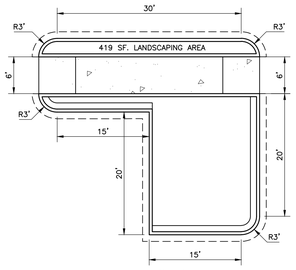
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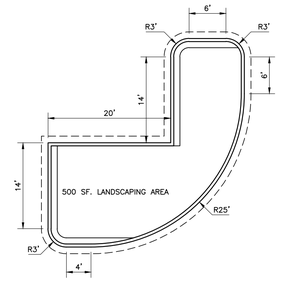
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SCALE: 1"=10'



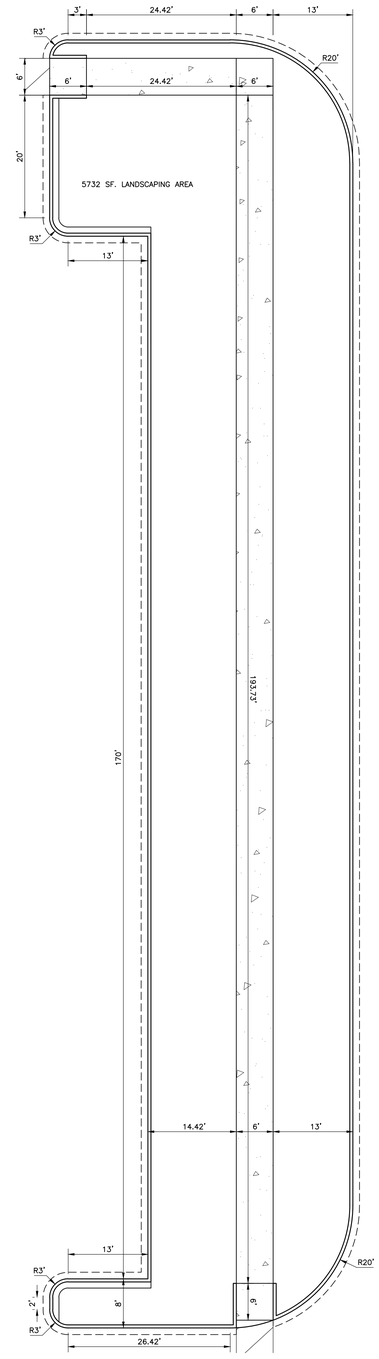
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SCALE: 1"=10'



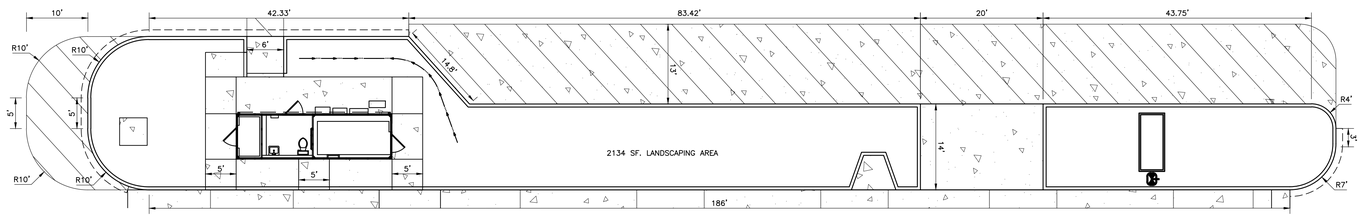
TYPE-E ISLAND
SCALE: 1"=10'



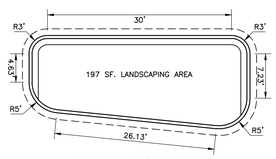
TYPE-F ISLAND
SCALE: 1"=10'



TYPE-H ISLAND
SCALE: 1"=10'



TYPE-G ISLAND
SCALE: 1"=10'



TYPE-I ISLAND
SCALE: 1"=10'

SCALE IN FEET
0 10 20

MISS DIG 811

PATRICK T. BENNETT ENGINEER
6201052209
LICENSED PROFESSIONAL ENGINEER
STATE OF MICHIGAN

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	10/29/2024	ISSUED FOR PRELIMINARY PUD REVIEW
	05/19/2024	REISSUED FOR PRELIMINARY PUD REVIEW
	03/22/2024	ISSUED FOR PRELIMINARY SITE PLAN / PUD REVIEW
	11/21/2024	ISSUED FOR ENGINEERING REVIEW
	12/13/2024	ISSUED FOR ENGINEERING REVIEW RESUBMITTAL #1

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Cincinnati, OH 45242
Ph: 513.985.0226
www.cecinc.com

Civil & Environmental Consultants, Inc.

COSTCO WHOLESALE

Green Oak Charter Township, Michigan

CURB ISLAND DIMENSION PLAN

DATE:	NOVEMBER 2024
DWG SCALE:	1" = 10'
PROJECT NO:	336-003
APPROVED BY:	PTB*
DRAWN BY:	PES
CHECKED BY:	ACH

*SIGNATURE ON FILE

DRAWING NO.:
C201

P:\335-000\336-003_CAD\Dwg\00(01)\336003-C001-C201.dwg[C201 CURB ISLAND DIMENSION PLAN] (11/21/2024 - pjimmons) - LPL 2/6/2025 3:11 PM

NORTH

COSTCO WHOLESALE

Green Oak Township, Michigan
FFE = ~903.50

TBM #3 = 905.74

TBM #2 = 903.72

TBM #1
902.57

TBM #4 = 903.81

ADJOINER
COSTCO WHOLESALE CORPORATION
LIBER 4505 PAGE 245

EXISTING BUILDING

APPROXIMATE LIMITS OF DISTURBANCE
= 4.91 ACRES
TOTAL DISTURBED AREA = 4.99 ACRES

OVERFLOW ELEV.=900.57

OVERFLOW ELEV.=900.45

OVERFLOW ELEV.=901.48

OVERFLOW ELEV.=901.57

OVERFLOW ELEV.=901.23

OVERFLOW ELEV.=902.24

OVERFLOW ROUTE CONTROLLING OUTLET ELEV.=900.57

EMERGENCY SPILLWAY ELEV.=896.00'

EMERGENCY SPILLWAY ELEV.=896.50'

APPROX. 22 SQUARE YARDS OF ANGULAR RIP RAP UNDERLAIN WITH GEOTEXTILE.

APPROXIMATE LIMITS OF DISTURBANCE
= 0.08 ACRES
TOTAL DISTURBED AREA = 4.99 ACRES

10' WIDE DETROIT EDISON EASEMENT LIBER 4743, PAGE 140

TEMPORARY GRADING EASEMENT (CONT. 113 SF)

GATE WAY SHOPPES AT GREEN OAK
INSTR. #2006R-018740
KNOWN AS LIVINGSTON COUNTY
CONDOMINIUM SUBDIVISION PLAN NO. 363

UNIT 3

UNIT 4

UNIT 5

UNIT 6

DRIVE A

SEE SHEET C701 FOR DETAILED GRADING

REMAINDER
9325 MALTBY ROAD, LLC
INSTR. #2022R-003600
PARCEL 16-05-300-040

ADJOINER
GIULIO J. COGO
INSTR. #2022R-025101
PARCEL 16-05-300-071

ADJOINER
9449 MALTBY, BRIGHTON, MICHIGAN 48116
LIBER 2285 PAGE 529
PARCEL 16-05-300-036

MALTBY ROAD
(66' PUBLIC RIGHT-OF-WAY)

ASSUMED NORTH R/W OF 66' WIDE MALTBY ROAD

LEGEND

- EXISTING SUBJECT PROPERTY LINE
- EXISTING ADJACENT PROPERTY LINE
- EXISTING INDEX (MAJOR) CONTOUR
- EXISTING INTERMEDIATE (MINOR) CONTOUR
- EXISTING CONCRETE PAVEMENT
- EXISTING BUILDING
- EXISTING STORM PIPE
- EXISTING TREE
- EXISTING BOLLARD
- EXISTING SIGN
- EXISTING LIGHT POLE
- EXISTING UTILITY POLE
- EXISTING GUY WIRE
- EXISTING STORM MANHOLE
- EXISTING STORM INLET
- 905 PROPOSED INDEX (MAJOR) CONTOUR
- 904 PROPOSED INTERMEDIATE (MINOR) CONTOUR
- PROPOSED STORM SEWER
- PROPOSED STORM STRUCTURE
- PROPOSED STORM MANHOLE
- PROPOSED STORM CLEANOUT
- INVERTED CURB AND GUTTER
- 900.00 EXISTING SPOT ELEVATION
- 900.00 PROPOSED SPOT ELEVATION
- PROPOSED DRAINAGE DITCH
- PROPOSED LIMITS OF DISTURBANCE
- PROPOSED RIDGE LINE
- OVERLAND FLOOD ROUTE

GRADING NOTES

1. ALL PROPOSED GRADES SHOWN ARE FINAL GRADES, TOP OF GROUND LEVEL, OR TOP OF PAVEMENT, OR GRATE ELEVATION AT THE DRAWDOWN POINT, UNLESS INDICATED OTHERWISE. FOR PROPOSED TOP OF CURB ELEVATION, SEE SHEETS C200 AND C201 FOR CURB TYPE AND DETAIL FOR DIMENSIONS.
2. WHERE NOT EXPLICITLY DEFINED BY A SPOT ELEVATION, PAVEMENT AND CURB ELEVATIONS SHALL PRODUCE THE PROPOSED SLOPES AS SHOWN AND PROVIDE POSITIVE DRAINAGE TO INLETS.
3. REFER TO AND FOLLOW THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT PREPARED FOR THIS PROJECT BY KLEINFELDER, DATED MARCH 12, 2024.
4. ALL SITE WORK SHOWN HEREON SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT'S SPECIFICATIONS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL BUILDING CODES AND ORDINANCES.
5. CONTRACTOR SHALL STRICTLY ADHERE TO THE EROSION CONTROL PLAN PREPARED FOR THIS PROJECT. ALL AREAS NOT PAVED SHALL BE STABILIZED IN ACCORDANCE WITH THE EROSION CONTROL PLAN, AND THE LANDSCAPE PLAN, UNLESS NOTED OTHERWISE.
6. EARTHWORK SHALL INCLUDE, STRIPPING AND STOCKPILING AND/OR DISPOSING OF TOPSOIL AND/OR VEGETATED SURFACE SOILS, GRADING, EXCAVATION, FILLING, UNDERCUT AND REPLACEMENT, IF REQUIRED, AND COMPACTION.
7. CONTRACTOR TO REFILL UNDERCUT AREAS WITH SUITABLE MATERIAL AND COMPACTION AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
8. PLACE TOPSOIL OVER THE SUBGRADE OF UNPAVED, DISTURBED AREAS TO DEPTH(S) INDICATED ON THE LANDSCAPE DRAWINGS.
9. FINAL PAVEMENT SLOPES SHALL BE MINIMUM 1% AND MAXIMUM 2% UNLESS INDICATED OTHERWISE. FINAL PAVEMENT SLOPES ACROSS HANDICAP PARKING STALLS AND ADJOINING ACCESS AISLES SHALL BE MAXIMUM 2%.
10. ALL UNPAVED SURFACE SLOPES SHALL BE 3:1 (HORIZONTAL:VERTICAL) MAXIMUM UNLESS INDICATED OTHERWISE.
11. ALL EXCESS SOIL MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE INDICATED AND SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF OFFSITE AT NO ADDITIONAL COST TO THE OWNER IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS.
12. SOFT OR OTHERWISE UNSUITABLE SOILS IN THE BOTTOMS AND BANKS OF ANY SEDIMENT BASINS OR TRAPS SHALL BE REMOVED, SPREAD OUT AND DRIED SUFFICIENTLY TO BE USED AS FILL, SUBJECT TO THE GEOTECHNICAL ENGINEER'S APPROVAL.
13. ALL SIDEWALKS SHALL BE CONSTRUCTED TO MEET ADA STANDARDS.

BENCHMARKS:
THE NORTHING AND EASTING SHOWN ARE APPROXIMATE AND ONLY INTENDED TO PROVIDE RECOVERY OF THE BENCHMARK. THESE COORDINATES ARE NOT INTENDED TO BE USED FOR THE HORIZONTAL CONTROL OF THE PROJECT. THE HORIZONTAL CONTROL FOR THE PROJECT SHALL BE CONTROLLED BY THE MONUMENTS FOUND OR SET BY A PROFESSIONAL SURVEYOR.

SOURCE BENCHMARK:
TOP OF A 5/8" SOLID REBAR THIRTY INCHES IN LENGTH WITH A PINK PLASTIC CAP BEARING THE INITIALS "CEC INC TRAVERSE", CEC POINT #1. THE ELEVATION WAS DETERMINED USING STATIC GPS OBSERVATIONS PERFORMED ON DECEMBER 12 OF THE YEAR 2023 AS BASED ON USING M.D.O.T. CORS NETWORK, MICHIGAN SOUTH ZONE NAD 83 (2011 ADJUSTMENT), NAVD 88 (GEOID12B / 18) DATUM.
NORTHING: 365852.35
EASTING: 13286145.61
ELEVATION: 901.90

BENCHMARK 1:
CROSS ON WEST BONNET BOLT OF FIRE HYDRANT LOCATED +– 100 FT NORTHWESTERLY OF THE COSTCO GAS STATION AND +– 200 FT EASTERLY OF THE SOUTHWEST CORNER OF COSTCO ON A PARKING LOT ISLAND.
ELEVATION: 902.57 (NAVD 88)

BENCHMARK 2:
CROSS ON NORTHEAST BONNET BOLT OF FIRE HYDRANT LOCATED ON THE EAST SIDE OF THE SOUTH COSTCO ENTRANCE DRIVE LEADING TO MALTBY ROAD.
ELEVATION: 903.72 (NAVD 88)

BENCHMARK 3:
CROSS ON TOP OF SOUTHWESTERLY BONNET BOLT OF FIRE HYDRANT LOCATED ON THE WEST SIDE OF DRIVE LOCATED NEAR THE SOUTHWEST CORNER OF COSTCO BEING +– 10 FT WEST FROM THE WEST EDGE OF ASPHALT.
ELEVATION: 905.74 (NAVD 88)

BENCHMARK 4:
CROSS ON NORTHWEST BOLT OF LIGHT POLE LOCATED ON THE EAST SIDE OF THE PARKING LOT OF BRIVAR CONSTRUCTION +– 300 FT NORTHWESTERLY OF THE SOUTHWEST CORNER OF THE BUILDING.
ELEVATION: 903.81 (NAVD 88)

SIDEWALK EXTENSION MATCHLINE

SCALE IN FEET
0 30 60

MISS DIG 811

PATRICK T. BENNETT ENGINEER INC. 6201052209
LICENSED PROFESSIONAL ENGINEER
STATE OF MICHIGAN

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	10/30/2024	ISSUED FOR PRELIMINARY PLAN REVIEW
	05/18/2024	REISSUED FOR PRELIMINARY PUD REVIEW
	05/03/2024	ISSUED FOR PRELIMINARY SITE PLAN / PUD REVIEW
	11/21/2024	ISSUED FOR CONDITIONAL REVIEW
	12/13/2024	ISSUED FOR FINAL SITE PLAN RE-SUBMITTAL #1

10300 Alliance Road
Suite 300
Cincinnati, OH 45242
Ph: 513.985.0226
www.cecinc.com

Civil & Environmental Consultants, Inc.

COSTCO WHOLESALE
Green Oak Charter Township, Michigan

GRADING PLAN

DATE:	NOVEMBER 2024
DWG SCALE:	1"=30'
PROJECT NO:	336-603
DRAWN BY:	PES
CHECKED BY:	ACH
APPROVED BY:	PTB*

*SIGNATURE ON FILE.

DRAWING NO.: C300

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NORTH

COSTCO WHOLESALE

Green Oak Township, Michigan
FFE = ~903.50

TBM #3 = 905.74

ADJOINER
COSTCO WHOLESALE CORPORATION
LIBER 4505 PAGE 245

TBM #2 = 903.72

TBM #1 = 902.57

TBM #4 = 901.81

APPROXIMATE LIMITS OF DISTURBANCE
= 4.91 ACRES
TOTAL DISTURBED AREA = 4.99 ACRES

APPROXIMATE LIMITS OF DISTURBANCE
= 0.08 ACRES
TOTAL DISTURBED AREA = 4.99 ACRES

SUBJECT PARCEL
9325 MALTBY ROAD, LLC
PART OF
INSTR. #2020R-003600
4.000± ACRES

GATE WAY SHOPPES AT GREEN OAK
INSTR. #2006R-018740
KNOWN AS LIVINGSTON COUNTY
CONDOMINIUM SUBDIVISION PLAN NO. 363

UNIT 3
UNIT 4
UNIT 5
UNIT 6
DRIVE A

10' WIDE DETROIT EDISON EASEMENT
LIBER 4743, PAGE 140

APPROX. 22 SQUARE YARDS OF ANGULAR RIP RAP UNDERLAIN WITH GEOTEXTILE

TEMPORARY SOIL STOCKPILE AREA, IF NEEDED.
CONTRACTOR TO MODIFY OR RELOCATE AS NEEDED.

TEMPORARY STAGING AREA
= 7050 SF
MATCH CONSTRUCTION ENTRANCE SECTION

TEMPORARY STAGING AREA.
CONTRACTOR TO MODIFY OR RELOCATE AS NEEDED.

CONCRETE WASHOUT, SEE DETAIL ON SHEET C303

EXISTING BUILDING

REMAINDER
9325 MALTBY ROAD, LLC
INSTR. #2020R-003600
PARCEL 16-05-300-040

ADJOINER
9449 MALTBY, BRIGHTON, MICHIGAN 48116
LIBER 2285 PAGE 529
PARCEL 16-05-300-036

ADJOINER
COSTCO WHOLESALE CORPORATION
LIBER 4505 PAGE 245

POINT OF BEGINNING
FD. CONC. MONUMENT
N 89°46'19" W 331.80'(R)
N 89°46'19" W 50.00'(R)

MALTBY ROAD
(66' PUBLIC RIGHT-OF-WAY)

ASSUMED NORTH
R/W OF 66' WIDE
MALTBY ROAD

SIDEWALK EXTENSION MATCHLINE

SCALE IN FEET
0 30 60

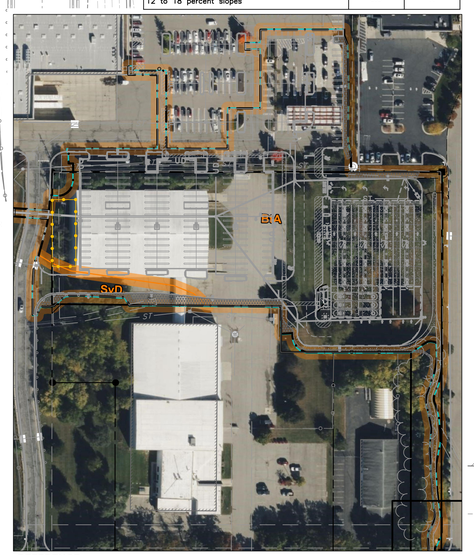
LEGEND

- EXISTING SUBJECT PROPERTY LINE
- EXISTING ADJACENT PROPERTY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING INDEX (MAJOR) CONTOUR
- EXISTING INTERMEDIATE (MINOR) CONTOUR
- EXISTING DRAINAGE DITCH
- EXISTING CONCRETE PAVEMENT
- EXISTING BUILDING
- EXISTING STORM PIPE
- EXISTING TREE
- EXISTING LIGHT POLE
- EXISTING UTILITY POLE
- EXISTING STORM MANHOLE
- EXISTING STORM INLET
- 605 PROPOSED INDEX (MAJOR) CONTOUR
- 604 PROPOSED INTERMEDIATE (MINOR) CONTOUR
- PROPOSED STORM SEWER
- PROPOSED STORM STRUCTURE
- PROPOSED STORM MANHOLE
- PROPOSED STORM CLEANOUT
- PROPOSED DRAINAGE DITCH
- PROPOSED LIMITS OF DISTURBANCE
- TEMPORARY CONSTRUCTION ROAD
- CONCRETE WASHOUT
- EROSION CONTROL BLANKET
- TEMPORARY CONSTRUCTION ENTRANCE
- PROPOSED INLET FILTER
- SF PROPOSED SILT FENCE
- PROPOSED TREE PROTECTION

STORMWATER POLLUTION PREVENTION NOTES

1. CONTRACTOR SHALL INSTALL ALL REQUIRED SILT FENCES, SILT TRAPS, TREE PROTECTION AND INLET PROTECTION FOR EXISTING INLETS PRIOR TO THE START OF ANY EARTH MOVING OR STRIPPING.
2. CONTRACTOR SHALL INSTALL A STONE CONSTRUCTION ENTRANCE OR SOME OTHER DEVICE PRIOR TO THE START OF EARTHWORK AS NECESSARY TO PREVENT SOIL FROM BEING TRACKED OR WASHED INTO EXISTING ROADWAYS.
3. LAND ALTERATIONS WHICH STRIP THE LAND OF VEGETATION, INCLUDING REGRADING, SHALL BE DONE IN A WAY THAT WILL MINIMIZE EROSION. WHENEVER FEASIBLE, NATURAL VEGETATION SHALL BE RETAINED AND PROTECTED. AS GRADING IS DONE, INSTALL SILT TRAPS, SILT FENCES, SLOPE DRAINS, TEMPORARY DIVERSIONS AND OTHER RUNOFF CONTROL MEASURES AT APPROPRIATE LOCATIONS TO KEEP SEDIMENT CONTAINED ON SITE.
4. ALL DISTURBED AREAS SHALL BE SEEDED AND STRAW MULCHED AS SHOWN ON THE PLANS IMMEDIATELY AFTER COMPLETION OF GROUND ACTIVITY. FOR LARGE PROJECTS, THIS SEEDING SHOULD BE COMPLETED IN PHASES AS THE DIFFERENT AREAS OF THE SITE ARE COMPLETED.
5. PERMANENT AND FINAL VEGETATION OR STRUCTURAL EROSION CONTROL DEVICES SHALL BE INSTALLED AS SOON AS PRACTICAL UNDER THE CIRCUMSTANCES.
6. THE DURATION OF TIME WHICH AN AREA REMAINS EXPOSED SHALL BE KEPT TO A PRACTICAL MINIMUM DEPENDING UPON THE WEATHER. IF CONSTRUCTION ACTIVITY IS TO CEASE FOR MORE THAN TWO WEEKS, THE DISTURBED AREAS SHALL BE TEMPORARILY SEEDED.
7. ALL STORM SEWER INLET PROTECTION DEVICES SHALL BE PUT IN PLACE AT THE TIME EACH INLET IS CONSTRUCTED.
8. THE CONTRACTOR SHALL MAINTAIN EROSION CONTROL MEASURES AND DEVICES DURING CONSTRUCTION AND UNTIL SILTATION OF THE STREETS AND STORM SEWERS WILL NO LONGER OCCUR.
9. ONCE ONSITE EROSION AND SILTATION OF THE STREETS AND STORM SEWERS WILL NO LONGER OCCUR, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE TEMPORARY EROSION CONTROL DEVICES.
10. THESE GENERAL PROCEDURES MAY NOT COVER ALL SITUATIONS. REFER TO EROSION CONTROL PLANS FOR SPECIFIC NOTES AND ADDITIONAL DETAILS
11. ALL PROPOSED EROSION AND SEDIMENT CONTROL SHALL BE IN CONFORMANCE WITH THE LIVINGSTON COUNTY STORMWATER DESIGN AND SPECIFICATIONS MANUAL. DISCREPANCIES BETWEEN THE PLANS AND THE MANUAL SHALL NOT ALLEVIATE THE CONTRACTOR FROM ADHERING TO THE REQUIREMENTS SET FORTH IN THE MANUAL.
12. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES MAY BE REQUIRED BY EGLE AND/OR THE TOWNSHIP INSPECTOR.
13. TOP SOIL OR SOIL STORAGE AREAS SHALL BE SEEDED AND MULCHED, OR MATTED WITH STRAW, IMMEDIATELY AFTER THE STRIPPING PROCESS IS COMPLETED, TO PREVENT WIND AND WATER EROSION.
14. THE CONTRACTOR SHALL SWEEP THE EXISTING STREETS SURROUNDING THE PROJECT SITE AS NEEDED.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL AND SHALL PROVIDE ALL EQUIPMENT AND MATERIAL TO ALWAYS KEEP DUST IN CHECK. THE CONTRACTOR SHALL RESPOND IMMEDIATELY TO ALL COMPLAINTS.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NPDES PERMIT AND ENSURING COMPLIANCE WITH ALL APPLICABLE PERMIT REGULATIONS, INCLUDING BUT NOT LIMITED TO, INSPECTION, RESTORATION, AND RECORD KEEPING REQUIREMENTS. REPORTS FROM THE CERTIFIED STORM WATER OPERATOR SHALL BE MADE AVAILABLE TO THE TOWNSHIP.
17. ANY DEWATERING REQUIRED SHALL HAVE A DEWATERING PLAN SUBMITTED PRIOR TO STARTING THE ACTIVITY AND MAY REQUIRE EGLE APPROVAL.
18. DETENTION/RETENTION AND SEDIMENTATION BASINS SHALL BE EXCAVATED, TOP SOILED, SEEDED, MULCHED, TACKED, AND RINGED WITH SILT FENCE PRIOR TO THE START OF MASSIVE EARTH DISRUPTION.
19. DISTURBED AREAS ARE TO BE RESTORED WITH A LAYER OF TOPSOIL 3" IN DEPTH, GRASS SEED LAID AT 210 POUNDS PER ACRE, FERTILIZER SPREAD AT 150 POUNDS PER ACRE, AND A STRAW MULCH LAYER 3" IN DEPTH LAID AT A RATE OF 1.5-2 TONS PER ACRE. ALL MULCH MUST HAVE A TIE DOWN, SUCH AS A TACKIFIER, NET BINDING, ETC.
20. HYDRO-SEEDING IS NOT ACCEPTABLE FOR SLOPES EXCEEDING 1%. ON SLOPES OVER 1%, STABILIZATION SHALL BE DONE WITH SEED AND STRAW MULCH WITH A TACKIFIER, OR STRAW BLANKETS PEGGED IN PLACE.

MAP SYMBOL AND SOIL NAME	ACRES IN AOI	HYDROLOGIC GROUP PER NRCS WEB SOIL SURVEY
BtA — Boyer—Oshtemo loamy sands, 0 to 2 percent slopes	4.7	B
SvD — Spinks—Oakville loamy sands, 12 to 18 percent slopes	0.3	A



BENCHMARKS:
THE NORTHING AND EASTING SHOWN ARE APPROXIMATE AND ONLY INTENDED TO PROVIDE RECOVERY OF THE BENCHMARK. THESE COORDINATES ARE NOT INTENDED TO BE USED FOR THE HORIZONTAL CONTROL OF THE PROJECT. THE HORIZONTAL CONTROL FOR THE PROJECT SHALL BE CONTROLLED BY THE MONUMENTS FOUND OR SET BY A PROFESSIONAL SURVEYOR.

SOURCE BENCHMARK:
TOP OF A 5/8" SOLID REBAR THIRTY INCHES IN LENGTH WITH A PINK PLASTIC CAP BEARING THE INITIALS "CEC INC TRAVERSE", CEC POINT #1. THE ELEVATION WAS DETERMINED USING STATIC GPS OBSERVATIONS PERFORMED ON DECEMBER 12 OF THE YEAR 2023 AS BASED ON USING M.D.O.T. CORS NETWORK, MICHIGAN SOUTH ZONE NAD 83 (2011 ADJUSTMENT), NAVD 88 (GEOID12B / 18) DATUM.
NORTHING: 365852.35
EASTING: 13286145.61
ELEVATION: 901.90

BENCHMARK 1:
CROSS ON WEST BONNET BOLT OF FIRE HYDRANT LOCATED +— 100 FT NORTHWESTERLY OF THE COSTCO GAS STATION AND +— 200 FT EASTERLY OF THE SOUTHWEST CORNER OF COSTCO ON A PARKING LOT ISLAND.
ELEVATION: 902.57 (NAVD 88)

BENCHMARK 2:
CROSS ON NORTHEAST BONNET BOLT OF FIRE HYDRANT LOCATED ON THE EAST SIDE OF THE SOUTH COSTCO ENTRANCE DRIVE LEADING TO MALTBY ROAD.
ELEVATION: 903.72 (NAVD 88)

BENCHMARK 3:
CROSS ON TOP OF SOUTHWESTERLY BONNET BOLT OF FIRE HYDRANT LOCATED ON THE WEST SIDE OF DRIVE LOCATED NEAR THE SOUTHWEST CORNER OF COSTCO BEING +— 10 FT WEST FROM THE WEST EDGE OF ASPHALT.
ELEVATION: 905.74 (NAVD 88)

BENCHMARK 4:
CROSS ON NORTHWEST BOLT OF LIGHT POLE LOCATED ON THE EAST SIDE OF THE PARKING LOT OF BRIVAR CONSTRUCTION +— 300 FT NORTHWESTERLY OF THE SOUTHWEST CORNER OF THE BUILDING.
ELEVATION: 903.81 (NAVD 88)

REFERENCE
1. SOIL MAP INFORMATION OBTAINED FROM USDA NATURAL RESOURCE CONSERVATION SERVICE WEB SOIL SURVEY, ACCESSED NOVEMBER 6, 2024.

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	10/30/2024	ISSUED FOR PRELIMINARY PUD REVIEW
	03/18/2024	REISSUED FOR PRELIMINARY PUD REVIEW
	05/03/2024	REISSUED FOR PRELIMINARY SITE PLAN / PUD REVIEW
	11/01/2024	ISSUED FOR ENGINEERING REVIEW
	12/13/2024	ISSUED FOR FINAL SITE PLAN RE-SUBMITTAL #1

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Civil & Environmental Consultants, Inc.

COSTCO WHOLESALE
Green Oak Charter Township, Michigan

EROSION & SEDIMENT CONTROL PLAN

DATE:	NOVEMBER 2024
DRAWN BY:	PES
CHECKED BY:	ACH
DWG SCALE:	1"=30'
PROJECT NO:	336-603
APPROVED BY:	PTB*

*SIGNATURE ON FILE.

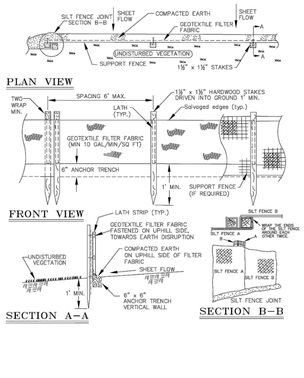
DRAWING NO.: C301

MISS DIG 811

PATRICK T. BENNETT ENGINEER NO. 6201052209 LICENSED PROFESSIONAL ENGINEER STATE OF MICHIGAN

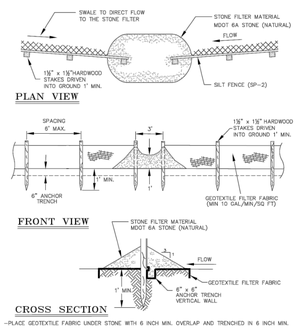
P:\336-0051\336-4631 - CADD\Dwg\C001\336631-C001-C301.dwg(C301 EROSION & SEDIMENT CONTROL PLAN) (1/17/2025 - pbennett) - LD: 1/16/2025 3:12 PM

DETAIL ES-1
36" SILT FENCE
STANDARD CONTROL



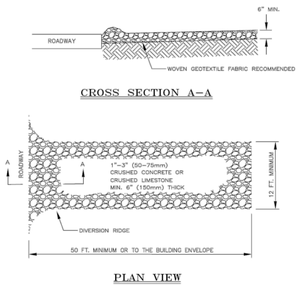
DETAIL ES-2
36" SILT FENCE GRAVEL FILTER
STANDARD CONTROL

(ALL ALTERNATIVES MUST BE PRE-APPROVED BY THE INSPECTOR ON A CASE BY CASE BASIS)

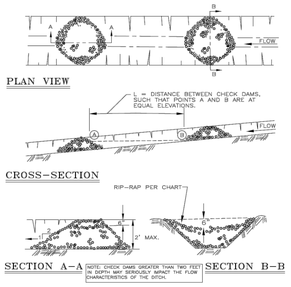


–PLACE GEOTEXTILE FABRIC UNDER STONE WITH 6 INCH MIN. OVERLAP AND TRENCHED IN 6 INCH MIN.

DETAIL ES-3
TRACKING MAT
STANDARD CONTROL

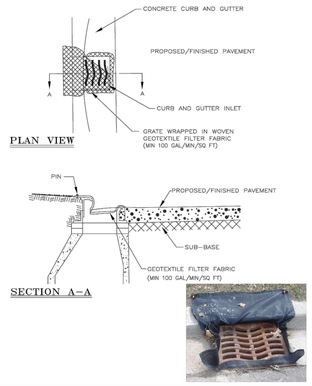


DETAIL ES-4
ANGULAR RIP RAP CHECK DAM
STANDARD CONTROL



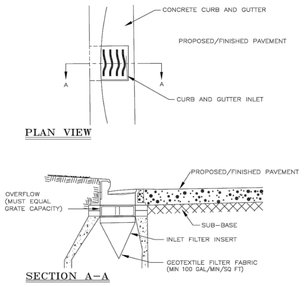
DETAIL ES-5
GEOTEXTILE FABRIC CURB AND GUTTER INLET FILTER
STANDARD NON-WINTER USE

NOT FOR USE IN WINTER MONTHS OR IN AREAS THAT MAY BECOME A SAFETY HAZARD DUE TO FLOODING OR FREEZING



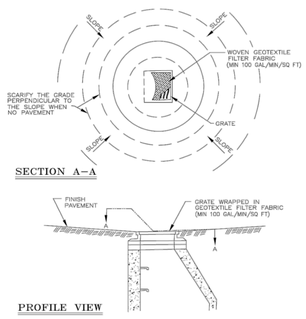
DETAIL ES-6
SILT SACK OR APPROVED EQUAL CURB AND GUTTER INLET FILTER
STANDARD CONTROL YEAR ROUND OR WINTER USE

APPROVED FOR USE DURING WINTER MONTHS OR IN AREAS THAT MAY BECOME A SAFETY HAZARD DUE TO FLOODING OR FREEZING



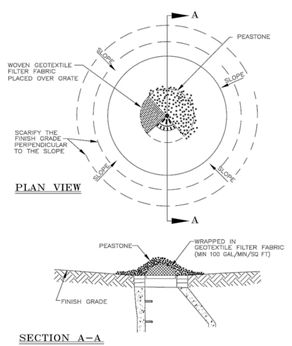
DETAIL ES-7
GEOTEXTILE FABRIC LOW POINT/YARD INLET FILTER
STANDARD CONTROL NON-WINTER USE

NOT FOR USE IN WINTER MONTHS OR IN AREAS THAT MAY BECOME A SAFETY HAZARD DUE TO FLOODING OR FREEZING



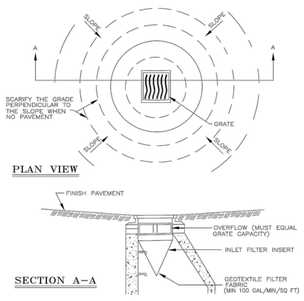
DETAIL ES-8
GEOTEXTILE & PEASTONE LOW POINT/YARD INLET FILTER
STANDARD CONTROL NON-WINTER USE

NOT FOR USE IN WINTER MONTHS OR IN AREAS THAT MAY BECOME A SAFETY HAZARD DUE TO FLOODING OR FREEZING



DETAIL ES-9
SILT SACK OR APPROVED EQUAL LOW POINT/YARD INLET FILTER
STANDARD CONTROL YEAR ROUND OR WINTER USE

APPROVED FOR USE DURING WINTER MONTHS OR IN AREAS THAT MAY BECOME A SAFETY HAZARD DUE TO FLOODING OR FREEZING



1 C302 LIVINGSTON COUNTY SOIL EROSION CONTROL DETAILS

NOT TO SCALE

EROSION & SEDIMENT CONTROL NOTES

1. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY GOVERNING AUTHORITIES.
2. THE CONTRACTOR SHALL STRICTLY ADHERE TO THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PLAN DURING CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL MAINTAIN AN APPROVED SWPPP ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL PERIMETER EROSION AND SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED. CONSTRUCTION SHALL BE SEQUENCED BY THE CONTRACTOR SO AS TO MINIMIZE EXPOSURE TIME OF CLEARED SURFACE AREAS.
4. ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED OR OTHERWISE STABILIZED WITHIN 14 CALENDAR DAYS OF FINAL GRADING. SHOULD SOIL DISTURBING ACTIVITIES CEASE IN AN AREA FOR 14 CALENDAR DAYS OR MORE, CONTRACTOR SHALL SEED THE AREA AS SPECIFIED OR IMPLEMENT OTHER BEST MANAGEMENT PRACTICES (BMP'S) TO ESTABLISH INTERIM STABILIZATION.
5. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE AS THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE. THE LOCATION OF SOME OF THE EROSION CONTROL MEASURES MAY NEED TO BE ALTERED DUE TO CHANGING SITE CONDITIONS COMMENSURATE WITH PROGRESS OF THE WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION AND SEDIMENT CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES OF CONSTRUCTION.
6. CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL ORDINANCES THAT APPLY. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ON SITE INSPECTION.
7. CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION. EROSION CONTROL DEVICES SHALL BE MAINTAINED UNTIL A PERMANENT GROUND COVER IS ESTABLISHED. SEEDED AREAS MUST HAVE A MINIMUM OF 70 PERCENT COVERAGE PRIOR TO REMOVAL OF THE TEMPORARY EROSION CONTROL DEVICES. FINAL SEEDING AND ESTABLISHMENT OF GROUNDCOVER SHALL BE APPLIED TO ANY AREA DISTURBED AS A RESULT OF THE REMOVAL OF THE EROSION CONTROL MEASURES.
8. APPLY TEMPORARY VEGETATIVE STABILIZATION UTILIZING SEEDING, FERTILIZER AND MULCH AS SPECIFIED, UNLESS INDICATED OTHERWISE. REFER TO LANDSCAPE DRAWINGS FOR PERMANENT SEEDING AND/OR SODDING VEGETATIVE STABILIZATION.
9. SOIL STOCKPILES MAY BE LOCATED AT CONTRACTOR'S OPTION AND SHALL BE STABILIZED WITH TEMPORARY SEEDING AND PROTECTED FROM EROSION WITH SILT FENCE.
10. ALL PERMANENT SLOPES EQUAL TO OR STEEPER THAN 3H:1V SHALL RECEIVE BLANKET MATTING, NORTH AMERICAN GREEN S75BN OR APPROVED EQUAL, INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, UNLESS INDICATED OTHERWISE.
11. GROUND ADJACENT TO THE DEVELOPMENT SITE SHALL BE PROTECTED FROM ACCELERATED AND INCREASED SURFACE WATER RUNOFF, SILT FROM EROSION, AND ANY OTHER CONSEQUENCE OF EROSION. RUNOFF WATER FROM DEVELOPED AREAS (PARKING LOTS, PAVED SITES AND BUILDINGS) ABOVE THE AREA TO BE DEVELOPED SHALL BE DIRECTED TO DIVERSIONS, DETENTION BASINS, CONCRETE GUTTERS AND/OR UNDERGROUND OUTLET SYSTEMS.
12. ANY TOPSOIL STOCKPILE NEEDS TO BE SHOWN ON THE PLAN AND PROTECTED WITH A DOUBLE ROW OF SILT FENCE.
13. ALL NOTIFICATIONS AND REPORTS REQUIRED UNDER THE NPDES PERMIT NEED TO BE COPIED TO THE TOWNSHIP OF GREEN OAK.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) - POST CONSTRUCTION

1. POST CONSTRUCTION STORMWATER QUALITY MEASURES SHOULD BE FUNCTIONAL UPON COMPLETION OF THE PROJECT. ALL ITEMS SHALL BE MAINTAINED BY THE OWNER/OPERATOR.
2. POTENTIAL POLLUTANTS ARE EXPECTED TO INCLUDE NITROGEN, PHOSPHORUS, OIL, GREASE, GRIT, AND SALTS DISCHARGED FROM PROPOSED LANDSCAPING, PAVED AREAS, AND BUILDING ROOFS.
3. POST CONSTRUCTION STORMWATER QUALITY MEASURES WILL BE INSTALLED DURING THE CONSTRUCTION PHASE OF THE PROJECT. MAINTENANCE OF POST CONSTRUCTION STORM WATER QUALITY MEASURES WILL COMMENCE AT THE COMPLETION OF CONSTRUCTION.
4. STORMWATER QUALITY MEASURES SHALL INCLUDE LANDSCAPE BUFFER STRIPS AND VEGETATED SWALES, MINIMIZATION OF LAND DISTURBANCE, STORM SEWER SYSTEM, CURB AND GUTTER, AND STORMWATER DETENTION/WATER QUALITY TREATMENT FACILITY.
5. STORM SEWERS AND CURB AND GUTTER WILL CAPTURE RUNOFF–BORNE POLLUTANTS FROM IMPROVED AREAS AND CONVEY THEM TO THE STORM WATER DETENTION/WATER QUALITY TREATMENT FACILITIES, REDUCING THE QUANTITY OF POLLUTANTS WHICH TRAVEL OFF–SITE. THE STORM WATER DETENTION/WATER QUALITY TREATMENT FACILITIES FUNCTION AS EXTENDED DETENTION BASINS, DESIGNED TO CAPTURE AND TREAT THE RUNOFF VOLUME UTILIZING SEDIMENT TRAPPING. STORM WATER IS TEMPORARILY PONDED ABOVE THE SHALLOW ZONES IN THE EXTENDED DETENTION ZONE, PROVIDING STORM WATER QUANTITY MANAGEMENT.
6. STORM SEWER SYSTEMS AND CURB AND GUTTER ARE LOCATED THROUGHOUT THE SITE. LANDSCAPE BUFFER STRIPS AND VEGETATED SWALES ARE LOCATED VARIOUSLY AT THE SITE PERIMETER. LAND DISTURBANCE WILL BE MINIMIZED BY LIMITING GRADING ACTIVITIES ON THE SITE TO AREAS ONLY AS REQUIRED TO CONSTRUCT THE PROPOSED IMPROVEMENTS.
7. GENERAL LANDSCAPE MAINTENANCE SHALL INCLUDE ALL NECESSARY WATERING, CULTIVATION, WEEDING, PRUNING, DISEASE AND PEST CONTROL, ADJUSTMENT OF PLANTS, MOWING OF TURF AREAS, REPLACEMENT OF DISPLACED MULCH, AND RESEEDING OR REPLANTING AS REQUIRED, CONSISTENT WITH GOOD HORTICULTURAL PRACTICE NECESSARY TO ENSURE NORMAL, VIGOROUS, AND HEALTHY GROWTH OF ALL PLANT MATERIAL.
8. STORMWATER DETENTION/WATER QUALITY TREATMENT FACILITIES MAINTENANCE AND INSPECTION GUIDELINES:

   A. INSPECT FOR INVASIVE VEGETATION AND REMOVE WHERE POSSIBLE. INSPECT SEMI–ANNUALLY.

   B. INSPECT FOR DAMAGE TO THE EMBANKMENT AND INLET/OUTLET STRUCTURES. REPAIR AS NECESSARY. INSPECT ANNUALLY.

   C. NOTE SIGNS OF HYDROCARBON BUILD–UP, AND REMEDY APPROPRIATELY. INSPECT ANNUALLY.

   D. MONITOR FOR SEDIMENT ACCUMULATION IN THE FACILITY FOREBAY (DRY BASIN). INSPECT ANNUALLY.

   E. EXAMINE TO ENSURE THAT INLET AND OUTLET DEVICES ARE FREE OF DEBRIS AND ARE OPERATIONAL. INSPECT ANNUALLY.

   F. REPAIR UNDERCUT OR ERODED AREAS, AS NEEDED MAINTENANCE.

   G. CLEAN AND REMOVE DEBRIS FROM INLET AND OUTLET STRUCTURES AND MOW SIDE SLOPES. FREQUENT MAINTENANCE, 3–4 TIMES PER YEAR.

GREEN OAK CHARTER TOWNSHIP EROSION & SEDIMENT CONTROL NOTES

1. ALL EROSION AND SEDIMENTATION CONTROL WORK SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE LIVINGSTON COUNTY DRAIN COMMISSIONER AND THE GREEN OAK CHARGER TOWNSHIP.
2. DAILY INSPECTIONS SHALL BE MADE BY THE CONTRACTOR FOR EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES. ANY NECESSARY REPAIRS SHALL BE PERFORMED WITHOUT DELAY.
3. EROSION AND ANY SEDIMENTATION FROM WORK ON THIS SITE SHALL BE CONTAINED WITHIN THE WORK AREA AND NOT ALLOWED TO COLLECT ON ANY OFF–SITE AREAS OR IN WATERWAYS. WATERWAYS INCLUDE BOTH NATURAL AND MAN–MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES, PONDS AND WETLANDS.
4. THE CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS DIRECTED ON THESE PLANS AND WHERE OTHERWISE REQUIRED BY THE WORK. THE CONTRACTOR SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES AND OTHER CHANGES HAVE BEEN ACCOMPLISHED.
5. SOIL EROSION CONTROL PRACTICES WILL BE ESTABLISHED IN EARLY STAGES OF CONSTRUCTION BY THE CONTRACTOR. SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTING OF DIRT OFF THE WORK AREA.
6. THE CONTRACTOR SHALL PRESERVE OFF–SITE NATURAL VEGETATION AS MUCH AS POSSIBLE.
7. PROTECT ALL EXISTING TREES, INCLUDING THEIR BRANCHES AND ROOTS, FROM DAMAGE DUE TO THIS WORK UNLESS SPECIFICALLY IDENTIFIED FOR REMOVAL.
8. STABILIZATION OF ALL DISTURBED AREAS SHALL BE ESTABLISHED USING THE APPROPRIATE VEGETATION WITHIN FIVE DAYS OF COMPLETION OF FINAL GRADING.
9. THE CONTRACTOR SHALL SWEEP THE EXISTING STREETS SURROUNDING THE PROJECT SITE AS NEEDED.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL AND SHALL PROVIDE ALL EQUIPMENT AND MATERIAL TO KEEP DUST IN CHECK AT ALL TIMES. THE CONTRACTOR SHALL RESPOND IMMEDIATELY TO ANY AND ALL COMPLAINTS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NPDES PERMIT AND ENSURING COMPLIANCE WITH ALL APPLICABLE PERMIT REGULATIONS, INCLUDING BUT NOT LIMITED TO, INSPECTION, RESTORATION AND RECORD KEEPING REQUIREMENTS. REPORTS FROM THE CERTIFIED STORMWATER OPERATOR SHALL BE MADE AVAILABLE TO THE TOWNSHIP.

CONSTRUCTION SITE INSPECTION AND MAINTENANCE NOTES

1. ALL SEDIMENT CONTROLS MUST BE INSTALLED PRIOR TO GRADING. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS (WEEKLY) AND WITHIN 24 HOURS OF A RAINFALL EXCEEDING 0.5 INCHES DURING A 24–HOUR PERIOD, OR MORE FREQUENTLY IF REQUIRED BY GOVERNING NPDES GENERAL PERMIT (STORM EVENT). ALL MAINTENANCE REQUIRED BY INSPECTION SHALL COMMENCE WITHIN 24 HOURS AND BE COMPLETED WITHIN 48 HOURS OF REPORT. INSPECTIONS, DOCUMENTATION AND REPORTING WILL BE CONDUCTED BY AN APPROVED INSPECTOR FOR THE PERMITTEE, IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.
2. NPDES CONSTRUCTION SITE INSPECTION REPORTS SHALL CONTAIN INFORMATION AND BE IN A FORMAT ACCEPTABLE TO THE TOWNSHIP OF GREEN OAK. THE REPORTS SHALL DOCUMENT FACILITY/SITE CONDITIONS, DESCRIBE ANY BMP DEFICIENCIES AND MAINTENANCE NEEDS. THE REPORTS SHALL DETAIL ANY CORRECTIVE ACTION(S) THAT NEED TO BE IMPLEMENTED TO MAINTAIN COMPLIANCE WITH THE ALL FEDERAL, STATE AND LOCAL REGULATIONS.
3. CONSTRUCTION ENTRANCE(S): REMOVE LARGE CHUNKS OF MUD OR CAKED SOIL FROM CONSTRUCTION ENTRANCE DAILY TO MINIMIZE SEDIMENT BUILDUP. INSPECT STONE PAD AND SEDIMENT DISPOSAL AREA WEEKLY AND AFTER STORM EVENTS OR HEAVY USE. A MINIMUM OF 6" OF COARSE AGGREGATE IS TO BE MAINTAINED. RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL. TOP–DRESS WITH CLEAN SPECIFIED STONE AS NEEDED TO MAINTAIN EFFECTIVENESS. IMMEDIATELY REMOVE MUD OR SEDIMENT TRACKED OR WASHED ONTO ADJACENT PUBLIC OR PRIVATE ROADS OR DRIVES. REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY. REMOVE UNNEEDED CONSTRUCTION ENTRANCE MATERIALS FROM AREAS WHERE PERMANENT VEGETATION WILL BE ESTABLISHED. CLEAN ROADS AND DRIVES AT LEAST ONCE WEEKLY.
4. TEMPORARY SEEDING: RESEEDING – INSPECT SEEDINGS WEEKLY UNTIL A STAND IS ESTABLISHED AND THEREAFTER AT LEAST MONTHLY FOR STAND SURVIVAL AND VIGOR. ERODED AREAS SHOULD BE ADDRESSED APPROPRIATELY BY FILLING AND/OR SMOOTHING, AND REAPPLICATION OF LIME, FERTILIZER, SEED AND MULCH. FERTILIZING ESTABLISHMENT MAY REQUIRE SOIL TESTING AND REFERTILIZING THE STAND, ESPECIALLY IF THE PLANTING IS MADE EARLY IN THE PLANTING SEASON. FOLLOW SOIL TEST RECOMMENDATIONS OR THE SPECIFICATIONS PROVIDED TO ESTABLISH THE PLANTING. MOWING – TEMPORARY PLANTINGS MAY BE MOWED AND BALED OR SIMPLY MOWED TO COMPLEMENT THE USE OF THE SITE. DO NOT FERTILIZE IN WINDY CONDITIONS OR PRIOR TO RAIN EVENTS.
5. CHECK DAM: INSPECT THE CHECK DAM FOR ROCK DISPLACEMENT AND ABUTMENTS FOR EROSION AROUND THE ENDS OF THE DAM AFTER EACH STORM EVENT. IF THE ROCK APPEARS TOO SMALL, ADD ADDITIONAL STONE AND USE A LARGER SIZE. INSPECT THE CHANNEL AFTER EACH SIGNIFICANT RAINFALL EVENT. IF CHANNEL EROSION EXCEEDS EXPECTATIONS, CONSIDER ADDING ANOTHER CHECK DAM TO REDUCE CHANNEL FLOW GRADE. SEDIMENT SHOULD BE REMOVED IF IT REACHES A DEPTH OF ½ THE ORIGINAL DAM HEIGHT.
6. TEMPORARY DIVERSIONS: INSPECT WEEKLY AND FOLLOWING EACH STORM EVENT FOR EROSION UNTIL THE DIVERSION IS VEGETATED. REMOVE DEBRIS AND SEDIMENT FROM THE CHANNEL, AND REBUILD THE RIDGE TO DESIGN ELEVATION WHERE NEEDED. CHECK DIVERSION OUTLET FOR EROSION AND REPAIR IF AREA BECOMES UNSTABLE. MAINTAIN VEGETATION WITH PERIODIC FERTILIZATION AND MOWING.
7. GRASS SWALE: INSPECT THE CHANNEL FOLLOWING STORM EVENTS BOTH DURING AND AFTER GRASS COVER IS ESTABLISHED; MAKE NEEDED REPAIRS IMMEDIATELY. CHECK THE CHANNEL OUTLET AND ROAD CROSSINGS FOR BLOCKAGE, PONDING, SEDIMENT, AND BANK INSTABILITY, BREAKS AND ERODED AREAS; REMOVE ANY BLOCKAGE, AND MAKE REPAIRS IMMEDIATELY TO MAINTAIN DESIGN CROSS SECTION AND GRADE.
8. LINED CHANNEL: INSPECT LINED CHANNEL AT REGULAR INTERVALS AND AFTER STORM EVENTS. CHECK FOR EROSION ADJACENT TO THE CHANNEL, AT INLETS AND OUTLETS AND UNDERNEATH THE LINED CHANNEL. GIVE SPECIAL ATTENTION TO THE CHANNEL INLET AND OUTLET AND REPAIR ERODED AREAS PROMPTLY.
9. BLOCK AND GRAVEL INLET PROTECTION: INSPECT THE BARRIER AFTER EACH STORM EVENT AND MAKE REPAIRS AS NEEDED. REMOVE SEDIMENT PROMPTLY FOLLOWING STORMS TO PROVIDE ADEQUATE STORAGE VOLUME FOR SUBSEQUENT RAINS AND PREVENT SEDIMENT ENTERING THE STORM DRAIN IN SUBSEQUENT RAINS. IF THE GRAVEL BECOMES CLOGGED WITH SEDIMENT SO THAT BARRIER DOES NOT DRAIN PROPERLY, REMOVE GRAVEL AND REPLACE WITH CLEAN GRAVEL OF THE SPECIFIED GRADATION.
10. FABRIC DROP INLET PROTECTION: INSPECT FABRIC BARRIER AFTER EACH STORM EVENT AND MAKE NEEDED REPAIRS IMMEDIATELY. REMOVE SEDIMENT FROM THE POOL AREA WHEN THE CAPACITY IS REDUCED 50% BY THE DEPOSITS. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE FABRIC DURING THE SEDIMENT REMOVAL.
11. SILT FENCES: INSPECT SILT FENCES AT LEAST ONCE A WEEK AND AFTER EACH STORM EVENT. MAKE REQUIRED REPAIRS IMMEDIATELY. SHOULD THE FABRIC OF SILT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY. REMOVE SEDIMENT DEPOSITS WHEN THEY REACH A DEPTH OF 25% THE HEIGHT OF THE FENCE.
12. SEDIMENT TRAP: INSPECT THE TEMPORARY SEDIMENT TRAP AFTER EACH STORM EVENT. REMOVE AND PROPERLY DISPOSE OF SEDIMENT WHEN IT ACCUMULATES TO ½ THE DESIGN VOLUME, AS INDICATED BY A CLEAN–OUT STAKE. PERIODICALLY CHECK THE EMBANKMENT, SPILLWAY, AND OUTLET APRON FOR EROSION DAMAGE, SETTLING, SEEPAGE OR SLUMPING ALONG THE TOE, AND REPAIR IMMEDIATELY. INSPECT VEGETATION AND RESEED IF NECESSARY. REPLACE ANY DISPLACED RIPRAP, BEING CAREFUL THAT NO REPLACEMENT ROCK IS ABOVE THE DESIGN GRADE.
13. STORM SEWER SYSTEM: INSPECT THE STORM SEWER SYSTEM AFTER EACH STORM EVENT AND AT LEAST ONCE WEEKLY. REMOVE AND PROPERLY DISPOSE OF SEDIMENT TO MAINTAIN FULL FLOW IN STORM SEWER PIPING.

SEQUENCE OF CONSTRUCTION

UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: TRAILER, PARKING, LAY DOWN, PORTA–POTTY, WHEEL WASH, CONCRETE WASHOUT, MASON'S AREA, FUEL AND MATERIAL STORAGE CONTAINERS, SOLID WASTE CONTAINERS, ETC., IMMEDIATELY DENOTE THEM ON THE SITE MAP AND NOTE ANY CHANGES IN LOCATION AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS.

1. *INSTALL STABILIZED CONSTRUCTION ENTRANCE/EXIT AND SWPPP ENTRANCE SIGN.*
2. *CONSTRUCT THE PERIMETER EROSION CONTROL MEASURES ON THE SITE.*
3. *TEMPORARILY AND PERMANENTLY SEED AS REQUIRED.*
4. CLEAR AND GRUB THE SITE, AND REMOVE TOPSOIL WITHIN THE AREAS OF PROPOSED GRADING ON-SITE.
5. *PREPARE TEMPORARY PARKING AND STORAGE AREA INCLUDING DESIGNATED LOCATIONS FOR DUMPSTERS, SANITARY WASTE UNITS, AND CONCRETE WASHOUT AREA AND MARK ON SITE MAP.*
6. START ROUGH GRADING AND CONSTRUCTION OF PARKING AREA AND BUILDING PAD.
7. *TEMPORARILY SEED AS REQUIRED.*
8. BEGIN FINAL GRADING OPERATIONS. *PERMANENTLY STABILIZE AREAS TO BE VEGETATED AS THEY ARE BROUGHT TO FINAL GRADE.*
9. INSTALL UTILITIES, UNDERDRAINS, STORM SEWERS, FINGER DRAINS AND CURBS.
10. *INSTALL INLET PROTECTION AROUND ALL STORM SEWER STRUCTURES AS THEY ARE INSTALLED.*
11. PREPARE SITE FOR PAVING. REMOVE INLET PROTECTION NO MORE THAN 48 HOURS PRIOR TO PLACING STABILIZED BASE COURSE.
12. PAVE SITE.
13. *INSTALL APPROPRIATE INLET PROTECTION DEVICES AS PAVING IS COMPLETED.*
14. COMPLETE GRADING AND INSTALL PERMANENT SEEDING, SLOPE PROTECTION AND PLANTINGS. SEE LANDSCAPE PLAN FOR LOCATION OF PERMANENT SEEDING AND PLANTINGS. RESTORE PERIMETER AREAS TO MATCH EXISTING CONDITIONS. SEED AS REQUIRED TO STABILIZE DISTURBED AREAS
15. *REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES (ONLY IF SITE IS STABILIZED).*
16. *CONTINUE DAILY INSPECTION REPORTS UNTIL THE FINAL DAILY INSPECTION IS SIGNED OFF BY THE CONSTRUCTION MANAGER THAT THE SITE IS FULLY STABILIZED AND THE PERMIT MAY BE TERMINATED.*
17. *FILE NOTICE OF TERMINATION WITH LOCAL AND STATE AUTHORITIES HAVING JURISDICTION AS NECESSARY.*

NOTE: THE GENERAL CONTRACTOR MAY COMPLETE CONSTRUCTION-RELATED ACTIVITIES CONCURRENTLY ONLY IF ALL PRECEDING BMPS HAVE BEEN COMPLETELY INSTALLED. BMP-RELATED STEPS IN THE ABOVE SEQUENCE ARE *ITALICIZED* FOR CLARITY.

SCALE IN FEET
0 30 60

MISS DIG 811

STATE OF MICHIGAN
PATRICK T. BENNETT
ENGINEER
NO. 6201052209
LICENSED PROFESSIONAL ENGINEER

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	8/30/2024	ISSUED FOR PRELIMINARY PUD REVIEW
	10/1/2024	REISSUED FOR PRELIMINARY PUD REVIEW
	10/30/2024	ISSUED FOR PRELIMINARY SITE PLAN / PUD REVIEW
	11/21/2024	ISSUED FOR ENGINEERING REVIEW
	12/12/2024	ISSUED FOR ENGINEERING REVIEW #2

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COSTCO WHOLESALE

Green Oak Charter Township, Michigan

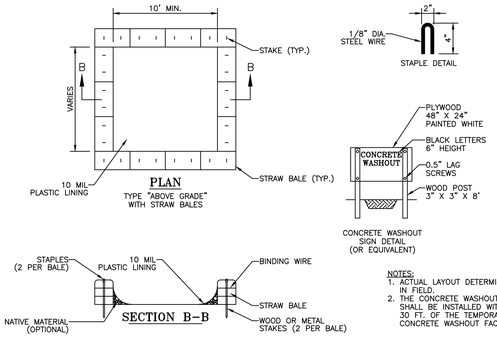
EROSION & SEDIMENT CONTROL NOTES & DETAILS

DATE:	NOVEMBER 2024
DRAWN BY:	PES
CHECKED BY:	ACH
DWG SCALE:	NOT TO SCALE
PROJECT NO:	336-603
APPROVED BY:	PTB*

*SIGNATURE ON FILE.

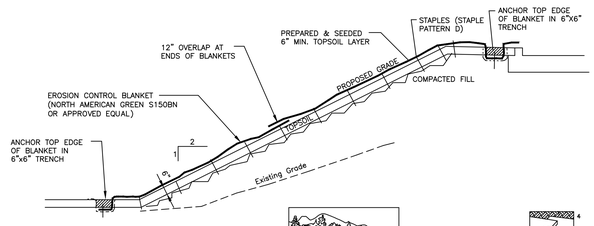
DRAWING NO.: C302

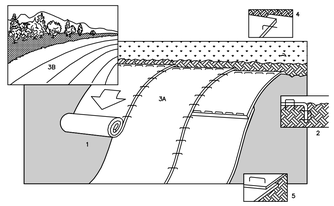
P:\336-000\336-603\1-CAD\Dwg\Civil\336603-Civil-C301.dwg|C302 EROSION & SEDIMENT CONTROL NOTES & DETAILS (12/17/2024 – pdemmond) – LP: 2/6/2025 3:12 PM



NOTES:
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

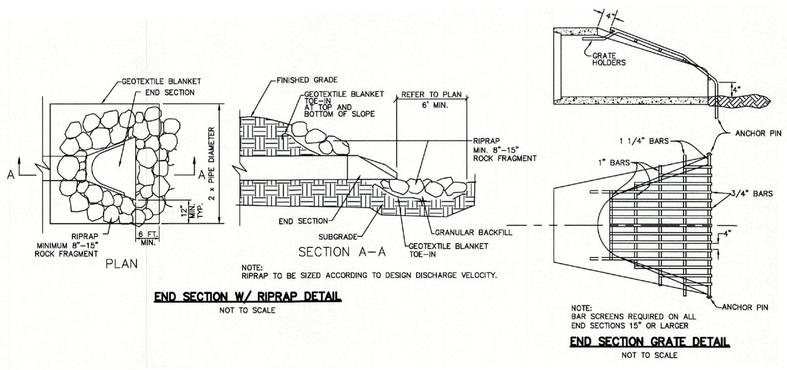
1 CONCRETE WASHOUT
C303 NOT TO SCALE





1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 12" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.
6. EROSION CONTROL BLANKETS SHALL BE INSTALLED ON ALL 3:1 OR STEEPER SLOPES WITH A MINIMUM OF 6" OF TOPSOIL.
7. SLOPE BLANKETS SHALL BE INSTALLED ON FILL SLOPES IMMEDIATELY AFTER EMBANKMENTS ARE ESTABLISHED. AT THE END OF EACH WORKING DAY, NO MORE THAN 10 FEET OF SOIL SHALL BE EXPOSED WITHOUT BLANKETS ON PERMANENT 3:1 FILL SLOPES. THE CONTRACTOR SHALL INSTALL SUPER SILT FENCE ON 2:1 SLOPES AT 50 FEET (MAX) INCREMENTS ALONG THE SLOPE LENGTH IN ACCORDANCE WITH THE EROSION AND SEDIMENTATION CONTROL PLANS AND DETAILS IMMEDIATELY AFTER EMBANKMENTS ARE ESTABLISHED.
8. EROSION CONTROL BLANKETS SHALL BE NORTH AMERICAN GREEN S75BN OR EQUIVALENT.

2 SLOPE BLANKET INSTALLATION
C303 NOT TO SCALE



3 RIPRAP WITH END SECTION DETAIL
C303 NOT TO SCALE

SEEDBED PREPARATION

APPLY LIME TO RAISE THE pH TO THE LEVEL NEEDED FOR SPECIES BEING SEEDED IF SOIL TESTS SHOW pH IS LOW. APPLY 23 POUNDS OF 12–12–12 ANALYSIS FERTILIZER (OR EQUIVALENT) PER 1000 SQ. FT. (APPROXIMATELY 1000 POUNDS PER ACRE) OR FERTILIZE ACCORDING TO SOIL TEST. APPLICATION OF 150 LBS. OF AMMONIUM NITRATE ON AREAS LOW IN ORGANIC MATTER (LESS THAN 3%) AND FERTILITY WILL GREATLY ENHANCE VEGETATIVE GROWTH.

WORK THE FERTILIZER AND LIME INTO THE SOIL TO A DEPTH OF 4 INCHES WITH A HARROW, DISK OR RAKE OPERATED ACROSS THE SLOPE AS MUCH AS POSSIBLE.

SEEDING

SELECT A SEED MIXTURE BASED ON PROJECTED USE OF THE AREA (SEE PERMANENT SEED MIXTURE CHART). WHILE CONSIDERING BEST SEEDING DATES. IF PERMANENT SEEDING IS NOT PERMITTED USE TEMPORARY SEEDING UNTIL PERMANENT SEEDING CAN BE APPLIED. IF TOLERANCES ARE A PROBLEM, SUCH AS SALT TOLERANCE OF SEEDINGS ADJACENT TO STREETS AND HIGHWAYS, SEE SEED TOLERANCE CHART.

TEMPORARY SEEDINGS			
TYPE OF SEED	1000 SQ. FT.	ACRE	REMARKS
WHEAT OR RYE	3.5 LBS.	2 BU.	COVER SEED 1" TO 1 1/2" DEEP
SPRING OATS	2.3 LBS.	3 BU.	COVER SEED 1" DEEP
ANNUAL RYEGRASS	1 LB.	40 LB.	COVER SEED 1/4" DEEP

* NOT NECESSARY WHERE MULCH IS APPLIED.

	SOIL CONDITION			SOIL TOLERANCE	CLOSE MOWING TO 1 1/2" INCHES	TRAMPING TOLERANCE	FERTILITY NEEDS	WINTER HARDINESS	FLOODING TOLERANCE (DAYS)	MATURE HEIGHT (INCHES)	EMERGENCE TIME (DAYS)	SALT TOLERANCE		
	WET	NORM	DRY									GEN.	SOIL	SPRAY
CREEPING RED FESCUE FESTUCA RUBRA	2	1	2	1	1	1	MED.	1	20–25	12–18	7–21			S
KENTUCKY BLUEGRASS POA PRATENSIS	2	1	2	1	1	1	MED.	1	20–35	12–18	10–20			MT
TALL FESCUE FESTUCA L. ARUNDINACEA	2	1	1	1	1	1	LOW	1	24–35	24–36	5–14		T	
PERENNIAL RYEGRASS LOLIUM PERENNE	2	1	2	–	1	2	MED. HIGH	2	15–20	12–18	5–10		MT	
RED CLOVER TRIFOLIUM PRATENSE	–	1	–	2	–	–	MED.	1	7–10	18	5–10	S	S	

RANKING:
1 GOOD
2 MEDIUM
– NOT TOLERANT

SALT TOLERANCE (TO BOTH SOIL SALTS & SPRAY)
T TOLERANCE
MT MEDIUM TOLERANCE
S SLIGHT TOLERANCE

SEED TOLERANCE

SPECIES	SEEDING RATE		SUITABLE pH	SITE SUITABILITY *		
	LBS/ACRE	LBS/1000 SQ. FT.		DROUGHTY	WELL DRAINED	WET
LEVEL AND SLOPING, OPEN AREAS						
1. TALL FESCUE	35	.8	5.5–8.3	2	1	2
2. TALL FESCUE	25	.6	5.5–8.3		1	
RED CLOVER	5	.12				
3. KENTUCKY BLUEGRASS	15	.4	5.8–7.5	2	1	
CREEPING RED FESCUE	15	.4				
STEEP BANKS AND CUTS						
4. TALL FESCUE	15	.4	5.8–7.5	2	1	2
KENTUCKY BLUEGRASS	25	.6				
5. TALL FESCUE	35	.8	5.5–8.3	2	1	
LAWNS AND HIGH MAINTENANCE AREAS						
6. KENTUCKY BLUEGRASS	40	.9	5.8–7.5	2	1	
CREEPING RED FESCUE	40	.9				
7. PERENNIAL RYEGRASS (TURF TYPE)	170	4.0	5.0–7.5		1	
8. TALL FESCUE	170	4.0	5.5–8.3	2	1	2

* 1 – PREFERRED 2 – WILL TOLERATE ** INOCULATE WITH SPECIFIC INOCULANT.

SEED TOLERANCE CHART

PERMANENT SEEDING DATES

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
NON–IRRIGATED*			■	■	■			■	■			
IRRIGATED			■	■	■	■	■	■	■			
DORMANT SEEDING **	■	■									■	■

TEMPORARY SEEDING DATES

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
WHEAT OR RYE								■	■			
OATS			■	■								
ANNUAL RYEGRASS				■	■	■	■	■				

■ IRRIGATION NEEDED DURING THIS PERIOD. TO CONTROL EROSION AT TIMES OTHER THAN IN THE SHADED AREAS. USE MULCH.

* LATE SUMMER SEEDING DATES MAY BE EXTENDED 5 DAYS IF MULCH IS APPLIED.

** INCREASE SEEDING APPLICATION BY 50%.

SUBMITTAL & REVISION RECORD

NO.	DATE	DESCRIPTION
	08/30/2024	ISSUED FOR PRELIMINARY PUD REVIEW
	09/18/2024	REVISED FOR PRELIMINARY PUD REVIEW
	10/30/2024	ISSUED FOR PRELIMINARY SITE PLAN / PUD REVIEW
	11/21/2024	ISSUED FOR ENGINEERING REVIEW
	12/13/2024	ISSUED FOR ENGINEERING REVIEW #2

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Civil & Environmental Consultants, Inc.

COSTCO WHOLESALE

Green Oak Charter Township, Michigan

EROSION & SEDIMENT CONTROL NOTES & DETAILS

DATE:	NOVEMBER 2024
DWG SCALE:	NOT TO SCALE
PROJECT NO:	
APPROVED BY:	
DRAWN BY:	PES
CHECKED BY:	ACH
	336-603
	PTB*

*SIGNATURE ON FILE.

DRAWING NO.:
C303

MISS DIG 811

STATE OF MICHIGAN
LICENSED PROFESSIONAL ENGINEER
PATRICK T. BENNETT
EMSWILER, INC.
6201052209

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NORTH

COSTCO WHOLESALE

Green Oak Township, Michigan
FFE = ~903.50

LEGEND

- EXISTING SUBJECT PROPERTY LINE
- EXISTING ADJACENT PROPERTY LINE
- EXISTING BUILDING
- EXISTING STORM PIPE
- EXISTING TREE
- EXISTING STORM MANHOLE
- EXISTING STORM INLET
- PROPOSED STORM SEWER
- PROPOSED STORM STRUCTURE
- PROPOSED STORM MANHOLE
- PROPOSED DRAINAGE DITCH
- PROPOSED UNDERDRAINS
- PROPOSED DRAINAGE AREA
- OVERLAND FLOOD ROUTE

DRAINAGE NOTES

1. ALL SEWER CONSTRUCTION AND MATERIALS SHALL CONFORM TO AND BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND ALL APPLICABLE LOCAL AND STATE CODES AND REGULATIONS.
2. BEFORE INSTALLATION OF STORM OR SANITARY SEWER, OR OTHER UTILITY, THE CONTRACTOR SHALL VERIFY ALL CROSSINGS, BY EXCAVATION WHERE NECESSARY, AND INFORM THE OWNER'S REPRESENTATIVE OF ANY CONFLICTS OR UNCHARTED EXISTING UTILITIES ENCOUNTERED. SUBMIT NOTIFICATION SO AS TO ALLOW DESIGN ADJUSTMENTS THAT MAY BE REQUIRED TO AVOID CONFLICTS. THE ENGINEER WILL BE HELD HARMLESS IN THE EVENT HE IS NOT NOTIFIED OF DESIGN CONFLICTS PRIOR TO CONSTRUCTION.
3. SITE DIMENSIONS AND/OR COORDINATES SHOWN ARE TO THE FACE OF CURB, EDGE OF PAVEMENT, EXTERIOR BUILDING WALL, CENTER OF MANHOLE, CENTER AT FACE OF CURB FOR DRAIN INLETS AND CENTERLINE OF PIPE OR FITTING, UNLESS OTHERWISE NOTED. DISTANCES SHOWN ON PIPING ARE HORIZONTAL DISTANCES FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE, UNLESS OTHERWISE NOTED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE INSTALLATION, INSPECTION, TESTING AND FINAL ACCEPTANCE OF ALL NEW STORMWATER MANAGEMENT FACILITIES CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH ALL APPLICABLE REGULATING AGENCIES CONCERNING INSTALLATION, INSPECTION AND APPROVAL OF THE STORM DRAINAGE SYSTEM CONSTRUCTION.
5. ALL STORMWATER MANAGEMENT FACILITIES, INCLUDING COLLECTION AND CONVEYANCE STRUCTURES SHALL BE INSTALLED IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND ALL APPLICABLE LOCAL AND STATE CODES AND REGULATIONS. REFER TO UTILITY AGENCY'S STORM SEWER STANDARD DETAILS AND NOTES.
6. ANY WORK PERFORMED IN THE LOCAL OR STATE RIGHT OF WAYS SHALL BE IN ACCORDANCE WITH THE APPLICABLE LOCAL OR STATE REQUIREMENTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE NECESSARY PERMITS FOR THE WORK, SCHEDULE NECESSARY INSPECTIONS, AND PROVIDE THE NECESSARY TRAFFIC CONTROL MEASURES AND DEVICES, ETC., FOR WORK PERFORMED IN THE RIGHT OF WAYS.
7. ALL PROPOSED STORM DRAINAGE PIPING (STM) SHALL MEET GREEN OAK TOWNSHIP REQUIREMENTS. REFER TO SHEETS C803 AND C804 FOR STANDARD NOTES, DETAILS, AND SPECIFICATIONS.
8. INSTALL DETECTABLE UTILITY WARNING TAPE ABOVE STORM DRAINAGE PIPING, 12 INCHES BELOW FINISHED GRADE, EXCEPT 6 INCHES BELOW SUBGRADE UNDER PAVEMENTS AND SLABS.
9. ALL STORM DRAINAGE STRUCTURES SHALL BE PRECAST CONCRETE, UNLESS OTHERWISE NOTED.
10. PROVIDE PAVEMENT UNDERDRAINS AT ALL PAVEMENT INLET STRUCTURES. EXTEND 4–INCH DIAMETER PERFORATED SCH 40 PVC PIPE UNDERDRAINS, WITH PERFORATIONS ON ONE SIDE FACING DOWN, A MINIMUM OF 10 FEET OUTWARD FROM ALL SIDES OF INLET BELOW PAVEMENT, SEE DETAIL 2/C800.
11. TYPICAL BUILDING FOUNDATION SUBDRAINAGE SYSTEM CONNECTION: PROVIDE CLEANOUT AND HEADER PIPING (MATCH SUBDRAINAGE PIPING) TO STORM DRAINAGE STRUCTURE, LOCATIONS AS REQUIRED. SEE ARCHITECTURAL DRAWINGS FOR SUBDRAINAGE SYSTEMS FOR FOUNDATIONS AND RETAINING WALLS.
12. DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERIODIC INSPECTION AND MAINTENANCE OF THE STORM SEWER SYSTEM.
13. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF BUILDING ROOF DRAINS. ALL ROOF DRAINS ARE TO BE CONNECTED TO THE STORM SEWER SYSTEM. ROOF DRAINS, FOUNDATION DRAINS OR ANY OTHER CLEAN WATER CONNECTION TO THE SANITARY SEWER SYSTEM IS PROHIBITED.
14. ALL STORM SEWER OUTSIDE THE RIGHT–OF–WAY AND NOT IN AN EASEMENT WILL REMAIN PRIVATE AND WILL BE MAINTAINED PRIVATELY.
15. ALL STORM SEWER INLETS SHALL BE STAMPED WITH "NO DUMPING" ON THE CASTING PER LOCAL REGULATIONS.

THE PROPOSED SITE OUTLETS WEST TO AN EXISTING DETENTION BASIN BEFORE INFILTRATING OR DISCHARGING TO THE SOUTH TO A PUBLIC SEWER ALONG MALTBY ROAD. REFER TO THE REPORT OF STORMWATER MANAGEMENT PREPARED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC., DATED OCTOBER, 2024 FOR DETENTION INFORMATION.

OVERLAND RELIEF FLOW FOR LARGE STORMS WILL TRAVEL WEST THROUGH THE PROPOSED PARKING AREA, ULTIMATELY REACHING THE EXISTING DETENTION BASIN WEST OF THE PROPOSED DEVELOPMENT.

SEE SHEET C401 FOR PROPOSED STORM SEWER CALCULATIONS AND PROFILES.

BENCHMARKS:
THE NORTHING AND EASTING SHOWN ARE APPROXIMATE AND ONLY INTENDED TO PROVIDE RECOVERY OF THE BENCHMARK. THESE COORDINATES ARE NOT INTENDED TO BE USED FOR THE HORIZONTAL CONTROL OF THE PROJECT. THE HORIZONTAL CONTROL FOR THE PROJECT SHALL BE CONTROLLED BY THE MONUMENTS FOUND OR SET BY A PROFESSIONAL SURVEYOR.

SOURCE BENCHMARK:
TOP OF A 5/8" SOLID REBAR THIRTY INCHES IN LENGTH WITH A PINK PLASTIC CAP BEARING THE INITIALS "CEC INC TRAVERSE", CEC POINT #1. THE ELEVATION WAS DETERMINED USING STATIC GPS OBSERVATIONS PERFORMED ON DECEMBER 12 OF THE YEAR 2023 AS BASED ON USING M.D.O.T. CORS NETWORK, MICHIGAN SOUTH ZONE NAD 83 (2011 ADJUSTMENT), NAVD 88 (GEOID12B / 18) DATUM.
NORTHING: 365852.35
EASTING: 13286145.61
ELEVATION: 901.90

BENCHMARK 1:
CROSS ON WEST BONNET BOLT OF FIRE HYDRANT LOCATED +– 100 FT NORTHWESTERLY OF THE COSTCO GAS STATION AND +– 200 FT EASTERLY OF THE SOUTHWEST CORNER OF COSTCO ON A PARKING LOT ISLAND.
ELEVATION: 902.57 (NAVD 88)

BENCHMARK 2:
CROSS ON NORTHEAST BONNET BOLT OF FIRE HYDRANT LOCATED ON THE EAST SIDE OF THE SOUTH COSTCO ENTRANCE DRIVE LEADING TO MALTBY ROAD.
ELEVATION: 903.72 (NAVD 88)

BENCHMARK 3:
CROSS ON TOP OF SOUTHWESTERLY BONNET BOLT OF FIRE HYDRANT LOCATED ON THE WEST SIDE OF DRIVE LOCATED NEAR THE SOUTHWEST CORNER OF COSTCO BEING +– 10 FT WEST FROM THE WEST EDGE OF ASPHALT.
ELEVATION: 905.74 (NAVD 88)

BENCHMARK 4:
CROSS ON NORTHWEST BOLT OF LIGHT POLE LOCATED ON THE EAST SIDE OF THE PARKING LOT OF BRIWAR CONSTRUCTION +– 300 FT NORTHWESTERLY OF THE SOUTHWEST CORNER OF THE BUILDING.
ELEVATION: 903.81 (NAVD 88)

SCALE IN FEET
0 30 60

MISS DIG 811

PATRICK T. BENNETT EMERY ETH INC. 6201052209 STATE OF MICHIGAN LICENSED PROFESSIONAL ENGINEER

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	10/30/2024	ISSUED FOR PRELIMINARY PLAN REVIEW
	03/18/2024	REISSUED FOR PRELIMINARY PLAN REVIEW
	05/23/2024	ISSUED FOR PRELIMINARY SITE PLAN / PUD REVIEW
	11/01/2024	ISSUED FOR FINAL SITE PLAN REVIEW
	12/13/2024	ISSUED FOR PLANNING REVIEW RE-SUBMITTAL #1

CEC Civil & Environmental Consultants, Inc.
10300 Alliance Road
Suite 300
Cincinnati, OH 45242
Ph: 513.985.0226
www.cecinc.com

COSTCO WHOLESALE
Green Oak Charter Township, Michigan

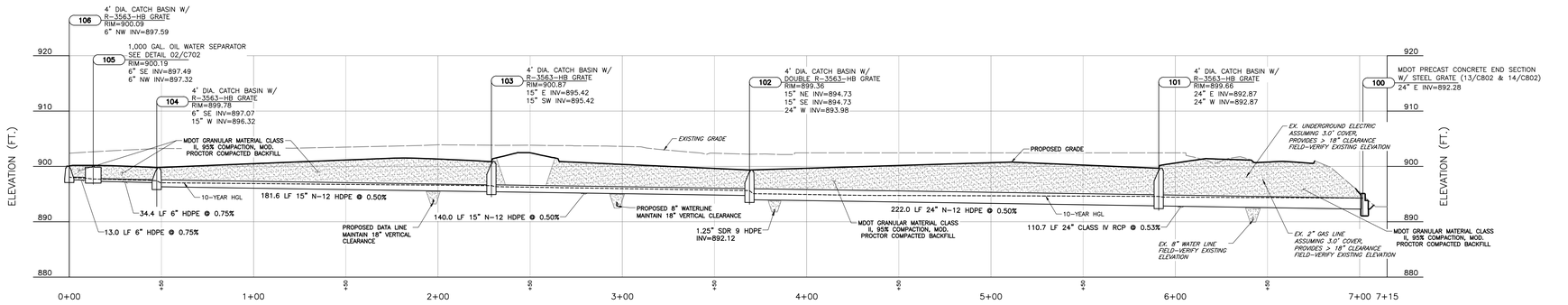
STORM SEWER PLAN

DATE:	NOVEMBER 2024
DWG SCALE:	1" = 30'
PROJECT NO.:	
DRAWN BY:	PES
CHECKED BY:	ACH
	338-603
APPROVED BY:	PTB*

*SIGNATURE ON FILE.

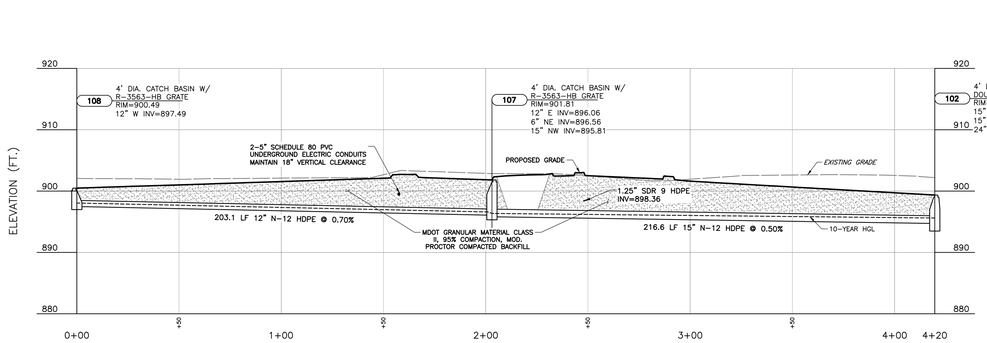
DRAWING NO.: C400

P:\338-603\338-603-CADD\dwg\SHT\338603-SHT-C400.dwg(SHT) LAST(SAVED) - pbennett - 2/6/2025 3:13 PM



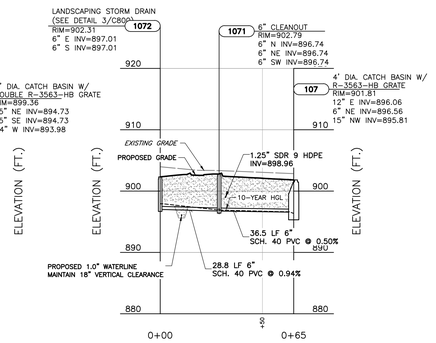
STORM STR. #106 TO STR. #100 PROFILE

SCALE H:1"=30'; V:1"=10'



STORM STR. #108 TO STR. #102 PROFILE

SCALE H:1"=30'; V:1"=10'



STORM STR. #1072 TO STR. #107 PROFILE

SCALE H:1"=30'; V:1"=10'

GENERAL NOTE:
WHERE TWO UTILITIES CROSS, PROVIDE CLASS II BACKFILL MATERIAL IN TWELVE (12) INCH COMPACTED LAYERS TO THE UNDERSIDE OF THE HIGHER UTILITY.
SEE SHEETS C803 & C804 FOR LIVINGSTON COMMUNITY WATER AUTHORITY NOTES AND DETAILS.

ALL EXISTING UTILITY ELEVATIONS ARE ASSUMED AND SHOULD BE FIELD-VERIFIED. CONTRACTOR TO VERIFY ELEVATION, MAINTAIN A MINIMUM OF 18" VERTICAL CLEARANCE BETWEEN UTILITIES, AND PROTECT EXISTING UTILITIES DURING CONSTRUCTION.

STORM SEWER COMPOSITE C CALCULATIONS

Civil & Environmental Consultants, Inc.

Project Name: Costco Green Oak Charter Township, MI
CEC Project No.: 336-603
Description: Composite C Calculations

	Runoff Coefficient	Curve Number
Impervious =	0.90	98
Pervious =	0.20	80

INLETS

101				
Impervious (ft^2)	Pervious (ft^2)	Total (ft^2)	Total (Acres)	Composite "C"
16,849	6,151	23,000	0.53	0.71
102				
Impervious (ft^2)	Pervious (ft^2)	Total (ft^2)	Total (Acres)	Composite "C"
55,594	6,286	61,880	1.42	0.83
103				
Impervious (ft^2)	Pervious (ft^2)	Total (ft^2)	Total (Acres)	Composite "C"
9,928	2,928	12,856	0.30	0.74
104				
Impervious (ft^2)	Pervious (ft^2)	Total (ft^2)	Total (Acres)	Composite "C"
25,088	4,659	29,747	0.68	0.79
106				
Impervious (ft^2)	Pervious (ft^2)	Total (ft^2)	Total (Acres)	Composite "C"
3,655	2,934	6,590	0.15	0.59
107				
Impervious (ft^2)	Pervious (ft^2)	Total (ft^2)	Total (Acres)	Composite "C"
5,829	494	6,324	0.15	0.85
1072				
Impervious (ft^2)	Pervious (ft^2)	Total (ft^2)	Total (Acres)	Composite "C"
173	304	477	0.01	0.45
108				
Impervious (ft^2)	Pervious (ft^2)	Total (ft^2)	Total (Acres)	Composite "C"
16,169	2,669	18,838	0.43	0.80
201				
Impervious (ft^2)	Pervious (ft^2)	Total (ft^2)	Total (Acres)	Composite "C"
5,443	0	5,443	0.12	0.90
202				
Impervious (ft^2)	Pervious (ft^2)	Total (ft^2)	Total (Acres)	Composite "C"
9,200	5,056	14,256	0.33	0.65
Ex. 301	Loading Dock, Half of Warehouse Roof Drains, and South of Loading Dock			
Impervious (ft^2)	Pervious (ft^2)	Total (ft^2)	Total (Acres)	Composite "C"
83,061	0	83,061	1.91	0.90
Ex. 302				
Impervious (ft^2)	Pervious (ft^2)	Total (ft^2)	Total (Acres)	Composite "C"
40,004	1,314	41,318	0.95	0.88
Ex. 303				
Impervious (ft^2)	Pervious (ft^2)	Total (ft^2)	Total (Acres)	Composite "C"
43,103	3,754	46,857	1.08	0.84
Ex. 304	Half of Warehouse Roof Drains and North and East of Warehouse			
Impervious (ft^2)	Pervious (ft^2)	Total (ft^2)	Total (Acres)	Composite "C"
300,950	26,170	327,120	7.51	0.84

STORM SEWER DESIGN CHART

From M.H.	To M.H.	Length of Pipe Run (Ft.)	Increment Acres (A)	Total Area (A)	Runoff Coeff. (C)	Increment C x A	Total C x A	Inlet Time (Min.)	Time of Conc. Tc (Min.)	Rainfall Intensity (in/hr)	Total Flow Q=CIA (c.f.s.)	Capacity Full (c.f.s.)	Velocity (Ft./Sec.)	Diameter Of Pipe (In.)	Slope of Pipe (%)	Lower End Invert Elev.	Upper End Invert Elev.	Lower End HG Elev.	Upper End HG Elev.	Lower End Rim Elev.	Upper End Rim Elev.
101	100	110.74	0.53	3.67	0.71	0.38	2.88	10	22.4	3.7	10.62	16.51	3.67	24	0.53	892.28	892.87	894.28	894.47	894.95	899.66
102	101	222.00	1.42	3.14	0.83	1.18	2.50	10	21.4	3.8	9.43	15.99	4.30	24	0.50	892.87	893.98	894.59	895.08	899.66	899.36
103	102	140.00	0.30	1.13	0.74	0.22	0.85	10	11.5	4.8	4.06	4.53	4.18	15	0.49	894.73	895.42	895.65	896.34	899.36	900.87
104	103	181.56	0.68	0.83	0.79	0.54	0.63	10	10.4	5.0	3.10	4.55	3.41	15	0.50	895.42	896.32	896.53	897.06	900.87	900.55
105	104	34.43	0.00	0.15	0.00	0.00	0.09	0	10.1	5.0	0.44	0.48	2.76	6	0.73	897.07	897.32	897.45	897.70	900.55	900.19
106	105	13.00	0.15	0.15	0.59	0.09	0.09	10	10.0	5.0	0.44	0.49	2.84	6	0.77	897.49	897.59	897.86	897.96	900.19	900.09
107	102	216.55	0.15	0.59	0.85	0.13	0.48	10	19.5	3.9	1.87	4.56	2.82	15	0.50	894.73	895.81	895.62	896.35	899.36	901.91
1071	107	36.50	0.00	0.01	0.00	0.00	0.00	0	14.2	4.5	0.02	0.79	1.47	6	2.00	896.56	897.29	896.61	897.36	901.91	902.79
1072	1071	28.82	0.01	0.01	0.45	0.00	0.00	10	10.0	5.0	0.02	0.80	1.33	6	2.01	897.29	897.87	897.36	897.94	902.79	902.31
108	107	203.06	0.43	0.43	0.80	0.34	0.34	10	10.0	5.0	1.72	2.99	3.88	12	0.70	896.06	897.49	896.60	898.05	901.91	900.49
Ex. 201	Ex. 200	34.07	0.12	0.45	0.90	0.11	0.32	10	10.4	5.0	1.60	6.85	2.88	12	3.70	894.52	895.78	895.52	896.32	896.12	900.09
Ex. 202	Ex. 201	28.87	0.33	0.33	0.65	0.21	0.21	10	10.0	5.0	1.07	4.64	3.05	12	1.70	895.83	896.32	896.32	896.76	900.09	899.87
Ex. 301	Ex. 300	158.98	1.91	11.45	0.90	1.72	9.77	15	33.1	3.0	29.43	64.33	3.23	42	0.41	891.32	891.97	894.82	894.92	895.32	899.55
Ex. 302	Ex. 301	213.10	0.95	9.54	0.88	0.84	8.05	10	31.7	3.1	24.84	57.66	3.06	42	0.33	891.97	892.67	895.09	895.17	899.55	899.56
Ex. 303	Ex. 302	126.46	1.08	8.59	0.84	0.91	7.22	10	30.8	3.1	22.62	52.17	2.94	42	0.27	892.67	893.01	895.44	895.49	899.56	899.78
Ex. 304	Ex. 303	140.81	7.51	7.51	0.84	6.31	6.31	30	30.0	3.2	20.07	42.06	3.45	36	0.40	893.01	893.57	895.59	895.66	899.78	900.01

SCALE IN FEET
0 30 60
SCALE IN FEET
0 10 20

MISS DIG 811

STATE OF MICHIGAN
PATRICK T. BENNETT
ENGINEER
NO. 6201052209
LICENSED PROFESSIONAL ENGINEER

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	10/30/2024	ISSUED FOR PRELIMINARY PLAN REVIEW
	12/18/2024	REISSUED FOR PRELIMINARY PLAN REVIEW
	03/13/2025	REISSUED FOR PRELIMINARY SITE PLAN (PLD) REVIEW
	11/21/2025	ISSUED FOR FINAL ENGINEERING REVIEW
	12/19/2025	ISSUED FOR FINAL ENGINEERING REVIEW RESUBMITTAL #1

10300 Alliance Road
Suite 300
Cincinnati, OH 45242
Ph: 513.985.0226
www.cecinc.com

Civil & Environmental Consultants, Inc.

Green Oak Charter Township, Michigan

STORM SEWER PROFILES

DATE: NOVEMBER 2024 | DRAWN BY: PES | CHECKED BY: ACH
DWG SCALE: AS SHOWN | PROJECT NO: 336-603 | APPROVED BY: PTB*

*SIGNATURE ON FILE.

DRAWING NO.: **C401**

P:\336-603\336-603\~CADD\Dwg\C401\336603-C401-Dwg(C401 STORM SANITARY & WATER PROFILES) (12/17/2025 - pbennett) - LP: 12/8/2025 3:13 PM

NORTH

COSTCO WHOLESALE

Green Oak Township, Michigan
FFE = ~903.50

TBM #3 = 905.74

TBM #2 = 903.72

TBM #1 = 902.30

ADJOINER
COSTCO WHOLESALE CORPORATION
LIBER 4505 PAGE 245

PROP MONITORING MANHOLE CONNECT TO EX. SANITARY LEAD PER TOWNSHIP DETAILS 10
RIM=901.38
INV. IN (1.25"S)=896.54

LOWER SANITARY UNDER EX. STORM SEWER 11
INV. IN (1.25"S)=890.45
INV. OUT (1.25"N)=890.45

AIR RELEASE VALVE (PRIVATE) PER DETAIL 02/C501 12
RIM=901.50
INV. IN (1.25"SE)=891.03
INV. OUT (1.25"N)=891.03

LOWER SANITARY UNDER STORM SEWER 13
INV. IN (1.25"SE)=892.12
INV. OUT (1.25"NW)=892.12

LATERAL ASSEMBLY PIT (PRIVATE) PER TOWNSHIP DETAILS 14
RIM=902.27
INV. IN (1.25"E)=898.17
INV. IN (1.25"SE)=898.17
INV. OUT (1.25"NW)=898.17

TERMINAL END FLUSHING ASSEMBLY (PRIVATE) PER TOWNSHIP DETAILS 14.1
RIM=902.79
INV. OUT (1.25"NW)=898.17

GRINDER PUMP (PRIVATE) E-ONE DH071-93 SEE DETAIL 01/C501 15
RIM=902.78
INV. IN (4.00"NE)=898.36
INV. OUT (1.25"W)=899.01
BOTTOM ELEV.=895.86

CONNECT TO EXISTING 8" WATERMAIN PER LCWA STANDARDS. SEE SHEET C803–C805 FOR NOTES AND DETAILS

8"X8"X6" TEE

6" VALVE BOX

F.G.=902.30
FH ASSEMBLY

±9 LF 6" CLASS 52, POLYETHYLENE–WRAPPED DUCTILE IRON PIPE PER LCWA STANDARDS

8"X8"X8" TEE

±15 LF 6" CLASS 52, POLYETHYLENE–WRAPPED DUCTILE IRON PIPE PER LCWA STANDARDS

20' WATER MAIN EASEMENT

6" VALVE BOX

F.G.=902.54
FH ASSEMBLY

±103 LF 6" CLASS 52, POLYETHYLENE–WRAPPED DUCTILE IRON PIPE PER LCWA STANDARDS

6" TO 6" REDUCER

±246 LF UNDERGROUND DATA/COMMUNICATION CONDUIT EXTENSION FROM WAREHOUSE TO FUEL FACILITY KIOSK

±227 LF 8" CLASS 52, POLYETHYLENE–WRAPPED DUCTILE IRON PIPE PER LCWA STANDARDS

8"X8"X6" TEE

6" VALVE BOX

8" VALVE BOX

NIBCO "NIP–1AU E" UPRIGHT POST INDICATOR VALVE, OR APPROVED EQUAL

DRY SPRINKLER RISER. SEE DRAWINGS BY NRO FIRE CONSULTING AND MG2 FOR DETAILS.

F.G.=902.19
ASSE APPROVED 1048 DOUBLE CHECK DETECTOR ASSEMBLY TO BE PROPERLY INSTALLED IN AN APPROVED ABOVE GROUND HEATED ENCLOSURE FOR FIRE PROTECTION SYSTEM. REMOTE FDC TO BE LOCATED AT ENCLOSURE.

±145 LF 6" CLASS 52, POLYETHYLENE–WRAPPED DUCTILE IRON PIPE PER LCWA STANDARDS FOR FIRE PROTECTION SYSTEM TO BE DESIGNED BY OTHERS.

20' WATER MAIN EASEMENT

±15 LF 6" CLASS 52, POLYETHYLENE–WRAPPED DUCTILE IRON PIPE PER LCWA STANDARDS

8" TO 6" REDUCER

F.G.=903.09
FH ASSEMBLY

6" VALVE BOX

1" CORP STOP AND CURB BOX

INSTALL 45° BENDS

±98 LF 1" HDPE SDR–9 DOMESTIC WATER LINE

SERVICE LINE BEND RADIUS TO FOLLOW MANUFACTURER RECOMMENDATION. NO FITTINGS ALLOWED BETWEEN CURB BOX AND THE METER WITHIN THE BUILDING.

CONNECT 1" DOMESTIC TO KIOSK. REFER TO ARCH. DRAWINGS. CONTACT LCWA FOR 1" METER. 16

CONNECT 4" SAN. TO KIOSK
F.F.E.=902.76
INV. OUT (4"SW)=898.53

15.9 LF 4.00" PVC @ 1.04% (PRIVATE)

PROPOSED PAD MOUNTED TRANSFORMER PER LOCAL UTILITY STANDARDS.

±17 LF ELECTRIC FEED TO GRINDER PUMP

±200 LF UNDERGROUND ELECTRIC CONDUIT.

10' TELEPHONE/CATV EASEMENT

CONNECT TO EXISTING ELECTRIC POLE PER LOCAL UTILITY STANDARDS.

CONNECT TO EXISTING UNDERGROUND TELEPHONE AND CABLE/TV LINE

±230 LF RELOCATED UNDERGROUND TELEPHONE AND CABLE/TV LINE

GATE WAY SHOPPES AT GREEN OAK
INSTR. #2006R-018740
KNOWN AS LIVINGSTON COUNTY
CONDOMINIUM SUBDIVISION PLAN NO. 363

UNIT 3

UNIT 4

UNIT 5

UNIT 6

12' OVERHEAD WIRE EASEMENT 2006R–018740

10' WIDE DETROIT EDISON EASEMENT LIBER 4743, PAGE 140

25' WATER MAIN EASEMENT LIBER 4743, PAGE 140

REMAINDER
9325 MALTBY ROAD, LLC
INSTR. #2020R–053600
PARCEL 16–05–300–040

EXISTING BUILDING

ADJOINER
GUILD J. COGO
INSTR. #2020R–025101
PARCEL 16–05–300–071

ADJOINER
9449 MALTBY, BRIGHTON, MICHIGAN 48116
LIBER 2285 PAGE 529
PARCEL 16–05–300–036

EAST LINE
LIBER 1275, PAGE 465

33'

45' UTILITY EASEMENT
LIBER 4758, PAGE 530

ASSUMED NORTH R/W OF 66' WIDE MALTBY ROAD

MALTBY ROAD
(66' PUBLIC RIGHT–OF–WAY)

TEMPORARY GRADING EASEMENT (CONT. 113 SF)

10' ELECTRIC EASEMENT

15'

APPROXIMATE LOCATION OF GAS AND WATER LINES PER PLANS PROVIDED

EXISTING FOREBAY APPROX. WATER ELEVATION=892.50

OIL SEPARATORS/ OUTLET STRUCTURES

LEGEND

- EXISTING SUBJECT PROPERTY LINE
- EXISTING ADJACENT PROPERTY LINE
- EXISTING CONCRETE PAVEMENT
- EXISTING BUILDING
- ST — EXISTING STORM PIPE
- 8"W — EXISTING WATER LINE
- SAN — EXISTING SANITARY SEWER LINE
- G — EXISTING GAS LINE
- OH–W — EXISTING OVERHEAD WIRE
- UG–E — EXISTING UNDERGROUND ELECTRIC LINE
- COMM — EXISTING DATA/COMMUNICATIONS LINE
- EXISTING TREE
- EXISTING BOLLARD
- EXISTING SIGN
- EXISTING LIGHT POLE
- EXISTING UTILITY POLE
- EXISTING GUY WIRE
- E — EXISTING ELECTRIC BOX
- AC — EXISTING AC UNIT
- EXISTING CABLE BOX
- G — EXISTING GAS METER
- EXISTING VALVE BOX
- EXISTING HYDRANT
- S — EXISTING SANITARY MANHOLE
- D — EXISTING STORM MANHOLE
- EXISTING STORM INLET
- ST — PROPOSED STORM SEWER
- PROPOSED STORM STRUCTURE
- D — PROPOSED STORM MANHOLE
- PROPOSED STORM CLEANOUT
- W — PROPOSED WATER LINE
- PROPOSED VALVE BOX
- PROPOSED HYDRANT
- UG–E — PROPOSED UNDERGROUND ELECTRIC
- T — PROPOSED TELEPHONE LINE
- G — PROPOSED GAS LINE
- DATA — PROPOSED DATA LINE AND PULL STATION
- C — PROPOSED CABLE/TV LINE
- SAN — PROPOSED SANITARY LINE

UTILITY NOTES

1. ALL PROPOSED UTILITY LINES AND EXTENSIONS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE UTILITY AGENCY / DISTRICT / MUNICIPALITY / COMPANY REQUIREMENTS. CONTRACTOR SHALL COORDINATE UTILITY DISCONNECTIONS, IF APPLICABLE, WITH THE APPROPRIATE AGENCY.
2. ALL SEWER CONSTRUCTION AND MATERIALS SHALL CONFORM TO AND BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND ALL APPLICABLE LOCAL AND STATE CODES AND REGULATIONS.
3. BEFORE INSTALLATION OF STORM OR SANITARY SEWER, OR OTHER UTILITY, THE CONTRACTOR SHALL VERIFY ALL CROSSINGS, BY EXCAVATION WHERE NECESSARY, AND INFORM THE OWNER'S REPRESENTATIVE OF ANY CONFLICTS OR UNCHARTED EXISTING UTILITIES ENCOUNTERED. SUBMIT NOTIFICATION SO AS TO ALLOW DESIGN ADJUSTMENTS THAT MAY BE REQUIRED TO AVOID CONFLICTS. THE ENGINEER WILL BE HELD HARMLESS IN THE EVENT HE IS NOT NOTIFIED OF DESIGN CONFLICTS PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION AND REQUEST FIELD VERIFICATION OF UTILITY LOCATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO RELOCATE EXISTING UTILITIES CONFLICTING WITH IMPROVEMENTS SHOWN HEREON IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.
5. THE CONTRACTOR SHALL OBTAIN ALL APPLICABLE REQUIRED PERMITS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. MAINTAIN A MINIMUM OF 10 FEET HORIZONTAL AND A MINIMUM OF 18 INCHES VERTICAL SEPARATION BETWEEN SANITARY SEWER OR STORM SEWER AND WATER SUPPLY PIPING, UNLESS OTHERWISE INDICATED.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE SEQUENCING OF CONSTRUCTION FOR ALL UTILITY LINES SO THAT WATER LINES, GAS LINES, AND UNDERGROUND ELECTRIC DO NOT CONFLICT WITH SANITARY SEWERS OR STORM SEWERS. INSTALL UTILITIES PRIOR TO PAVEMENT CONSTRUCTION.
8. ALL UTILITY TRENCH EXCAVATION SPOILS SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE INDICATED AND, IF REQUIRED, SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF OFFSITE AT NO ADDITIONAL COST TO THE OWNER IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS.
9. ADJUST ALL EXISTING UTILITY SURFACE FEATURES INCLUDING BUT NOT LIMITED TO CASTINGS, VALVE BOXES, PEDESTALS, CLEANOUTS, ETC. TO MATCH PROPOSED FINISHED GRADES, UNLESS OTHERWISE INDICATED.
10. SITE DIMENSIONS AND/OR COORDINATES SHOWN ARE TO THE FACE OF CURB, EDGE OF PAVEMENT, EXTERIOR BUILDING WALL, CENTER OF MANHOLE, CENTER AT FACE OF CURB FOR DRAIN INLETS AND CENTERLINE OF PIPE OR FITTING, UNLESS OTHERWISE NOTED. DISTANCES SHOWN ON PIPING ARE HORIZONTAL DISTANCES FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE, UNLESS OTHERWISE NOTED.
11. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND LOCATIONS OF UTILITY SERVICE ENTRANCES, BUILDING DRAINS, ROOF DRAINS, DOORS AND EXIT FEATURES.
12. TERMINATE UTILITY SERVICES AND DOWNSPOUT LEADER PIPING 5 FEET FROM BUILDING EXTERIOR WALL UNLESS INDICATED OTHERWISE. INSTALL DETECTABLE UTILITY WARNING TAPE ABOVE ALL UTILITY PIPING OR CONDUITS, 12 INCHES BELOW FINISHED GRADE, EXCEPT 6 INCHES BELOW SUBGRADE UNDER PAVEMENTS AND SLABS.
13. ALL WATER MAIN AND WATER SYSTEM CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE TOWNSHIP OF GREEN OAK DEPARTMENT OF PUBLIC WORKS AND THE LIVINGSTON COMMUNITY WATER AUTHORITY. DETAILED WRITTEN SPECIFICATIONS ARE AVAILABLE UPON REQUEST.
14. ALL WATER MAIN PIPING, HYDRANTS, GATE VALVES, AND FITTINGS SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS LISTED ON SHEETS C803, C804, & C805. ANY MATERIALS OTHER THAN THOSE LISTED ON THE STANDARD DETAIL SHEETS MUST BE APPROVED IN WRITING BY THE LIVINGSTON COMMUNITY WATER AUTHORITY.
15. CONTRACTOR TO INSTALL CONDUIT SYSTEMS FOR UNDERGROUND ELECTRIC AND TELEPHONE SERVICES IN ACCORDANCE WITH UTILITY COMPANIES' REQUIREMENTS, INCLUDING PULL CORDS INSIDE CONDUITS AND HIGHWAY LOAD–BEARING PULL BOXES AND MANHOLES.
16. CONTRACTOR SHALL INSTALL PAD(S) FOR TRANSFORMER(S) AND CONDUITS FOR UNDERGROUND ELECTRIC SERVICE IN ACCORDANCE WITH ELECTRIC COMPANY'S REQUIREMENTS. ELECTRIC COMPANY TO PLACE TRANSFORMER AND RUN UNDERGROUND ELECTRIC PRIMARY CONDUCTORS TO TRANSFORMER AT OWNER'S COST.
17. ELECTRIC SERVICE CONDUITS SHALL BE MINIMUM SCHEDULE 40 PVC, AND/OR IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY COMPANY. INSTALL INSULATED WIRE WITH CONDUITS TO FACILITATE LOCATION AFTER CONSTRUCTION.
18. TELEPHONE SERVICE CONDUITS SHALL BE RIGID, NONMETALLIC CONDUITS. NEMA TC 2, SCHEDULE 40 PVC, AND/OR IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY COMPANY. INSTALL INSULATED WIRE WITH CONDUITS TO FACILITATE LOCATION AFTER CONSTRUCTION.
19. COMMUNICATION CONDUIT TRENCH (DATA) SHALL BE PROVIDED ALONG ALIGNMENT SHOWN ON THIS SHEET AND DETAILS ON ELECTRICAL DRAWINGS.
20. THE GRINDER PUMP AND DISCHARGE LINE ARE PRIVATE AND WILL NOT BE MAINTAINED BY GREEN OAK TOWNSHIP.
21. ACCESS TO VALVES AND HYDRANTS MUST ALWAYS BE MAINTAINED. TREES AND LANDSCAPING THAT WOULD HINDER ACCESS TO THE WATER MAIN SYSTEM INCLUDING PARKING ARE NOT PERMITTED WITHIN 10 FEET OF THE WATER MAIN.

BENCHMARKS:
THE NORTHING AND EASTING SHOWN ARE APPROXIMATE AND ONLY INTENDED TO PROVIDE RECOVERY OF THE BENCHMARK. THESE COORDINATES ARE NOT INTENDED TO BE USED FOR THE HORIZONTAL CONTROL OF THE PROJECT. THE HORIZONTAL CONTROL FOR THE PROJECT SHALL BE CONTROLLED BY THE MONUMENTS FOUND OR SET BY A PROFESSIONAL SURVEYOR.

SOURCE BENCHMARK:
TOP OF A 5/8" SOLID REBAR THIRTY INCHES IN LENGTH WITH A PINK PLASTIC CAP BEARING THE INITIALS "CEC INC TRAVERSE". CEC POINT #1. THE ELEVATION WAS DETERMINED USING STATIC GPS OBSERVATIONS PERFORMED ON DECEMBER 12 OF THE YEAR 2023 AS BASED ON USING M.D.O.T. CORS NETWORK, MICHIGAN SOUTH ZONE NAD 83 (2011 ADJUSTMENT), NAVD 88 (GEOID12B / 18) DATUM.
NORTHING: 365852.35
EASTING: 13286149.61
ELEVATION: 901.90

BENCHMARK 1:
CROSS ON WEST BONNET BOLT OF FIRE HYDRANT LOCATED +– 100 FT NORTHWESTERLY OF THE COSTCO GAS STATION AND +– 200 FT EASTERLY OF THE SOUTHWEST CORNER OF COSTCO ON A PARKING LOT ISLAND.
ELEVATION: 902.57 (NAVD 88)

BENCHMARK 2:
CROSS ON NORTHEAST BONNET BOLT OF FIRE HYDRANT LOCATED ON THE EAST SIDE OF THE SOUTH COSTCO ENTRANCE DRIVE LEADING TO MALTBY ROAD.
ELEVATION: 903.72 (NAVD 88)

BENCHMARK 3:
CROSS ON TOP OF SOUTHWESTERLY BONNET BOLT OF FIRE HYDRANT LOCATED ON THE WEST SIDE OF DRIVE LOCATED NEAR THE SOUTHWEST CORNER OF COSTCO BEING +– 10 FT WEST FROM THE WEST EDGE OF ASPHALT.
ELEVATION: 905.74 (NAVD 88)

BENCHMARK 4:
CROSS ON NORTHWEST BOLT OF LIGHT POLE LOCATED ON THE EAST SIDE OF THE PARKING LOT OF BRIVAR CONSTRUCTION +– 300 FT NORTHWESTERLY OF THE SOUTHWEST CORNER OF THE BUILDING.
ELEVATION: 903.81 (NAVD 88)

SCALE IN FEET
0 30 60

MISS DIG 811

PATRICK T. BENNETT ENGINEER INC. 6201052209 — STATE OF MICHIGAN — LICENSED PROFESSIONAL ENGINEER

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	10/29/2024	ISSUED FOR PRELIMINARY PLAN REVIEW
	03/18/2024	REISSUED FOR PRELIMINARY PLAN REVIEW
	05/23/2024	ISSUED FOR PRELIMINARY SITE PLAN (PSP) REVIEW
	11/01/2024	ISSUED FOR ENGINEERING REVIEW
	12/12/2024	ISSUED FOR FINAL SITE PLAN RE-SUBMITTAL #1

Civil & Environmental Consultants, Inc.
10300 Alliance Road
Suite 300
Cincinnati, OH 45242
Ph: 513.985.0226
www.cecinc.com

COSTCO WHOLESALE
Green Oak Charter Township, Michigan

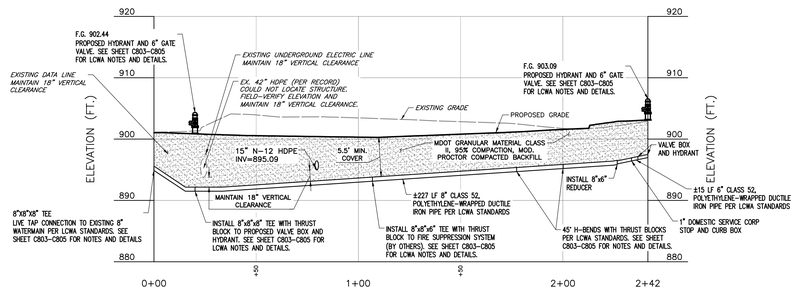
UTILITY PLAN

DESIGNED BY:	PES
DRAWN BY:	ACH
CHECKED BY:	
DATE:	NOVEMBER 2024
DWG SCALE:	1"=30'
PROJECT NO:	338-003
APPROVED BY:	PTB*

*SIGNATURE ON FILE.

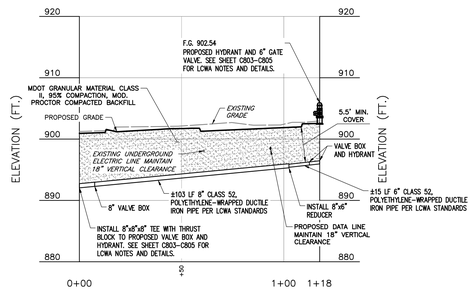
DRAWING NO.:
C500

P:\338-003\338-4501-2400\Dwg\Civil\338403-Civil-2500.dwg[2500 UTILITY PLAN] 12/19/2024 11:14 PM jammond



PROPOSED WATER EXTENSION PROFILE

SCALE H:1"=30'; V:1"=10'



PROPOSED HYDRANT EXTENSION PROFILE

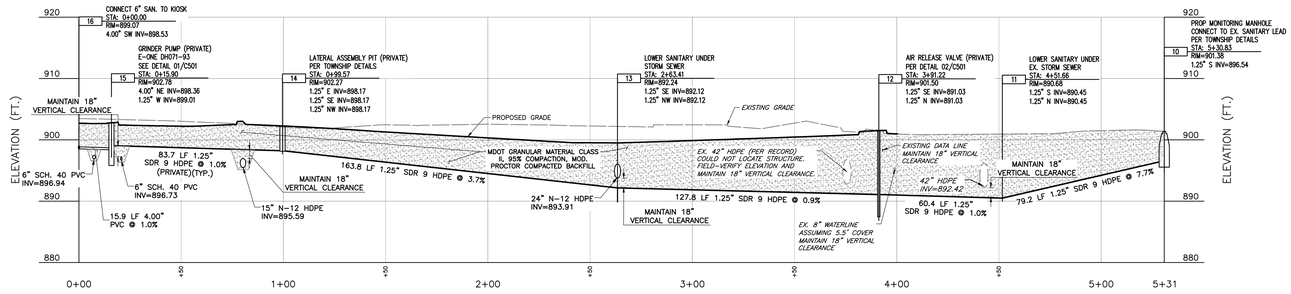
SCALE H:1"=30'; V:1"=10'

GENERAL NOTE:
WHERE TWO UTILITIES CROSS, PROVIDE CLASS II BACKFILL MATERIAL IN TWELVE (12) INCH COMPACTED LAYERS TO THE UNDERSIDE OF THE HIGHER UTILITY. SEE SHEET C803 FOR LIVINGSTON COMMUNITY WATER AUTHORITY NOTES AND DETAILS.

AT WATER MAIN CROSSINGS OF SEWER LINES, ONE FULL LENGTH OF WATER MAIN PIPE SHALL BE INSTALLED SUCH THAT EACH JOINT IS AS FAR AS POSSIBLE FROM THE SEWER LINE. SPECIAL STRUCTURAL SUPPORT FOR THE WATER MAIN AND/OR SEWER PIPE MAY BE REQUIRED.

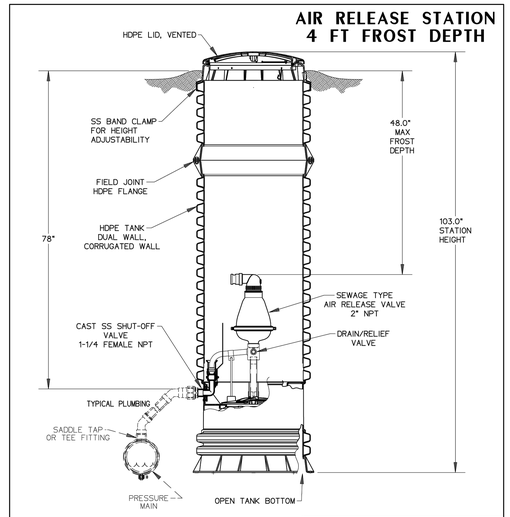
ALL EXISTING UTILITY ELEVATIONS ARE ASSUMED AND SHOULD BE FIELD–VERIFIED. CONTRACTOR TO VERIFY ELEVATION, MAINTAIN A MINIMUM OF 18" VERTICAL CLEARANCE BETWEEN UTILITIES, AND PROTECT EXISTING UTILITIES DURING CONSTRUCTION.

THE GRINDER PUMP AND DISCHARGE LINE ARE PRIVATE AND WILL NOT BE MAINTAINED BY GREEN OAK TOWNSHIP.



PROPOSED SANITARY FORCE MAIN PROFILE

SCALE H:1"=30'; V:1"=10'



NOTES:

1. ALL ITEMS SHOWN IN DASHED LINES ARE FOR REFERENCE ONLY, AND ARE SUPPLIED BY OTHERS

ORDER NUMBER: NC0078G02

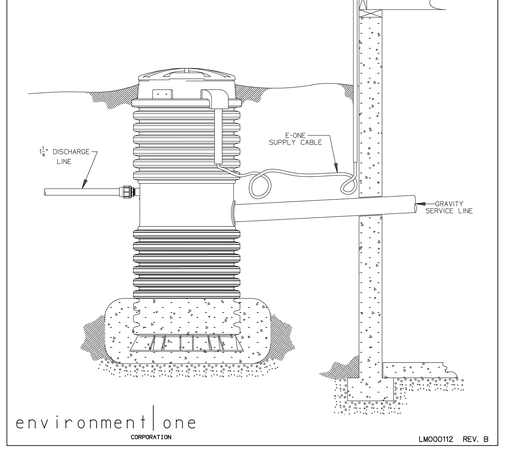
SGS		10/20/10	A	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE

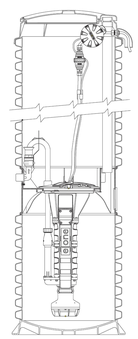
e/one SEWER SYSTEMS

CUT SHEET, AIR RELEASE STATION FOR 4' FROST DEPTH

NA0183P02

2 C501 **E-ONE AIR RELEASE STATION DETAIL**
NOT TO SCALE





NA0050P01 Rev D

E/ONE EXTREME SERIES

DH071/DR071

General Features

The model DH071 or DR071 grinder pump station is a complete unit that includes: the grinder pump, check valve, HDPE (high density polyethylene) tank, controls, and alarm panel. A single DH071 or DR071 is a popular choice for one, average single-family home and can also be used for up to two average single-family homes where codes allow and with consent of the factory.

- Rated for flows of 700 gpd (2650 lpd)
- 70 gallons (265 liters) of capacity
- Indoor or outdoor installation
- Standard outdoor heights range from 61 inches to 160 inches

The DH071 is the "hardwired," or "wired," model where a cable connects the motor controls to the level controls through watertight penetrations.

The DR071 is the "radio frequency identification" (RFID), or "wireless," model that uses wireless technology to communicate between the level controls and the motor controls.

Operational Information

Motor
1 hp, 1,725 rpm, high torque, capacitor start, thermally protected, 120/240V, 60 Hz, 1 phase

Inlet Connections
4-inch inlet grommet standard for DWV pipe. Other inlet configurations available from the factory.

Discharge Connections
Pump discharge terminates in 1.25-inch NPT female thread. Can easily be adapted to 1.25-inch PVC pipe or any other material required by local codes.

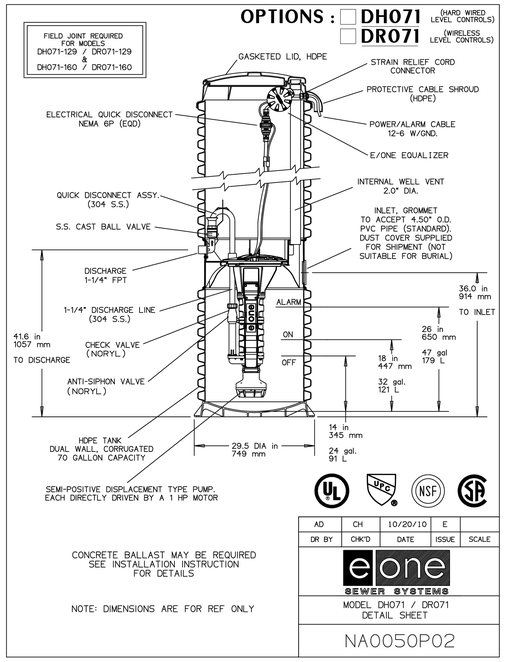
Discharge
15 gpm at 0 psig (0.95 lps at 0 m)
11 gpm at 40 psig (0.69 lps at 28 m)
7.8 gpm at 80 psig (0.49 lps at 56 m)

Accessories

E/One requires that the Uni-Lateral, E/One's own stainless steel check valve, be installed between the grinder pump station and the street main for added protection against backflow.

Alarm panels are available with a variety of options, from basic monitoring to advanced notice of service requirements.

The Remote Sentry is ideal for installations where the alarm panel may be hidden from view.



CONCRETE BALLAST MAY BE REQUIRED SEE INSTALLATION INSTRUCTION FOR DETAILS

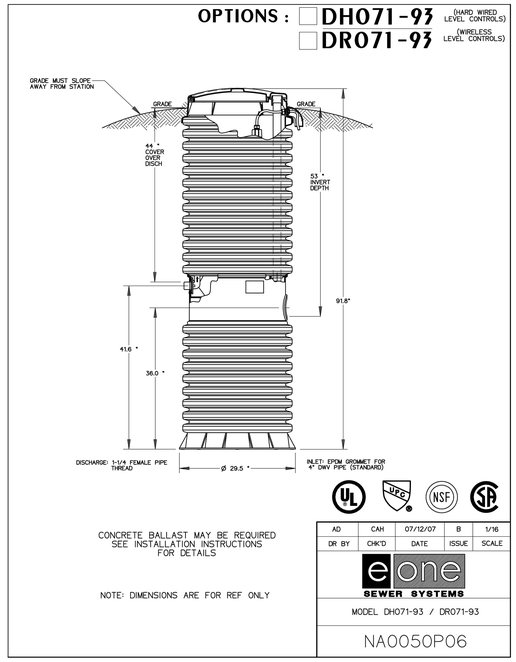
NOTE: DIMENSIONS ARE FOR REF ONLY

AD	CH	10/20/10	E	
DR BY	CHK'D	DATE	ISSUE	SCALE

e/one SEWER SYSTEMS

MODEL DH071 / DR071 DETAIL SHEET

NA0050P02



CONCRETE BALLAST MAY BE REQUIRED SEE INSTALLATION INSTRUCTIONS FOR DETAILS

NOTE: DIMENSIONS ARE FOR REF ONLY

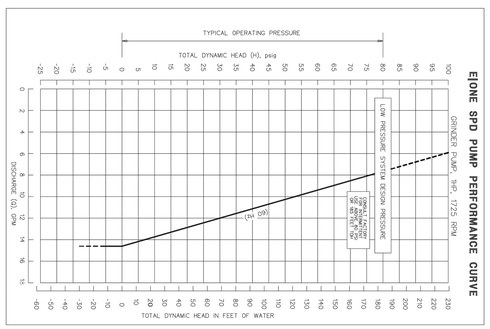
AD	CAH	07/12/07	B	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE

e/one SEWER SYSTEMS

MODEL DH071–93 / DR071–93

NA0050P06

1 C501 **E-ONE DH071-93 GRINDER PUMP DETAILS**
NOT TO SCALE



SCALE IN FEET
0 30 60
SCALE IN FEET
0 10 20

MISS DIG 811

PATRICK T. BENNETT ENGINEER INC. 6201052209
STATE OF MICHIGAN LICENSED PROFESSIONAL ENGINEER

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	10/20/2024	ISSUED FOR PRELIMINARY PLAN REVIEW
	10/30/2024	REISSUED FOR PRELIMINARY PLAN REVIEW
	03/18/2024	ISSUED FOR PRELIMINARY SITE PLAN (FSO) REVIEW
	11/21/2024	ISSUED FOR ENGINEERING REVIEW
	12/13/2024	ISSUED FOR ENGINEERING REVIEW RESUBMITTAL #1
	12/23/2024	ISSUED FOR ENGINEERING REVIEW RESUBMITTAL #2

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Civil & Environmental Consultants, Inc.

COSTCO WHOLESALE

Green Oak Charter Township, Michigan

WATER & SANITARY PROFILES AND GRINDER PUMP DETAILS

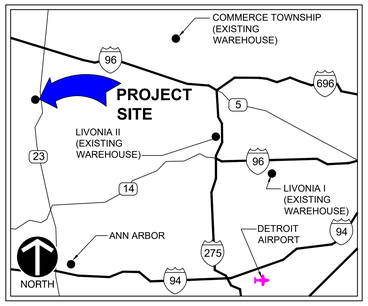
DATE:	NOVEMBER 2024	DRAWN BY: PES
DWG SCALE:	AS SHOWN	CHECKED BY: ACH
PROJECT NO:		336-603
APPROVED BY:		PTB*

*SIGNATURE ON FILE.

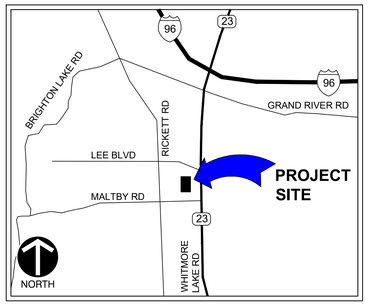
DRAWING NO.: **C501**

P:\336-603\336-603_CAD\Dwg\Civil\336603-C501-DSGN.dwg(C501 WATER & SANITARY PROFILES AND GRINDER PUMP DETAILS) (12/20/2024 - pmooney) - LP: 2/6/2025 3:14 PM

REGIONAL MAP



VICINITY MAP



OWNER
COSTCO WHOLESALE
730 LAKE DRIVE
ISSAQUAH, WASHINGTON 98027
CONTACT: ED NAVARRO
(425) 313-8100
(425) 313-6770 (fax)

ENGINEER
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
10300 ALLIANCE ROAD, SUITE 300
CINCINNATI, OHIO 45242
CONTACT: AARON HURT, P.E., AICP
(513) 985-0226
(513) 985-0228 (fax)

ARCHITECT
MG2 CORPORATION
1101 SECOND AVENUE, SUITE 100
SEATTLE, WASHINGTON 98101
CONTACT: JARED BASSETTI
(206) 962-6512

UTILITY CONTACTS:

PLANNING & ZONING:
GREEN OAK CHARTER TOWNSHIP
PLANNING AND ZONING DEPARTMENT
10001 SILVER LAKE RAOD
BRIGHTON, MI 48116
CONTACT: DEBRA MCKENZIE
PH: (810) 231-1333 EXT: 104
DEBRA.MCKENZIE@GREENOAKTWP.COM

FIRE MARSHALL
GREEN OAK TOWNSHIP FIRE DEPARTMENT
9384 WHITMORE LAKE ROAD
BRIGHTON, MI 48116
CONTACT: KEVIN GENTRY
PH: (810) 231-3663
KEVIN.GENTRY@GREENOAKFIRE.COM

WATER SERVICE:
GREEN OAK CHARTER TOWNSHIP
LIVINGSTON COMMUNITY WATER AUTHORITY
10001 SILVER LAKE ROAD
BRIGHTON, MI 48116
CONTACT: RICH HOBGOOD
PH: (734) 466-4492

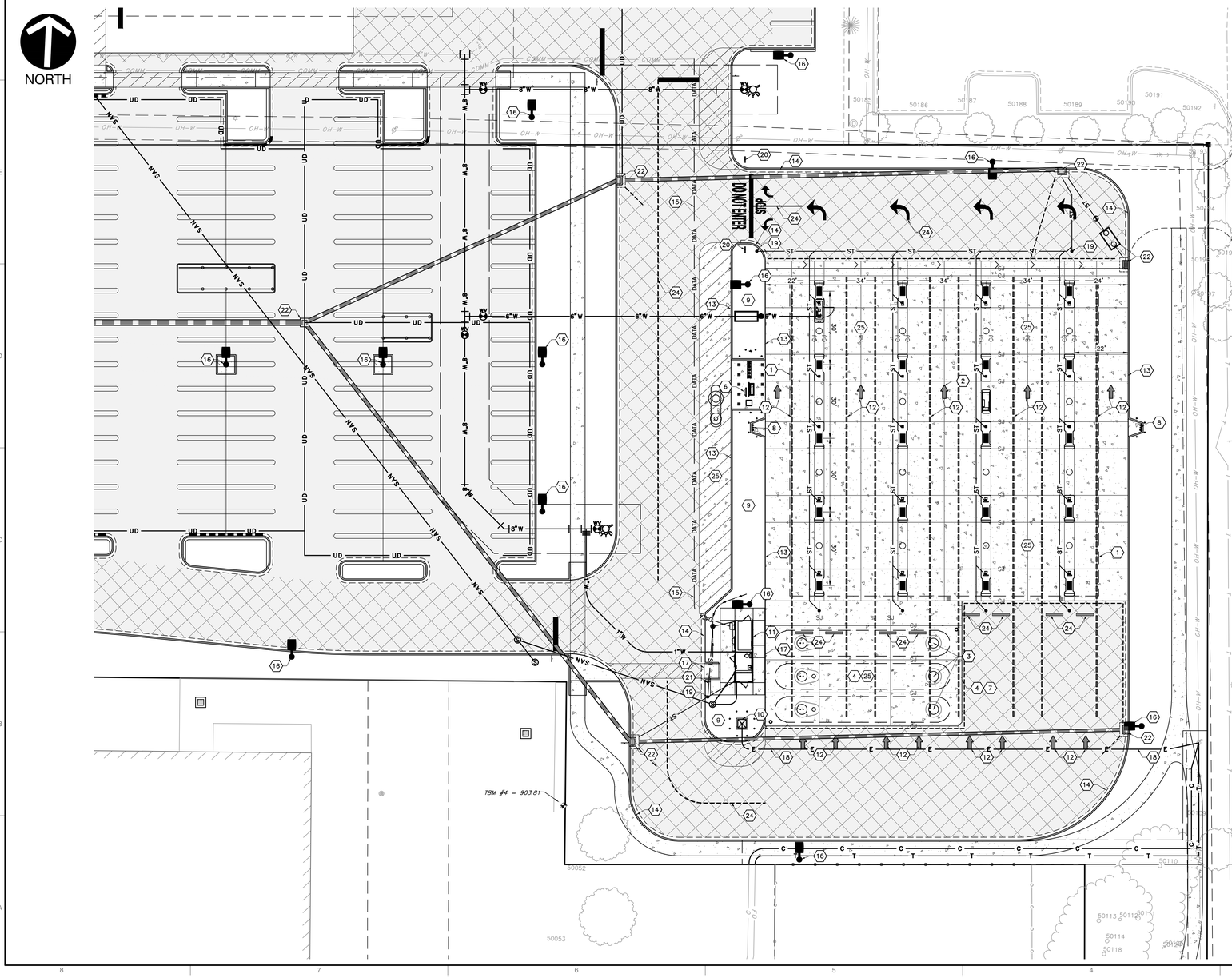
STORM SEWER SERVICE:
LIVINGSTON COUNTY DRAIN COMMISSIONER
CIVIL ENGINEERING SOLUTIONS, INC.
1150 CORPORATE OFFICE DRIVE, SUITE 210
MILFORD, MI 48381
CONTACT: RICK MINER
PH: (586) 961-9254, EXT. 2002

ELECTRIC SERVICE
DTE ENERGY
2000 SECOND AVENUE
DETROIT, MI 48226
CONTACT: BRIAN GARLAND
PH: (313) 235-6421

GAS SERVICE:
CONSUMERS ENERGY
1015 S. LATSON ROAD
HOWELL, MI 48843
PH: (810) 231-1333

TELEPHONE SERVICE:
SBC MIDWEST
421 E. GRAND RIVER
HOWELL, MI 48843
PH: (517) 548-6911

SANITARY SERVICE:
GREEN OAK CHARTER TOWNSHIP
10001 SILVER LAKE ROAD
BRIGHTON, MI 48116
CONTACT: MARK ST. CHARLES
PH: (810) 231-1333, EXT. 102



LEGEND

- EXISTING SUBJECT PROPERTY LINE
- EXISTING ADJACENT PROPERTY LINE
- EXISTING CONCRETE PAVEMENT
- EXISTING BUILDING
- EXISTING TREE
- EXISTING BOLLARD
- EXISTING SIGN
- EXISTING LIGHT POLE
- EXISTING UTILITY POLE
- EXISTING GUY WIRE
- PROPOSED ASPHALT PAVEMENT
- PROPOSED HD ASPHALT PAVEMENT
- PROPOSED CONCRETE PAVEMENT
- PROPOSED BUILDING
- PROPOSED LIGHT POLE, SEE ELECTRICAL PLANS
- CJ CONSTRUCTION JOINT
- SJ SAW-CUT SHRINKAGE JOINT
- PROPOSED DRAINAGE DITCH
- UD PROPOSED UNDERDRAINS

KEY NOTES

1. 138.5'x148' PUMP ISLAND CANOPY WITH 20 MPD'S (PER CANOPY PLANS).
2. 138.5' WIDE REINFORCED CONCRETE DRIVE, INCLUDING 3' CONCRETE PAVED CHANNEL SLAB. (SEE ARCHITECTURAL DRAWINGS FOR DETAILS).
3. (3) 40,000 GALLON UNDERGROUND GASOLINE STORAGE TANKS PER TANK PLANS.
   a. (1) 1,500 GALLON UNDERGROUND FUEL ADDITIVE STORAGE TANK PER TANK PLANS.
4. 7" REINFORCED CONCRETE DRIVE SLAB ABOVE UNDERGROUND GASOLINE STORAGE TANK. SEE DETAIL SHEET C702. REFER TO SOILS REPORT FOR TANK HOLE EXCAVATION NOTES/REQUIREMENTS AND MFGS INSTALLATION GUIDELINES.
5. CONCRETE DRAINAGE SWALE. SEE DETAIL 1/C702.
6. NEW STORAGE TANK VENT STACK WITH VTS GREEN MACHINE AND BOLLARDS PER TANK DRAWINGS.
7. SEE SHEET C701 GRADING PLAN FOR SLAB GRADES AND UTILITY INFORMATION.
8. EMERGENCY SHUTOFF (ESO) SWITCH AND BOLLARDS (SEE ARCHITECTURAL PLANS FOR DETAIL). CONCRETE TO MATCH FUEL SLAB SECTION.
9. LANDSCAPED AREA. SEE LANDSCAPE PLANS BY OTHERS.
10. CONTRACTOR TO INSTALL CONCRETE PAD FOR FUEL FACILITY TRANSFORMER PER ELECTRIC UTILITY COMPANY'S REQUIREMENTS.
11. EMERGENCY SHUTOFF (ESO) SWITCH, MOUNTED ON CONTROLLER ENCLOSURE (SEE ARCHITECTURAL PLANS).
12. PAVEMENT MARKINGS (SEE ARCHITECTURAL PLANS).
13. CAST-IN-PLACE CONCRETE CURB, SEE DETAIL 10/C801. (UNDER FUEL FACILITY CONTRACT)
14. CONCRETE CURB AND GUTTER, SEE DETAIL 11/C801.
15. 4 COMMUNICATION CONDUITS (1-2" TELEPHONE, 1-1" FIBER OPTICS, 1-2" SPARE, AND 1-1" ESO (ALARM) CONDUIT) TO BUILDING. SEE ARCHITECTURAL PLANS FOR DETAIL.
16. LIGHT POLE. SEE LIGHTING PLAN BY OTHERS.
17. PROVIDE DEPRESSED CURB AT RAMP TO ENCLOSURE SIDEWALK. SEE GRADING PLAN DETAIL ON SHEET C701.
18. PROPOSED UNDERGROUND ELECTRIC BY ELECTRIC UTILITY PROVIDER. CONTACTOR SHALL INSTALL 2-5" SCHEDULE 80 PVC UNDERGROUND CONDUITS FOR UTILITY PROVIDER.
19. STORM SEWER CLEANOUT.
20. STOP AND DO NOT ENTER SIGNAGE.
21. "MEMBERS ONLY" SIGNAGE.
22. STORM SEWER IMPROVEMENTS.
23. "NO PARKING OR STANDING – FIRE LANE" SIGN. SIGN SHALL BE INSTALLED PERPENDICULAR TO BUILDING WITH MARKINGS ON BOTH SIDES, NO MORE THAN 3' FROM CURB AND NO MORE THAN 8' IN HEIGHT.
24. PAINTED TRAFFIC CONTROL STRIPPING. SEE ARCHITECTURAL PLANS FOR DETAILS.
25. HEAVY-DUTY CONCRETE FUEL SLAB AND HEAVY-DUTY CONCRETE FUEL TRUCK OFFLOAD AREA. SEE DETAIL 6/C702.

SITE LAYOUT NOTES

1. ALL SITE WORK SHOWN HEREON SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT'S SPECIFICATIONS, THE CURRENT EDITION OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL BUILDING CODES AND ORDINANCES.
2. THE CONTRACTOR SHALL CHECK EXISTING GRADES, DIMENSIONS, AND INVERTS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK.
3. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES AND PROTECT UTILITIES THAT ARE TO REMAIN. RELOCATE EXISTING UTILITIES AS INDICATED, OR AS NECESSARY FOR CONSTRUCTION.
4. PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING PAVEMENT AND NEW PAVEMENT. FIELD ADJUSTMENT OF FINAL GRADES MAY BE NECESSARY. INSTALL ALL UTILITIES, INCLUDING IRRIGATION SLEEVES, PRIOR TO INSTALLATION OF PAVED SURFACES.
5. ALL DAMAGE TO EXISTING PAVEMENT TO REMAIN WHICH RESULTS FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED WITH LIKE MATERIALS AT THE CONTRACTOR'S EXPENSE.
6. SITE DIMENSIONS AND/OR COORDINATES SHOWN ARE TO THE FACE OF CURB, EDGE OF PAVEMENT, EXTERIOR BUILDING WALL, CENTER OF MANHOLE, CENTER AT FACE OF CURB FOR DRAIN INLETS AND CENTERLINE OF PIPE OR FITTING, UNLESS OTHERWISE NOTED. DISTANCES SHOWN ON PIPING ARE HORIZONTAL DISTANCES FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE, UNLESS OTHERWISE NOTED.
7. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND LOCATIONS OF UTILITY SERVICE ENTRANCES, BUILDING DRAINS, ROOF DRAINS, DOORS AND EXIT FEATURES.
8. CONTRACTOR SHALL MAINTAIN VEHICLE AND PEDESTRIAN ACCESS ON ADJACENT ROADWAYS AND DRIVES TO THE MAXIMUM EXTENT FEASIBLE THROUGHOUT THE DURATION OF THE PROJECT – COORDINATE WITH NEIGHBORING BUSINESSES AND WITH PUBLIC STREET AUTHORITIES HAVING JURISDICTION. PROVIDE TEMPORARY TRAFFIC CONTROL MEASURES TO MAINTAIN WORK SITE SAFETY AND TO PROTECT THE TRAVELING PUBLIC IN ACCORDANCE WITH APPLICABLE PROVISIONS OF THE CURRENT EDITION OF MICHIGAN MUTCD, MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	10/29/2024	ISSUED FOR PRELIMINARY PLAN REVIEW
	03/18/2024	REISSUED FOR PRELIMINARY PLAN REVIEW
	05/03/2024	ISSUED FOR PRELIMINARY SITE PLAN (PSP) REVIEW
	11/01/2024	ISSUED FOR ENGINEERING REVIEW
	12/13/2024	ISSUED FOR FINAL SITE PLAN REVIEW RE-SUBMITTAL #1
	12/20/2024	ISSUED FOR FINAL SITE PLAN REVIEW RE-SUBMITTAL #2

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Cincinnati, OH 45242
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www.cecinc.com

Civil & Environmental Consultants, Inc.

COSTCO WHOLESALE

Green Oak Charter Township, Michigan

FUEL FACILITY SITE PLAN

DATE:	NOVEMBER 2024
DRAWN BY:	PES
CHECKED BY:	ACH
DWG SCALE:	1"=20'
PROJECT NO:	338-603
APPROVED BY:	PTB*

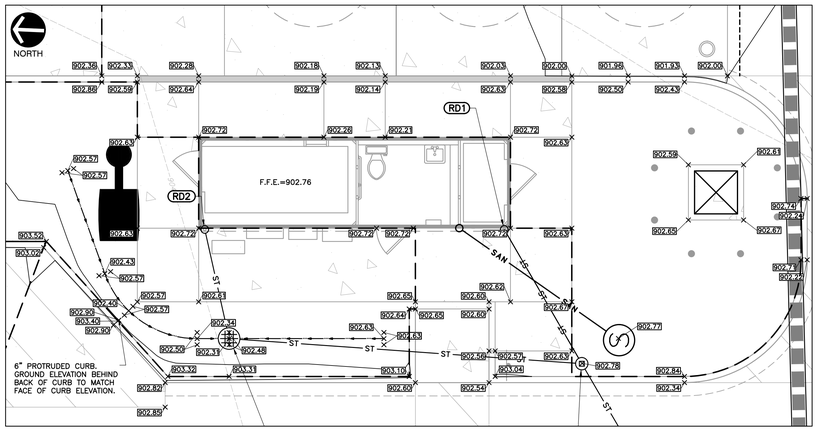
*SIGNATURE ON FILE.

DRAWING NO.:
C700

MISS DIG 811

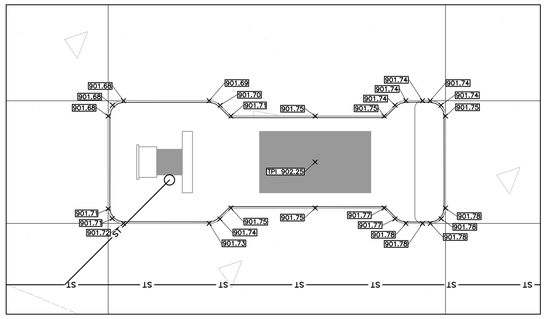
STATE OF MICHIGAN
PATRICK T. BENNETT
ENGINEER
NO. 6201052209
LICENSED PROFESSIONAL ENGINEER

A:\338-603\338-603_CADD\Dwg\DSD\338603-DSD-C700.dwg[DSD] 338603-DSD-C700.dwg[C700 FUEL FACILITY SITE PLAN] 12/13/2025 - pbennett - 05:12:14 PM



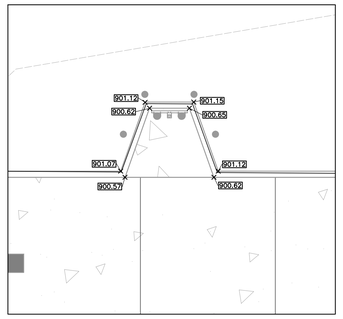
FUEL FACILTY CONTROLLER ENCLOSURE ENLARGEMENT

SCALE: 1"=5'



TYPICAL PUMP ISLAND GRADING ENLARGEMENT

SCALE: 1"=2'



EMERGENCY SHUT-OFF SWITCH ENLARGEMENT

SCALE: 1"=5'

LEGEND

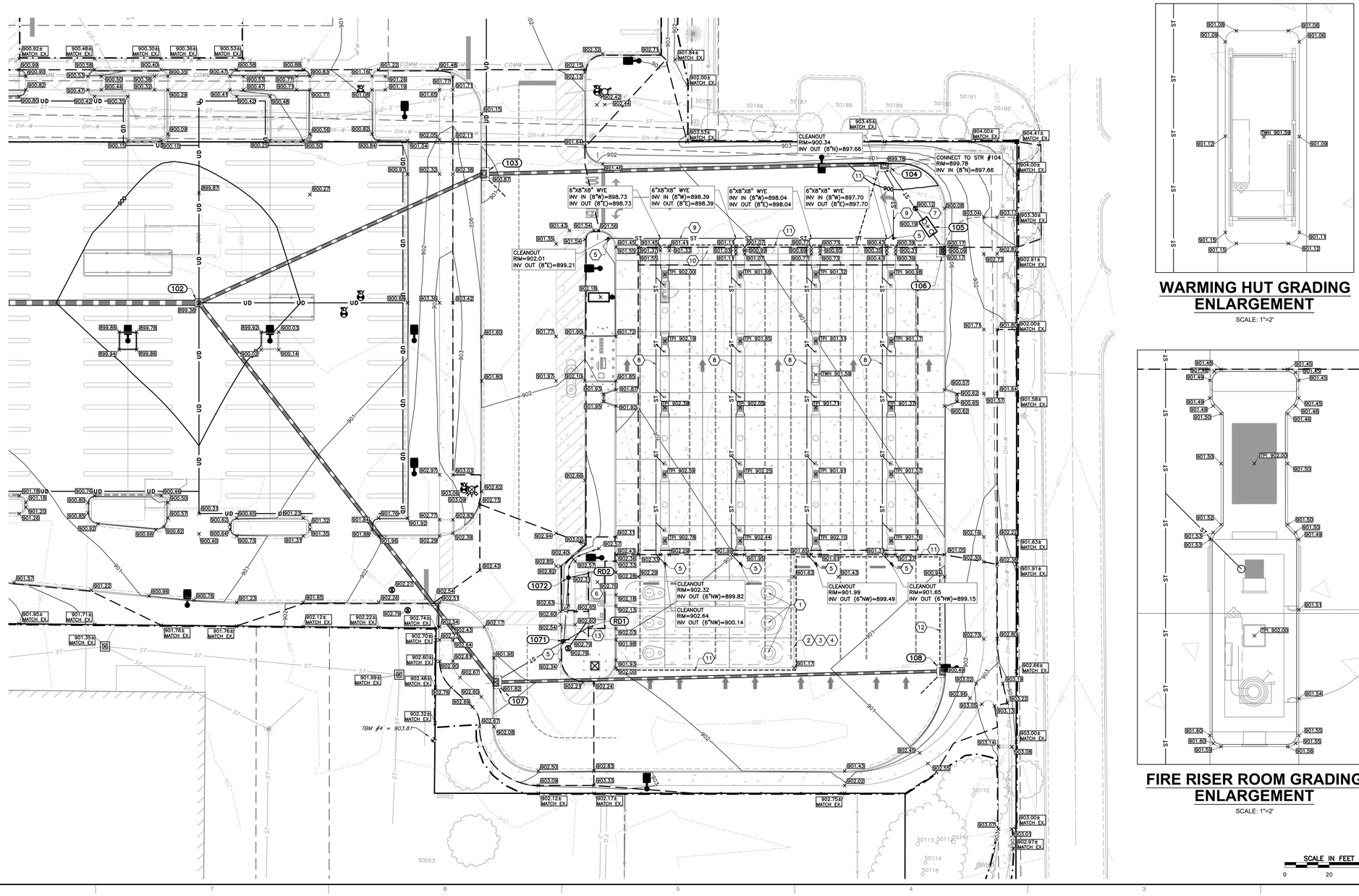
- EXISTING SUBJECT PROPERTY LINE
- EXISTING INDEX (MAJOR) CONTOUR
- EXISTING INTERMEDIATE (MINOR) CONTOUR
- EXISTING BUILDING
- EXISTING STORM PIPE
- EXISTING TREE
- EXISTING STORM MANHOLE
- EXISTING STORM INLET
- 905 PROPOSED INDEX (MAJOR) CONTOUR
- 904 PROPOSED INTERMEDIATE (MINOR) CONTOUR
- PROPOSED STORM SEWER
- PROPOSED STORM STRUCTURE
- PROPOSED STORM MANHOLE
- PROPOSED STORM CLEANOUT
- TSPI 902.30 PROPOSED TOP OF PUMP ISLAND SPOT ELEVATION
- 900.00 PROPOSED SPOT ELEVATION
- PROPOSED DRAINAGE DITCH
- UD PROPOSED UNDERDRAINS
- PROPOSED RIDGE LINE
- PROPOSED VALVE BOX
- PROPOSED HYDRANT
- PROPOSED SANITARY MANHOLE
- PROPOSED LIGHT POLE, SEE ELECTRICAL PLANS

KEY NOTES

1. ELEVATE CONCRETE SLAB AT MANWAY OPENINGS (SEE TANK PLANS FOR DETAIL)
2. COMPACT BOTTOM SURFACE OF TANK HOLE TO 90% MAX. DENSITY. SEE SOILS REPORT FOR ALL REQUIREMENTS/RECOMMENDATIONS ON TANK HOLE EXCAVATION, SLOPING, DEWATERING, ETC.
3. TANK EXCAVATION AND MFRS INSTALLATION WITH SIDE SLOPES PER SOILS ENGINEER RECOMMENDATIONS.
4. CONTRACTOR TO INSTALL SHORING OF TANK HOLE EXCAVATION PER SOILS REPORT. EXACT LIMITS/EXTENT OF SHORING TO BE DETERMINED BY SOILS ENGINEER GUIDELINES.
5. CLEAN OUT. SEE DETAIL 5/C702.
6. 7'-4"x25'-5" CONTROLLER ENCLOSURE AND CONCRETE PAD PER ARCHITECTURAL PLANS. SEE LANDSCAPE PLAN/DETAILS FOR PLANTING AT ENCLOSURE. FFE=902.76.
7. 6" GATE VALVE IN C.L. VALVE BOX FLUSH WITH GRADE. VALVE SHALL BE HAND OPERABLE. LID OF BOX SHALL BE BRIGHTLY COLORED. DESIGNED FOR H20 LOADING.
8. 6" SCH. 40 PVC @ 1.00% MIN. FOR ROOF DRAIN CONNECTION. CONNECT TO NEW 8" STORM LINE.
9. 8" SCH. 40 PVC @ 1.00% MIN. CONNECT TO NEW STORM STRUCTURE.
10. CONCRETE DRAINAGE SWALE. SEE DETAIL 1/C702.
11. 4" PERFORATED UNDERDRAIN PER DETAIL 6/C702.
12. 4" PAVEMENT UNDERDRAIN PER DETAIL 11/C801.
13. 13 LF 6" SCH. 40 PVC @ APPROXIMATELY 2.50% FOR KIOSK ROOF DRAIN CONNECTION. CONNECT TO STORM STRUCTURE NO. 1071 AT 6" INV.=896.74; 6" INV.=897.06 AT THE KIOSK.

GRADING NOTES

1. ALL PROPOSED GRADES SHOWN ARE FINAL GRADES, TOP OF GROUND LEVEL, OR TOP OF PAVEMENT, OR GRATE ELEVATION AT THE DRAWDOWN POINT, UNLESS INDICATED OTHERWISE. FOR PROPOSED TOP OF CURB ELEVATION, SEE SITE PLAN FOR CURB TYPE AND DETAIL FOR DIMENSIONS.
2. WHERE NOT EXPLICITLY DEFINED BY A SPOT ELEVATION, PAVEMENT AND CURB ELEVATIONS SHALL PRODUCE THE PROPOSED SLOPES AS SHOWN AND PROVIDE POSITIVE DRAINAGE TO INLETS.
3. REFER TO AND FOLLOW THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT TITLED "9325 MALTBY SOIL BORING REPORT" PREPARED FOR THIS PROJECT BY HARTLEY GEOTECHNICAL GROUP LLC, DATED DECEMBER 12, 2019.
4. ALL SITE WORK SHOWN HEREON SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT'S SPECIFICATIONS AND ALL APPLICABLE FEDERAL, STATE AND LOCAL BUILDING CODES AND ORDINANCES.
5. CONTRACTOR SHALL STRICTLY ADHERE TO THE EROSION CONTROL PLAN PREPARED FOR THIS PROJECT. ALL AREAS NOT PAVED SHALL BE STABILIZED IN ACCORDANCE WITH THE EROSION CONTROL PLAN, AND THE LANDSCAPE PLAN, UNLESS NOTED OTHERWISE.
6. EARTHWORK SHALL INCLUDE, STRIPPING AND STOCKPILING AND/OR DISPOSING OF TOPSOIL AND/OR VEGETATED SURFACE SOILS, GRADING, EXCAVATION, FILLING, UNDERCUT AND REPLACEMENT, IF REQUIRED, AND COMPACTION.
7. CONTRACTOR TO REFILL UNDERCUT AREAS WITH SUITABLE MATERIAL AND COMPACTION AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
8. PLACE TOPSOIL OVER THE SUBGRADE OF UNPAVED, DISTURBED AREAS TO DEPTH(S) INDICATED ON THE LANDSCAPE DRAWINGS.
9. FINAL PAVEMENT SLOPES SHALL BE MINIMUM 1% AND MAXIMUM 2% UNLESS INDICATED OTHERWISE. FINAL PAVEMENT SLOPES ACROSS HANDICAP PARKING STALLS AND ADJOINING ACCESS AISLES SHALL BE MAXIMUM 2%.
10. ALL UNPAVED SURFACE SLOPES SHALL BE 4:1 (HORIZONTAL:VERTICAL) MAXIMUM UNLESS INDICATED OTHERWISE.
11. ALL EXCESS SOIL MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE INDICATED AND SHALL BE REMOVED BY THE CONTRACTOR AND DISPOSED OF OFFSITE AT NO ADDITIONAL COST TO THE OWNER IN ACCORDANCE WITH ALL LOCAL AND STATE CODES AND PERMIT REQUIREMENTS.
12. SOFT OR OTHERWISE UNSUITABLE SOILS IN THE BOTTOMS AND BANKS OF ANY SEDIMENT BASINS OR TRAPS SHALL BE REMOVED, SPREAD OUT AND DRIED SUFFICIENTLY TO BE USED AS FILL, SUBJECT TO THE GEOTECHNICAL ENGINEER'S APPROVAL.
13. ALL SIDEWALKS SHALL BE CONSTRUCTED TO MEET ADA STANDARDS.



WARMING HUT GRADING ENLARGEMENT

SCALE: 1"=2'

FIRE RISER ROOM GRADING ENLARGEMENT

SCALE: 1"=2'

SCALE IN FEET
0 20 40

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	10/30/2024	ISSUED FOR PRELIMINARY PLAN REVIEW
	05/19/2024	REISSUED FOR PRELIMINARY PLAN REVIEW
	03/20/2024	ISSUED FOR PRELIMINARY SITE PLAN REVIEW
	11/15/2023	ISSUED FOR PRELIMINARY PLAN REVIEW
	10/13/2023	ISSUED FOR PLANNING REVIEW RE-SUBMITTAL #1

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COSTCO WHOLESALE

Green Oak Charter Township, Michigan

FUEL FACILITY GRADING PLAN

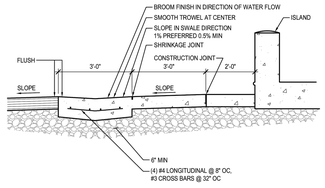
DATE:	NOVEMBER 2024
DWG SCALE:	AS SHOWN
PROJECT NO:	336-603
DRAWING NO.:	C701
DRAWN BY:	PES
CHECKED BY:	ACH
APPROVED BY:	PTB*

*SIGNATURE ON FILE

MISS DIG 811

STATE OF MICHIGAN
PATRICK T. BENNETT
ENGINEER
6201052209
LICENSED PROFESSIONAL ENGINEER

P:\336-603\336-603_CAD\Dwg\0401\336603-C401-C701.dwg(C701 FUEL FACILITY GRADING PLAN) (10/29/2025 - pbennett) - LP: 10/29/2025 3:15 PM

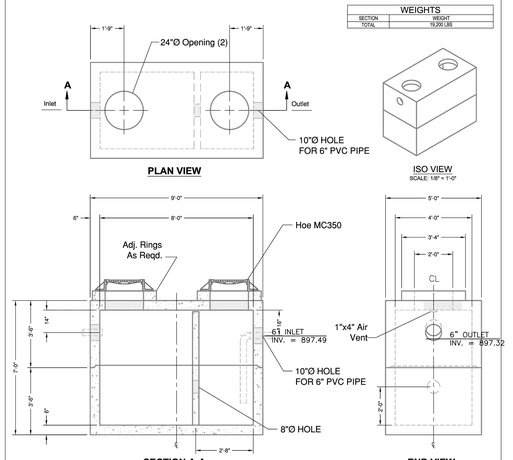


NOTE:
CONDUITS TO RUN FROM CONTROLLER ENCLOSURE TO EDP ROOM IN WAREHOUSE

1 CONCRETE DRAINAGE SWALE
C702 NOT TO SCALE

Oldcastle Precast | **WATER** | 5'-0" x 9'-0" x 7'-0" O.D.
1000 GAL OIL/WATER SEPARATOR
MODEL #: 1000 OWS-KY

WEIGHTS	
SECTION	WEIGHT
TOTAL	19,200 LBS



SPECIFICATIONS:
1. Concrete minimum compression strength: F'c=5,000 PSI @ 28 days.
2. Reinforcing steel: ASTM A615, Fy=60,000 PSI

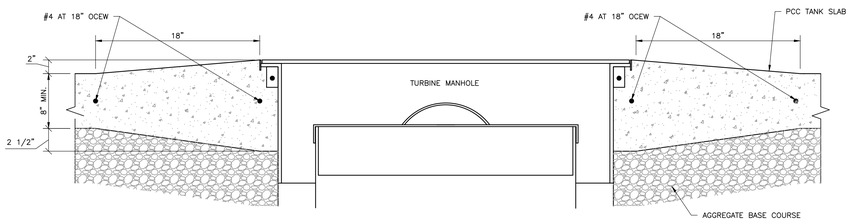
ITEMS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Oldcastle Precast
Tri-State Region

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Lexington, KY
859-259-1484

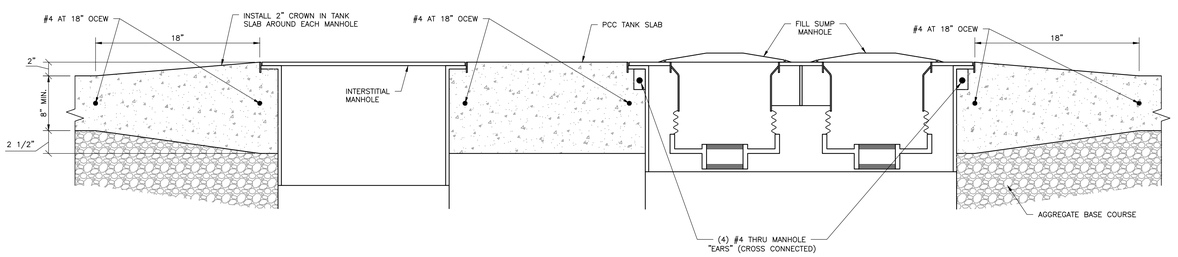
2 OIL/WATER SEPARATOR
C702 NOT TO SCALE



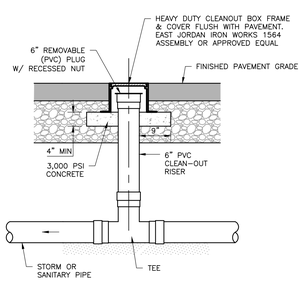
3 SECTION OF TURBINE COLLAR DETAIL
C702 NOT TO SCALE

SLAB CONCRETE SPECIFICATIONS:

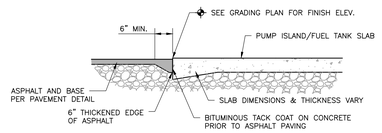
1. UNLESS OTHERWISE NOTED ON THESE DRAWINGS:
   a. CONCRETE – REGULAR WEIGHT HARD ROCK CONCRETE (150 LBS/CU FT)
   b. CEMENT – TYPE II, SULFATE RESISTANT
   c. AGGREGATES – ASTM C33, (MAXIMUM SIZE ¾ INCHES)
   d. 28 DAY CONCRETE STRENGTH (f'c): 4,000 PSI – SLAB (DESIGN BASED ON 2,000 PSI NO SPECIAL INSPECTION REQUIRED)
   e. SLUMP – 3"+1" = 4" MAXIMUM AT POINT OF PLACEMENT
   f. SHRINKAGE – 0.05% MAXIMUM
   g. ENTRAINED AIR RANGE 4%–6%.
2. CONCRETE SHALL BE NORMAL WEIGHT WITH A MIX OF 1: 2 ½ : 3 ½, WITH A MAXIMUM 7 ½ GALLONS OF WATER PER SACK.
3. REINFORCING STEEL FOR TANK SLABS BE #4 BARS @ 18" O.C. EACH WAY. SUMP CAGES SHALL BE #3 REBAR TOP AND BOTTOM.
4. MAINTAIN CONCRETE IN A MOIST CONDITION FOR AT LEAST 7 DAYS AFTER PLACEMENT.
5. PLACE CONCRETE DIRECTLY FROM TRUCK INTO FORMS. DO NOT PUMP CONCRETE UNLESS SPECIAL INSPECTION, BY CONCRETE TESTING SERVICE, IS PROVIDED.
6. SUBMIT MIX DESIGNS, WITH STRENGTH AND SHRINKAGE TEST RESULTS, TO OWNER'S ENGINEER AT LEAST 7 DAYS BEFORE PLACING CONCRETE.
7. CONSOLIDATE CONCRETE IN PLACE USING A MECHANICAL VIBRATOR.
8. BEFORE PLACING CONCRETE, SECURE REINFORCING STEEL, ANCHOR BOLTS, DOWELS, AND OTHER INSERTS IN POSITION TO PREVENT MOVEMENT.
9. MATERIALS AND WORKMANSHIP SHALL CONFORM TO A.C.I. – 318 (SPECIFICATIONS OF THE DESIGN AND PLACEMENT OF CONCRETE)



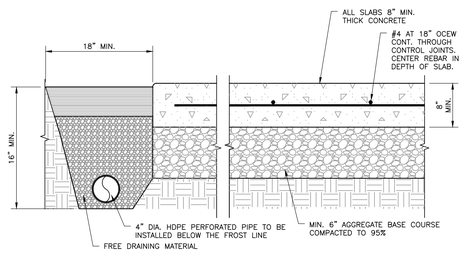
4 SECTION OF FILL COLLAR DETAIL
C702 NOT TO SCALE



5 TYPICAL CLEANOUT DETAIL
C702 NOT TO SCALE



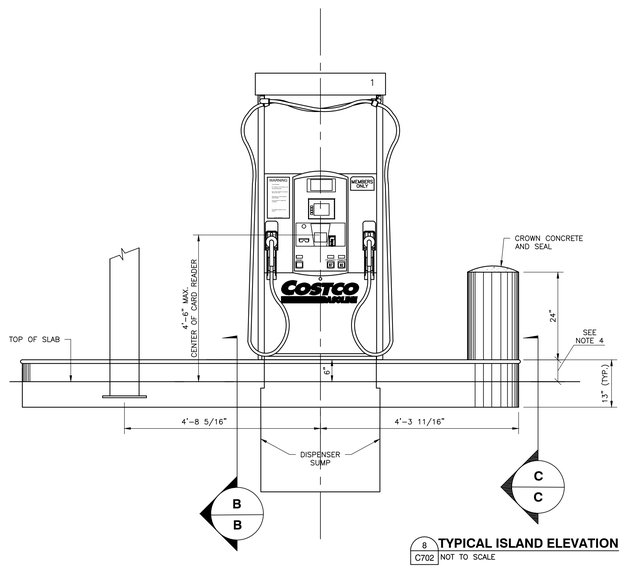
7 TYPICAL JOINT SECTION AT CONCRETE AND ASPHALT PAVEMENT
C702 NOT TO SCALE



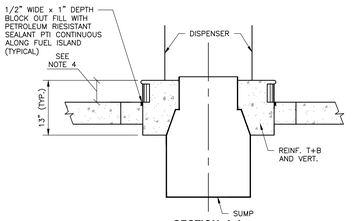
GENERAL NOTES:

1. FROST DEPTH TO BE APPROXIMATELY 42" BELOW GRADE.

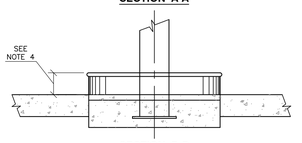
6 CONCRETE SLAB SECTION AT FUEL FACILITY
C702 NOT TO SCALE



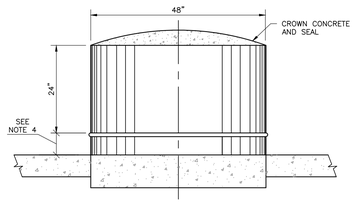
8 TYPICAL ISLAND ELEVATION
C702 NOT TO SCALE



SECTION A-A



SECTION B-B



ELEVATION C-C

NOTES:

1. THE HIGHEST OPERABLE PART OF EACH PRIMARY OR ALTERNATE CARD READER SHALL BE NO MORE THAN 54" (1372mm) MEASURED FROM THE BASE OF THE FUEL DISPENSER. WHERE CARD READERS ARE LOCATED ON FREE STANDING PEDESTALS, THE CARD READING CONTROL FUNCTION SHALL BE NO MORE THAN 54" (1372mm) ABOVE AN ACCESSIBLE LEVEL AREA WHICH IS SERVED BY AN ACCESSIBLE PATH OF TRAVEL.
2. AN ACCESSIBLE PATH OF TRAVEL SHALL BE PROVIDED TO THE BASE OF ALL FUEL DISPENSERS REQUIRED TO MEET THE PROVISIONS OF THIS SECTION. SUCH FUEL DISPENSERS SHALL BE MOUNTED ON THE ACCESSIBLE LEVEL AREA.
3. AN ACCESSIBLE LEVEL AREA SHALL BE PROVIDED WHICH IS MINIMALLY 30" BY 48" (762mm BY 1219mm) LEVEL AND CLEAR. THIS AREA SHALL BE PROVIDED WITHIN 10"(254mm) IN PLAN VIEW OF THE FACE OF THE CONTROLS AND SHALL BE UNOBSTRUCTED BY ANY FEATURES, EXCEPT PUMP NOZZLES AND HOSES, WITH THE LONG SIDE OF THIS SPACE PARALLEL TO AND CENTERED [PLUS OR MINUS 9"(229mm)] WITH THE FACE OF THE CARD–READER CONTROLS.
4. 6" FROM TOP OF ISLAND TO TOP OF DRIVE SLAB AT CENTERLINE OF DISPENSER WIDTH. TOP OF ISLANDS TO BE LEVEL.

GENERAL NOTES:

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION.
2. CONTRACTOR SHALL SCHEDULE A PRE–CONSTRUCTION CONFERENCE WITH THE CITY'S ENGINEERING REPRESENTATIVE A MINIMUM OF 3 WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR SHALL CONTACT UTILITY LOCATION SERVICE 3 DAYS PRIOR TO STARTING CONSTRUCTION.
4. ALL WORK MUST BE INSPECTED BY A REPRESENTATIVE OF THE MUNICIPALITY. CONTRACTOR SHALL CALL AT LEAST 24 HOURS IN ADVANCE FOR MUNICIPAL INSPECTION AS FOLLOWS:
   A. PLACEMENT OF TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES.
   B. PLACEMENT AND BACKFILLING OF UNDERGROUND UTILITIES, STORM SEWER AND SANITARY SEWER.
   C. ROADWAY GRADING AT:
      1. COMPLETION OF SUBGRADE.
      2. COMPLETION OF CRUSHED SURFACE.
   D. POURING OF CURB/GUTTER AND SIDEWALK.
   E. ASPHALT PAVING IN PROGRESS.
   F. OVERALL INSPECTION FOR FINISHED WORK
5. ALL TESTING REQUIRED FOR THE IMPROVEMENTS SHALL BE THE RESPONSIBILITY OF THE OWNER AND SHALL BE IN CONFORMANCE WITH THE MUNICIPAL DEVELOPMENT STANDARDS.
6. CONTRACTOR SHALL RESTORE ALL PRIVATE AND PUBLIC PROPERTY DISRUPTED BY THE PROJECT IMMEDIATELY AFTER CONSTRUCTION.
7. THE CONTRACTOR SHALL INFORM THE ENGINEER AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION OF ANY PROPOSED CHANGES IN PLAN PRIOR TO CONSTRUCTION OF THAT CHANGE. THE CONTRACTOR SHALL KEEP RECORD OF DEVIATIONS AND FORWARD TO THE ENGINEER.
8. TRAFFIC CONTROL TO BE MAINTAINED IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION AND LOCAL JURISDICTION REQUIREMENTS.
9. A COPY OF THESE APPROVED PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	02/25/2024	ISSUED FOR PRELIMINARY PLAN REVIEW
	03/18/2024	REISSUED FOR PRELIMINARY PUD REVIEW
	05/03/2024	ISSUED FOR PRELIMINARY SITE PLAN / PUD REVIEW
	11/01/2024	ISSUED FOR ENGINEERING REVIEW
	12/12/2024	ISSUED FOR PLANNING BOARD RESUBMITTAL #1

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FUEL FACILITY DETAILS, SECTIONS & NOTES

DATE:	NOVEMBER 2024
DWG SCALE:	NOT TO SCALE
PROJECT NO:	336-603
APPROVED BY:	PTB*
DRAWN BY:	PES
CHECKED BY:	ACH

*SIGNATURE ON FILE.

DRAWING NO.: **C702**

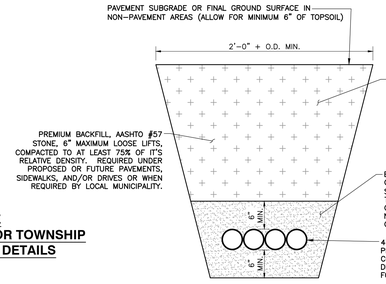
MISS DIG 811

STATE OF MICHIGAN
PATRICK T. BENNETT
ENGINEER
NO. 6201052209
LICENSED PROFESSIONAL ENGINEER

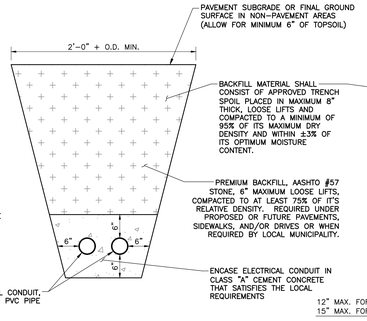
P:\336-603\336-603_-_CAD\Dwg\C601\336603-C601-C702.dwg|C601 336603-C601-C702.dwg|C702 FUEL FACILITY DETAILS SECTIONS & NOTES 12/12/2024 3:16 PM

WATER LINE
REFER TO SHEET C803 FOR TOWNSHIP STANDARD NOTES & DETAILS

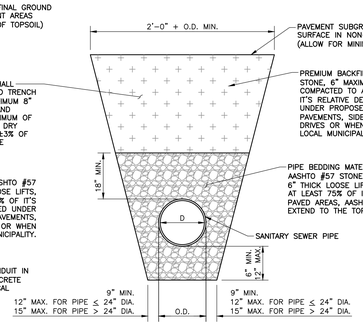
STORM PIPE
REFER TO SHEET C804 FOR LIVINGSTON COUNTY STANDARD NOTES & DETAILS



TELEPHONE SERVICE LINE



ELECTRIC SERVICE LINE



SANITARY SEWER PIPE

ABBREVIATIONS
D = INSIDE DIAMETER
O.D. = OUTSIDE DIAMETER
MIN. = MINIMUM

COVER REQUIREMENTS

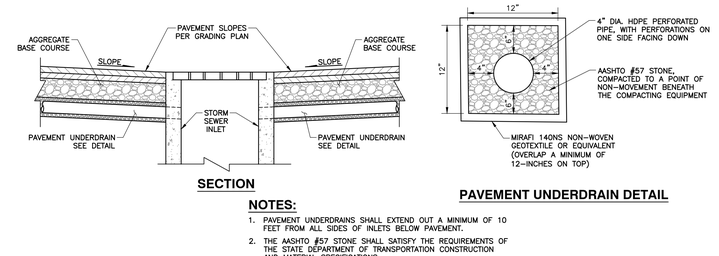
UTILITY	MINIMUM COVER REQUIRED*
STORM SEWER	2.0 FT.
SANITARY SEWER	4.0 FT.
WATER PIPING	5.5 FT.
TELEPHONE LINE	3.0 FT.
ELECTRIC LINE	3.0 FT.
GAS LINE	3.0 FT.

*DEPTH AS MEASURED FROM TOP OF PIPE TO FINAL GROUND SURFACE, UNLESS INDICATED OTHERWISE

NOTES:

1. ALL MATERIALS EXCAVATED FROM THE UTILITY TRENCH SHALL BE STOCKPILED A MINIMUM SUFFICIENT DISTANCE FROM ALL TRENCHES TO PREVENT SLIDES OR CAVE-INS.
2. ALL BACKFILL MATERIALS SHALL BE APPROVED BY THE OWNER OR HIS REPRESENTATIVE BEFORE BEING PLACED.
3. THE AASHTO #57 STONE AND SAND SHALL SATISFY THE REQUIREMENTS OF MICHIGAN DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIALS SPECIFICATIONS.
4. THE MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT FOR THE BACKFILL MATERIALS SHALL BE DETERMINED BY ASTM D1557.
5. THE CONTRACTOR SHALL CONSTRUCT THE UTILITY TRENCHES AND PROVIDE ADEQUATE SHORING (WHERE NECESSARY) IN CONFORMANCE WITH THE LATEST REQUIREMENTS FOR CONSTRUCTION STANDARD FOR EXCAVATIONS (29 CFR PART 1926.650--.652 SUBPART P) PROMULGATED BY OSHA.
6. THE TELEPHONE AND ELECTRIC CONDUIT WILL NOT SHARE THE SAME UTILITY TRENCH WHERE THEY ARE SEPARATED AT THE MANHOLE/VAULT LOCATIONS.
7. REFER TO UTILITY AGENCY STANDARD DETAILS AND NOTES FOR ADDITIONAL REQUIREMENTS. IN THE EVENT TRENCH REQUIREMENTS OF THE UTILITY AGENCY DIFFER FROM THOSE SHOWN ABOVE, USE THE MORE RESTRICTIVE OF THE CONFLICTING CRITERIA.
8. MINIMUM COMPACTION FOR ALL SAND BEDDING BACKFILL, BACKFILL AND PREMIUM BACKFILL SHALL BE 95% STANDARD PROCTOR.

1 C800 **TYPICAL UTILITY TRENCH DETAILS**
NOT TO SCALE



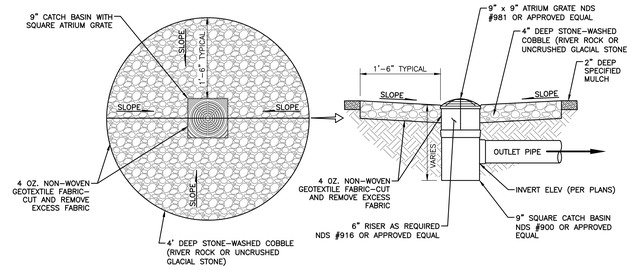
SECTION

PAVEMENT UNDERDRAIN DETAIL

NOTES:

1. PAVEMENT UNDERDRAINS SHALL EXTEND OUT A MINIMUM OF 10 FEET FROM ALL SIDES OF INLETS BELOW PAVEMENT.
2. THE AASHTO #57 STONE SHALL SATISFY THE REQUIREMENTS OF THE STATE DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

2 C800 **DRAINAGE REQUIREMENTS AT INLETS**
NOT TO SCALE

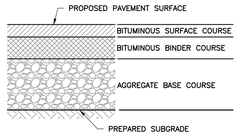


PLAN VIEW **SECTION VIEW**

NOTE:

1. SLOPE FINISHED GRADE TO DRAIN TOWARDS CATCH BASIN.

3 C800 **LANDSCAPING STORM DRAIN**
NOT TO SCALE

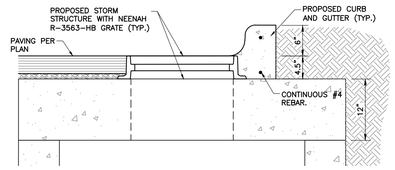


ITEM	MATERIAL REFERENCE	HEAVY DUTY PAVEMENT SECTION DEPTH	LIGHT DUTY PAVEMENT SECTION DEPTH
BITUMINOUS SURFACE COURSE	SEE TECHNICAL SPECIFICATIONS	2"	2"
BITUMINOUS BINDER COURSE	SEE TECHNICAL SPECIFICATIONS (SEE NOTE 7)	5" (2 LIFTS)	2"
AGGREGATE BASE COURSE	SEE TECHNICAL SPECIFICATIONS	8"	6"

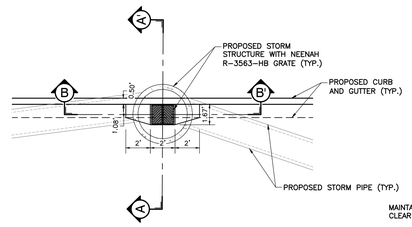
NOTES:

1. THE PAVEMENT SUBGRADE SHALL BE PREPARED AS FOLLOWS:
   A. APPROVED FILL FOR THE SUBGRADE SHALL BE PLACED WHERE REQUIRED IN MAXIMUM 10" THICK, LOOSE LIFTS AND COMPACTED TO AT LEAST 95% OF ITS MODIFIED PROCTOR MAXIMUM DRY DENSITY PER ASTM D-1557.
   B. THE SUBGRADE SHALL BE PROOFROLLED WITH A MINIMUM 10 TON ROLLER. ANY SOFT AND YIELDING AREAS SHALL BE OVEREXCAVATED TO A FIRM AND COMPETENT MATERIAL AND BACKFILLED AS DESCRIBED ABOVE.
   C. AFTER PROOFROLLING, THE SUBGRADE SHALL BE GRADED AND SHAPED AS REQUIRED TO CONSTRUCT THE PAVEMENT AREAS IN CONFORMANCE WITH THE GRADES, LINES AND THICKNESSES SHOWN ON THE DRAWINGS. THE SUBGRADE SHALL PROVIDE A FIRM AND UNYIELDING FOUNDATION WITH NO SUDDEN, SHARP OR ABRUPT CHANGES OR BREAKS IN GRADES. NO STANDING WATER OR EXCESS MOISTURE SHALL BE PRESENT. ALL SOFT AND YIELDING AREAS SHALL BE OVEREXCAVATED TO A FIRM AND COMPETENT MATERIAL, AND BACKFILLED AS DESCRIBED IN SPECIFICATIONS.
2. PLACE & COMPACT AGGREGATE BASE COURSE IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS.
3. THE BITUMINOUS COURSES SHALL BE COMPACTED TO MINIMUM DENSITY ACCORDING TO ASTM D 2041, AS INDICATED IN TECHNICAL SPECIFICATIONS. STATE DEPARTMENT OF TRANSPORTATION PAVEMENT DESIGN MIXES ARE TO BE MODIFIED TO PROVIDE THE BITUMINOUS COURSE CHARACTERISTICS INDICATED IN THE TECHNICAL SPECIFICATIONS.
4. THE FINAL ASPHALT PAVEMENT SECTION DESIGN IS CONTINGENT UPON THE RECOMMENDATION OF THE FINAL GEOTECHNICAL REPORT PREPARED BY KLEINFELDER AND SHALL MEET THE TOWNSHIP OF GREEN OAK REQUIREMENTS. ANY PROPOSED ALTERNATE SECTION MUST BE APPROVED BY THE TOWNSHIP. PERFORMANCE GRADE (PG) BINDER SHALL BE 58-28.
5. STABILIZE GROUND WHEREVER THE EXPOSED SUBGRADE SHOWS SIGNS OF MINOR RUTTING OR DEFLECTION IN ACCORDANCE WITH RECOMMENDATION OF THE GEOTECHNICAL ENGINEER.
6. TYPICAL BUTT JOINT AT PAVEMENT RESTORATION LOCATIONS, WHERE APPLICABLE: APPLY BITUMINOUS TACK COAT TO EX. VERTICAL PAVEMENT SAWCUT FACES PRIOR TO ASPHALT RESTORATION PAVING. APPLY 4" W. BITUMINOUS SEALANT AT SURFACE JOINT.
7. BITUMINOUS BINDER COURSE SHALL MEET THE SAME TECHNICAL SPECIFICATION AS THE BITUMINOUS SURFACE COURSE.

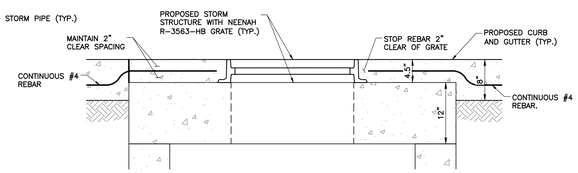
4 C800 **ASPHALT PAVEMENT SECTION**
NOT TO SCALE



CROSS-SECTION A-A'
SCALE: 1"=1'



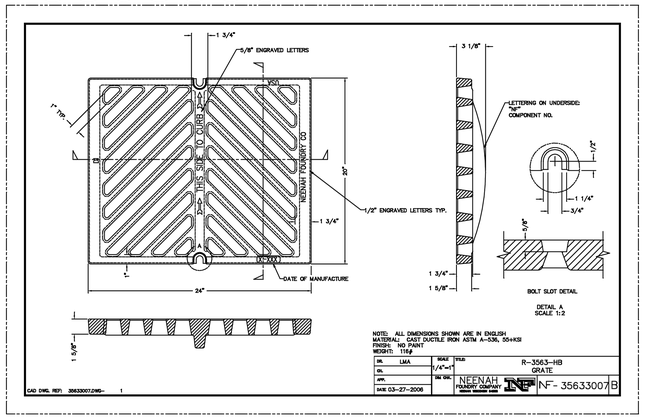
PLAN VIEW
SCALE: 1"=5'

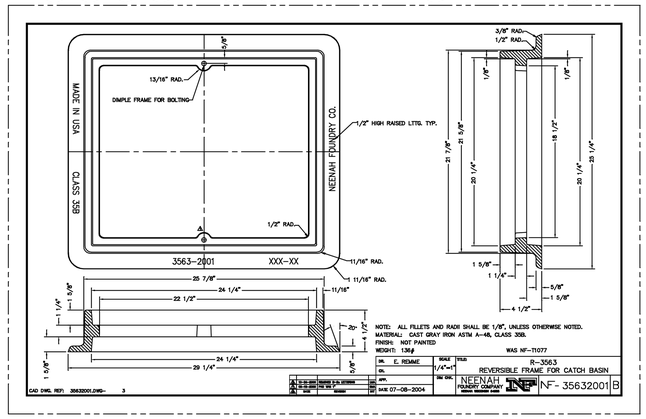


CROSS-SECTION B-B'
SCALE: 1"=1'

6 C800 **TYPICAL STORM STRUCTURE CURB & GUTTER TRANSITION**
AS SHOWN

35633007— 1 B4 35632001— 3 B4

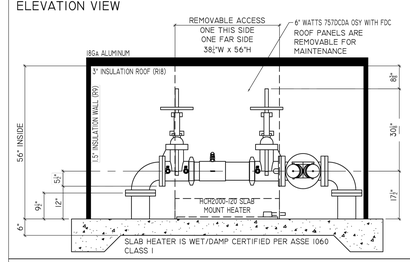


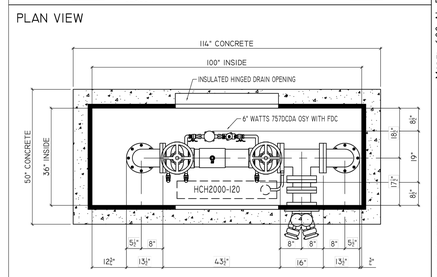


5 C800 **STORM DRAIN FRAME AND GRATE**
NOT TO SCALE

ENCLOSURE MODEL: 600-AL
JOB: ----
DRAWN BY: MTP | SCALE: NONE | DATE: 1/16/20

SAFE-T-COVER
ENCLOSURES DESIGNED FOR THE WORLD'S WATER SYSTEMS
WEBSITE: SAFE-T-COVER.COM EMAIL: SALES@SAFE-T-COVER.COM PHONE: (616) 394-8200 FAX: (616) 399-4481





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FDC6WA757DCDA-OSY12
SHEET 1 OF 1

1. DRAWING NOT TO SCALE.
2. BFP DIMENSIONS FURNISHED BY
3. ALL DIMENSIONS ARE IN INCHES (GASKETS INCLUDED)
4. WALL AND INSULATION THICKNESS IS 11/2".
5. ROOF AND INSULATION THICKNESS IS 3".
6. MODEL 600-AL ENCLOSURE
7. ENCLOSURE INSIDE DIMENSIONS:
   36"W X 100"L X 56"H
8. CONCRETE PAD ≥ 50"W X 114"L X 6"H
9. BFP - 6" WATTS 7570DCDA OSY WITH FDC

7 C800 **ASSE APPROVED 1048 DOUBLE CHECK DETECTOR ASSEMBLY ENCLOSURE (OR APPROVED EQUAL)**
NOT TO SCALE

MISS DIG 811

PATRICK T. BENNETT ENGINEER NO. 6201052209 LICENSED PROFESSIONAL ENGINEER STATE OF MICHIGAN

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	10/30/2024	ISSUED FOR PRELIMINARY PUD REVIEW
	03/18/2024	REISSUED FOR PRELIMINARY PUD REVIEW
	05/03/2024	ISSUED FOR PRELIMINARY SITE PLAN / PUD REVIEW
	11/01/2024	ISSUED FOR ENGINEERING REVIEW
	12/13/2024	ISSUED FOR FINAL SITE PLAN RE-SUBMITTAL #1

10300 Alliance Road
Suite 300
Cincinnati, OH 45242
Ph: 513.985.0226
www.cecinc.com

Civil & Environmental Consultants, Inc.

COSTCO WHOLESALE

Green Oak Charter Township, Michigan

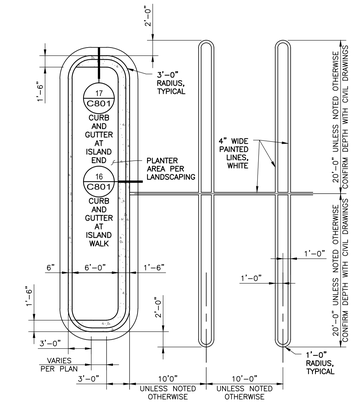
SITE DETAILS

DATE:	NOVEMBER 2024
DWG SCALE:	NOT TO SCALE
PROJECT NO:	338-603
APPROVED BY:	PTB*
DRAWN BY:	PES
CHECKED BY:	ACH

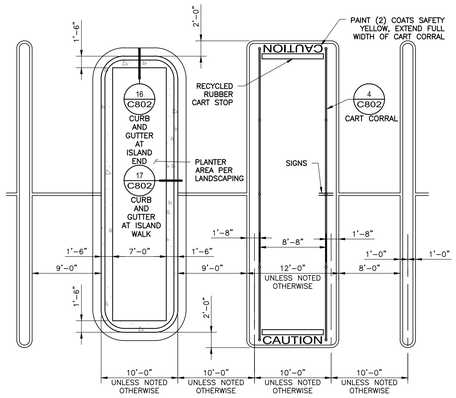
*SIGNATURE ON FILE.

DRAWING NO.: **C800**

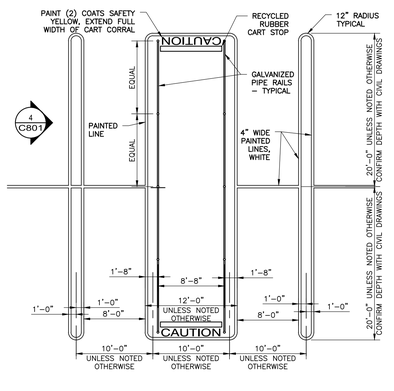
A:\338-603\Civil\Land\Dwg\Civil\338603-Civil-2855.dwg(C800 SITE DETAILS LS(1)(2025 — planmoy) — LP: 2/6/2025 3:16 PM



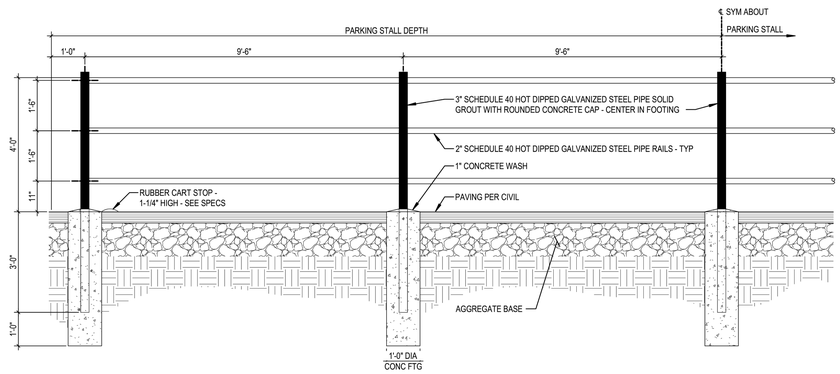
1 END ISLAND CURBS
C801 NOT TO SCALE



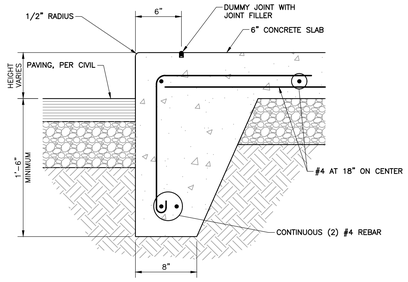
2 MIDDLE ISLAND AT CART CORRAL
C801 NOT TO SCALE



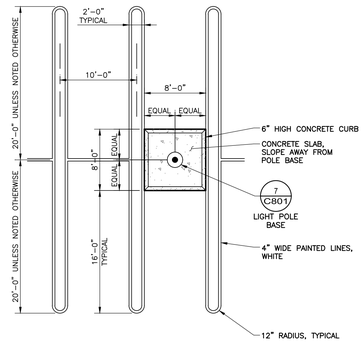
3 CART CORRAL AND TYPICAL PARKING STALL
C801 NOT TO SCALE



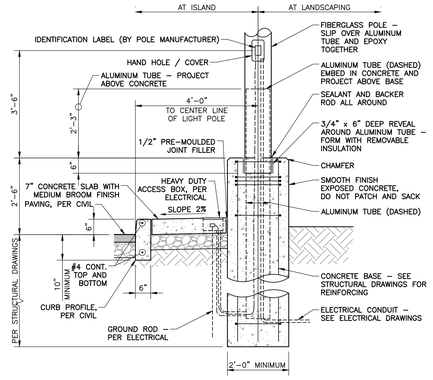
4 CART STORAGE
C801 NOT TO SCALE



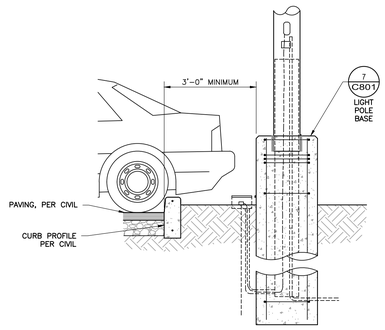
5 INTERGRATED CURB & SIDEWALK
C801 NOT TO SCALE



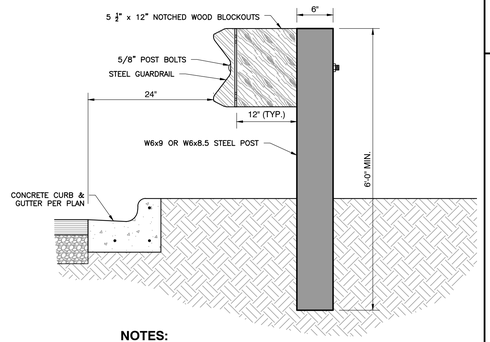
6 ISLAND AT LIGHT POLE BASE
C801 NOT TO SCALE



7 LIGHT POLE BASE AT CONCRETE ISLAND/LANDSCAPING
C801 NOT TO SCALE



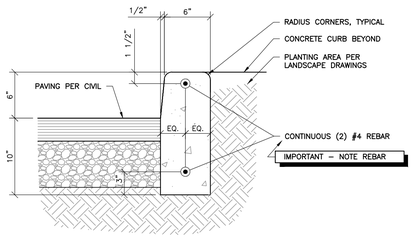
8 LIGHT POLE LOCATION WHERE PARKING OCCURS
C801 NOT TO SCALE



NOTES:

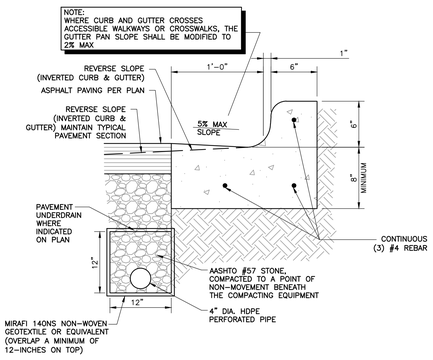
1. GUARDRAIL SHALL BE PER MDOT 2019 CONSTRUCTION MATERIAL SPECIFICATIONS, ITEM 606 AND INSTALLED PER STEEL POST DETAILS ON MGS-1.1 AND MGS-2.1.

9 STEEL GUARDRAIL
C801 NOT TO SCALE

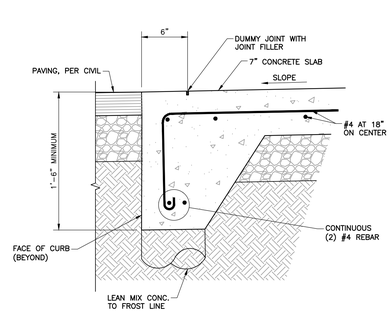


NOTE:
1/2" PRE-MOULDED JOINT FILLER AT 25' ON CENTER (MAXIMUM) AND AT START AND FINISH OF ALL CURVED SECTIONS

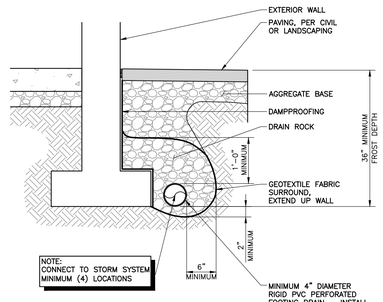
10 CAST-IN-PLACE CONCRETE CURB
C801 NOT TO SCALE



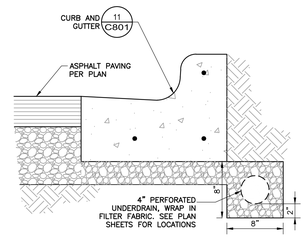
11 CONCRETE CURB AND GUTTER
C801 NOT TO SCALE



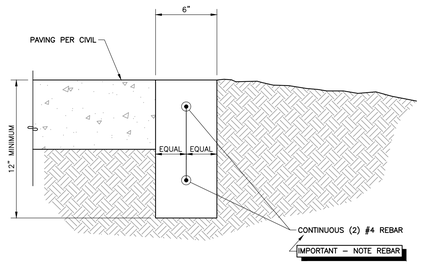
13 FLUSH CURB AT PAVEMENT
C801 NOT TO SCALE



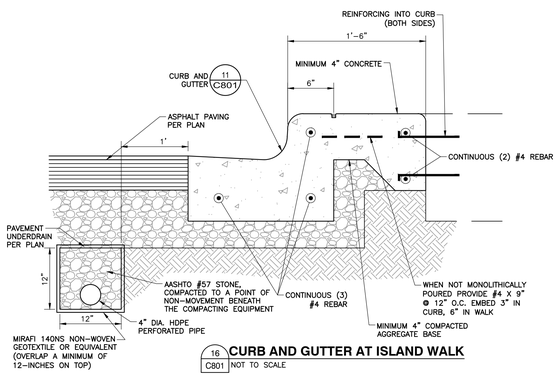
14 FOOTING DRAIN
C801 NOT TO SCALE



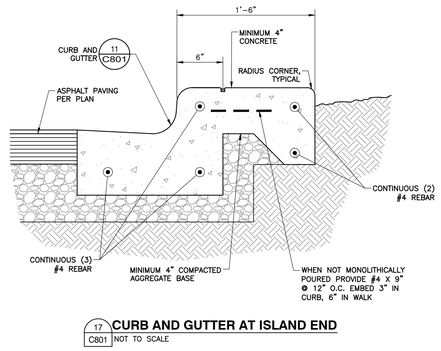
19 PERIMETER PARKING AREA UNDERDRAIN
C801 NOT TO SCALE



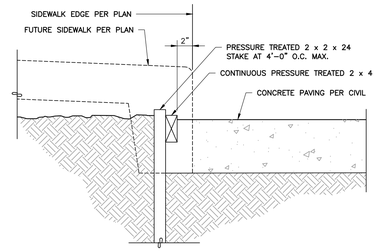
15 FLUSH TERMINATION CURB
C801 NOT TO SCALE



16 CURB AND GUTTER AT ISLAND WALK
C801 NOT TO SCALE



17 CURB AND GUTTER AT ISLAND END
C801 NOT TO SCALE



18 TEMPORARY EDGE OF PAVEMENT
C801 NOT TO SCALE

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	02/20/2024	ISSUED FOR PRELIMINARY PLD REVIEW
	03/18/2024	REISSUED FOR PRELIMINARY PLD REVIEW
	05/03/2024	ISSUED FOR PRELIMINARY SITE PLAN (1ST) REVIEW
	11/01/2024	ISSUED FOR ENGINEERING REVIEW
	12/13/2024	ISSUED FOR FINAL SITE PLAN RE-SUBMITTAL #1

10300 Alliance Road
Suite 300
Cincinnati, OH 45242
Ph: 513.985.0226
www.cecinc.com

CEC Civil & Environmental Consultants, Inc.

COSTCO WHOLESALE

Green Oak Charter Township, Michigan

SITE DETAILS

DATE:	NOVEMBER 2024
DWG SCALE:	NOT TO SCALE
PROJECT NO.	338-603
DRAWN BY:	PES
CHECKED BY:	ACH
APPROVED BY:	PTB*

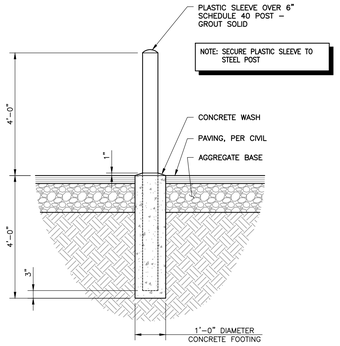
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DRAWING NO.: **C801**

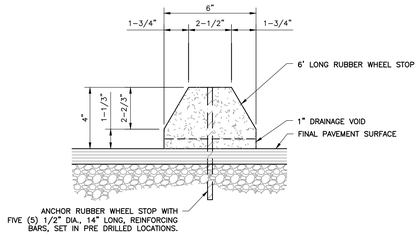
MISS DIG 811

STATE OF MICHIGAN
PATRICK T. BENNETT
ENGINEER
INC.
6201052209
LICENSED PROFESSIONAL ENGINEER

P:\300-003\338-603\-CAD\DWG\SHEET\338603-CIVIL-CB05.dwg(SHT) LAYOUT(1) 12/13/2024 3:16 PM pjimmons



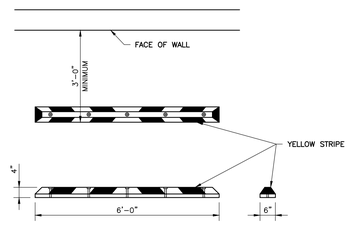
1 C802 **TYPICAL EXTERIOR BOLLARD**
NOT TO SCALE



NOTES:

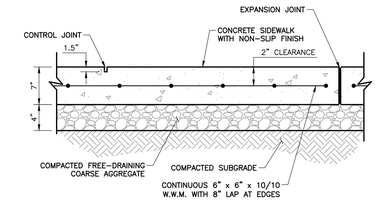
1. OTHER EQUIVALENT RUBBER WHEEL STOP DESIGNS MAY BE USED IF APPROVED BY THE OWNER.

2 C802 **RUBBER WHEEL STOP**
NOT TO SCALE



NOTE:
1. CENTER IN WIDTH OF PARK STALL
2. SEE SPECS FOR MATERIAL

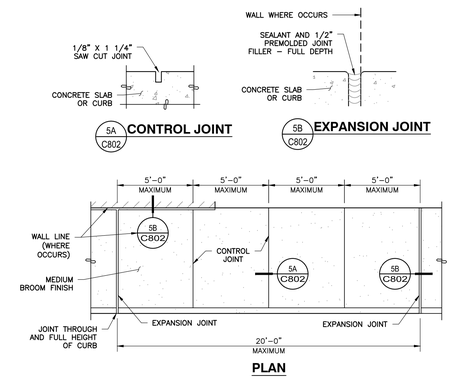
3 C802 **RUBBER WHEEL STOP**
NOT TO SCALE



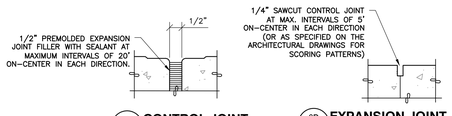
NOTES:

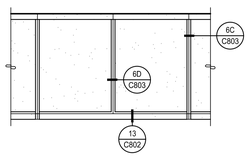
1. PROVIDE 1/2" EXPANSION JOINT FILLER WITH SEALANT WHERE THE CONCRETE SIDEWALK ABUTS THE BUILDING.
2. REFER TO THE ARCHITECTURAL SPECIFICATIONS FOR SPECIAL FINISHES, AGGREGATE TREATMENT, COLORS, PATTERN FINISHES, ETC.
3. THIS DETAIL IS FOR PROPOSED ON–SITE (PRIVATE) SIDEWALKS. PROPOSED SIDEWALKS WITHIN THE EXISTING RIGHT–OF–WAYS SHALL BE PER THE CITY'S SPECIFICATIONS AND DETAILS ON SHEET C803.

4 C802 **TYPICAL CONCRETE SIDEALK**
NOT TO SCALE

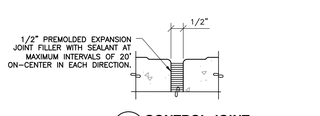


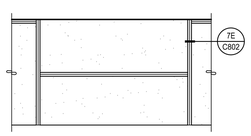
5 C802 **ON-SITE WALKS (EXCEPT AT CANOPY ENTRY)**
NOT TO SCALE



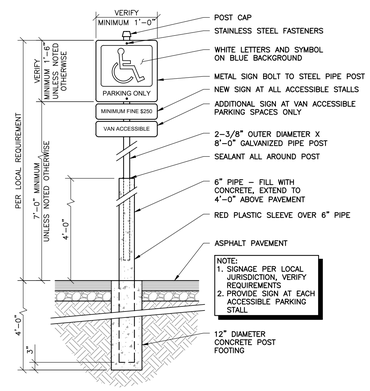


6 C802 **SIDEWALK JOINT**
NOT TO SCALE

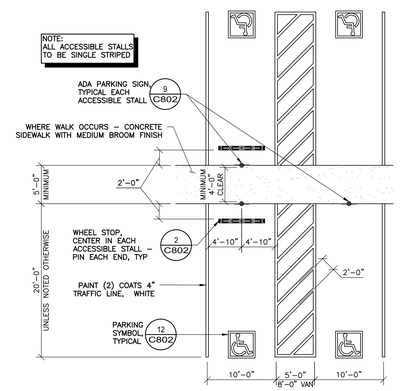




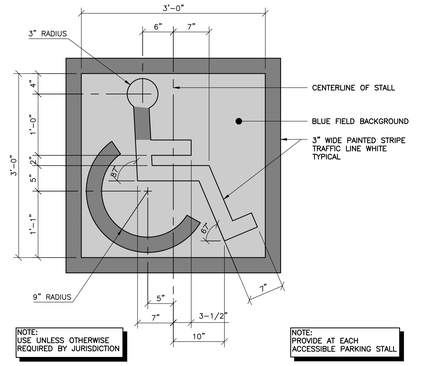
7 C802 **SIDEWALK JOINT AT EGRESS DOORS**
NOT TO SCALE



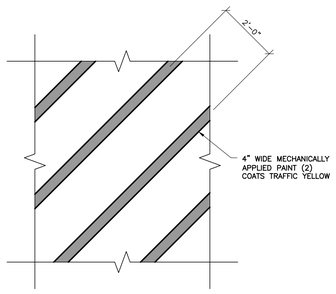
8 C802 **ADA PARKING SIGN**
NOT TO SCALE



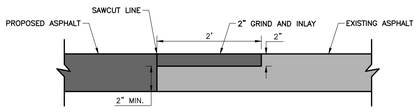
9 C802 **ACCESSIBLE PARKING STALLS**
NOT TO SCALE



10 C802 **ACCESSIBLE PARKING SYMBOL**
NOT TO SCALE



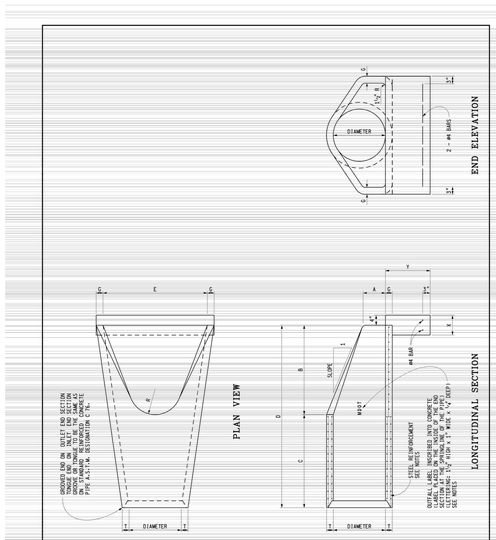
11 C802 **PAINTED STRIPE (OUTSIDE OF PUBLIC RIGHT-OF-WAY)**
NOT TO SCALE



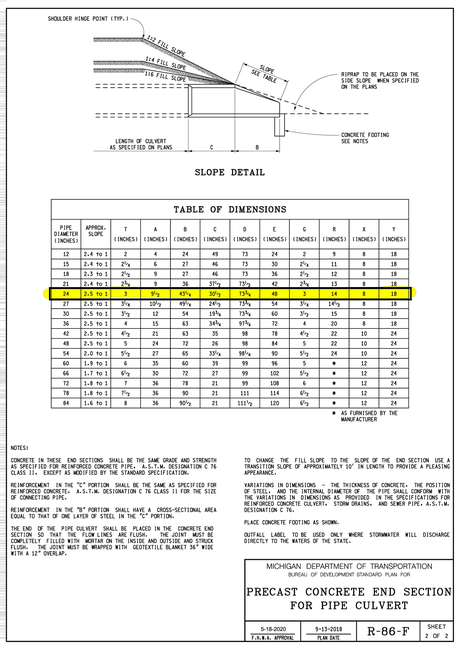
NOTES:

1. EXISTING DEPTH OF ASPHALT MUST BE AT LEAST 4" IN ORDER TO PROVIDE LAP JOINT. IF EXISTING DEPTH OF ASPHALT IS LESS THAN 4 INCHES, PROVIDE VERTICAL SAW CUT ONLY AND APPLY RUBBER SEALANT TO THE VERTICAL SURFACE.
2. APPLY HOT RUBBER SEALANT COMPOUND ALONG JOINT PER ASTM D6690.

12 C802 **LAP JOINT**
NOT TO SCALE



13 C802 **MDOT PRECAST CONCRETE END SECTION (R-86-F)**
NOT TO SCALE



SLOPE DETAIL

TABLE OF DIMENSIONS

PIPE DIAMETER (INCHES)	APPROX. SLOPE	T (INCHES)	A (INCHES)	B (INCHES)	C (INCHES)	D (INCHES)	E (INCHES)	G (INCHES)	R (INCHES)	X (INCHES)	Y (INCHES)
12	2.4 to 1	2	4	24	49	73	24	2	9	8	18
15	2.4 to 1	2 1/4	6	27	46	73	30	2 1/2	11	8	18
18	2.3 to 1	2 1/2	9	27	46	73	36	2 1/2	12	8	18
21	2.4 to 1	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	13	8	18
24	2.5 to 1	3	9 1/2	43 1/4	30 1/2	73 1/4	48	3	14	8	18
27	2.5 to 1	3 1/4	10 1/2	49 1/4	24 1/2	73 1/4	54	3 1/4	14 1/2	8	18
30	2.5 to 1	3 1/2	12	54	18 3/4	73 1/4	60	3 1/2	15	8	18
36	2.5 to 1	4	15	63	34 3/4	97 1/4	72	4	20	8	18
42	2.5 to 1	4 1/2	21	63	35	98	78	4 1/2	22	10	24
48	2.5 to 1	5	24	72	26	98	84	5	22	10	24
54	2.0 to 1	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	24	10	24
60	1.9 to 1	6	35	60	39	99	96	5	*	12	24
66	1.7 to 1	6 1/2	30	72	27	99	102	5 1/2	*	12	24
72	1.8 to 1	7	36	78	21	99	108	6	*	12	24
78	1.8 to 1	7 1/2	36	90	21	111	114	6 1/2	*	12	24
84	1.6 to 1	8	36	90 1/2	21	111 1/2	120	6 1/2	*	12	24

* AS FURNISHED BY THE MANUFACTURER

NOTES:

CONCRETE IN THESE END SECTIONS SHALL BE THE SAME GRADE AND STRENGTH AS SPECIFIED FOR REINFORCED CONCRETE PIPE. A.S.T.M. DESIGNATION C 76 CLASS II. EXCEPT AS MODIFIED BY THE STANDARD SPECIFICATION.

REINFORCEMENT IN THE "C" PORTION SHALL BE THE SAME AS SPECIFIED FOR REINFORCED CONCRETE. A.S.T.M. DESIGNATION C 76 CLASS II FOR THE SIZE OF CONNECTING PIPE.

REINFORCEMENT IN THE "D" PORTION SHALL HAVE A CROSS-SECTIONAL AREA EQUAL TO THAT OF ONE LAYER OF STEEL IN THE "C" PORTION.

THE END OF THE PIPE CULVERT SHALL BE PLACED IN THE CONCRETE END SECTION SO THAT THE FLOW LINES ARE FLUSH. THE JOINT MUST BE COMPLETELY FILLED WITH MORTAR ON THE INSIDE AND OUTSIDE AND STRUCK FLUSH. THE JOINT MUST BE WRAPPED WITH GEOTEXTILE BLANKET 36" WIDE WITH A 12" OVERLAP.

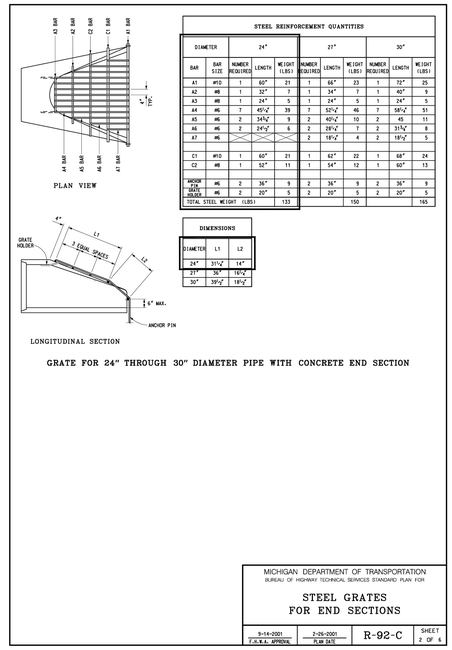
TO CHANGE THE FILL SLOPE TO THE SLOPE OF THE END SECTION USE A TRANSITION SLOPE OF APPROXIMATELY 30° IN LENGTH TO PROVIDE A PLEASING APPEARANCE.

VARIATIONS IN DIMENSIONS – THE THICKNESS OF CONCRETE, THE POSITION OF STEEL, AND THE INTERNAL DIAMETER OF THE PIPE SHALL CONFORM WITH THE VARIATIONS IN DIMENSIONS AS PROVIDED IN THE SPECIFICATIONS FOR REINFORCED CONCRETE CULVERT, STORM DRAINS, AND SEWER PIPE, A.S.T.M. DESIGNATION C 76.

PLACE CONCRETE FOOTING AS SHOWN.

OUTFALL LABEL TO BE USED ONLY WHERE STORMWATER WILL DISCHARGE DIRECTLY TO THE WATERS OF THE STATE.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR
PRECAST CONCRETE END SECTION FOR PIPE CULVERT
5-18-2020 T.R.N.S. APPROVAL
9-13-2018 PLAN DATE
R-86-F
SHEET 2 OF 2



STEEL REINFORCEMENT QUANTITIES

DIAMETER		24"			27"			30"		
BAR	BAR SIZE	NUMBER REQUIRED	LENGTH	WEIGHT (LBS)	NUMBER REQUIRED	LENGTH	WEIGHT (LBS)	NUMBER REQUIRED	LENGTH	WEIGHT (LBS)
A1	#13	1	60"	21	1	66"	23	1	72"	25
A2	#8	1	32"	7	1	34"	7	1	40"	9
A3	#8	1	24"	5	1	24"	5	1	24"	5
A4	#5	7	45 1/2"	39	7	52 1/2"	46	7	59 1/2"	51
A5	#6	2	34 1/2"	9	2	40 1/2"	10	2	45	11
A6	#6	2	24 1/2"	6	2	28 1/2"	7	2	31 1/2"	8
A7	#6	><	><	><	2	18 1/2"	4	2	18 1/2"	5
C1	#13	1	60"	21	1	63"	22	1	66"	24
C2	#8	1	52"	11	1	54"	12	1	60"	13
ANCHOR PIN HOLDER	#6	2	36"	9	2	36"	9	2	36"	9
	#5	2	20"	5	2	20"	5	2	20"	5
TOTAL STEEL WEIGHT (LBS)		133					150			165

DIMENSIONS

DIAMETER	L1	L2
24"	31 1/4"	14"
27"	35"	16 1/2"
30"	39 1/2"	18 1/2"

GRATE FOR 24" THROUGH 30" DIAMETER PIPE WITH CONCRETE END SECTION

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY TECHNICAL SERVICES STANDARD PLAN FOR
STEEL GRATES FOR END SECTIONS
9-14-2001 F.H.W.A. APPROVAL
2-26-2001 PLAN DATE
R-92-C
SHEET 2 OF 6

14 C802 **MDOT STEEL GRATES FOR END SECTIONS (R-92-C)**
NOT TO SCALE

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	02/20/2024	ISSUED FOR PRELIMINARY PLAN REVIEW
	03/18/2024	REISSUED FOR PRELIMINARY PLAN REVIEW
	05/23/2024	ISSUED FOR PRELIMINARY SITE PLAN (PUD) REVIEW
	11/01/2024	ISSUED FOR ENGINEERING REVIEW
	12/12/2024	ISSUED FOR PLANNING BOARD RE-SUBMITTAL #1

10300 Alliance Road
Suite 300
Cincinnati, OH 45242
Ph: 513.985.0226
www.cecinc.com

Civil & Environmental Consultants, Inc.

COSTCO WHOLESALE

Green Oak Charter Township, Michigan

SITE DETAILS

DATE:	NOVEMBER 2024
DWG SCALE:	NOT TO SCALE
PROJECT NO:	336-603
APPROVED BY:	PTB*
DRAWN BY:	PES
CHECKED BY:	ACH

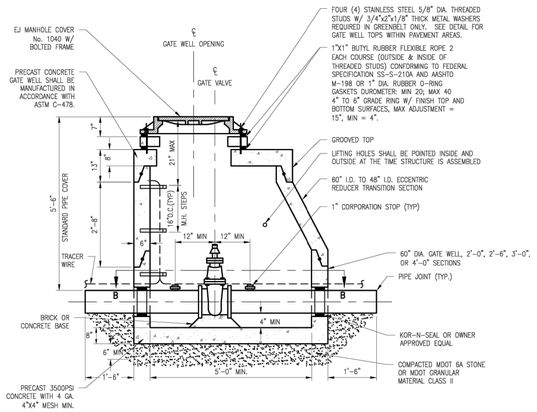
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DRAWING NO.: C802

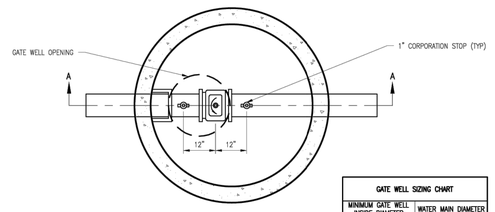
MISS DIG 811

PATRICK T. BENNETT ENGINEER NO. 6201052209 STATE OF MICHIGAN LICENSED PROFESSIONAL ENGINEER

P:\336-603\336-603_CAD\Dwg\C801\336603-C801.dwg|C802 SITE DETAILS (1)|2/20/2025 - 11:16 PM - pbennett - LP: 2/6/2025

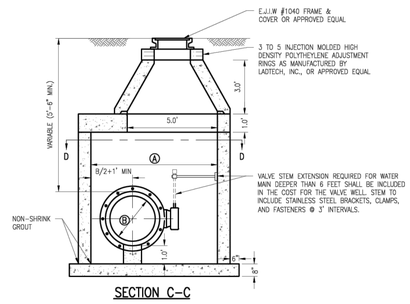


12" AND 16" GATE WELL
(A-A)

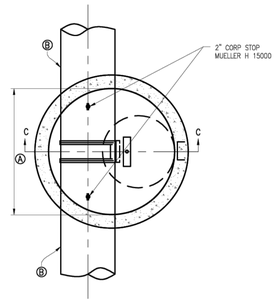


12" AND 16" GATE WELL
(PLAN VIEW, B-B)

GATE WELL SIZING CHART	
MINIMUM GATE WELL INSIDE DIAMETER	WATER MAIN DIAMETER
5'	8"-12"
6'	16"



SECTION C-C

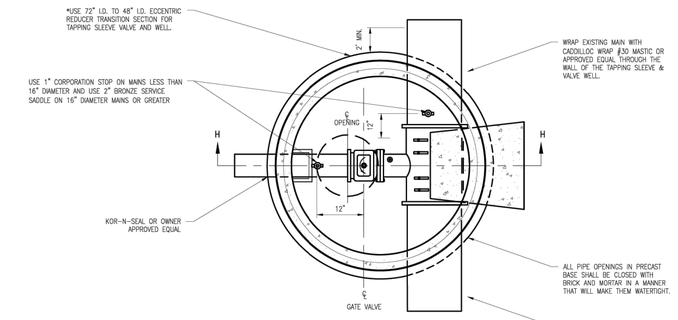


SECTION D-D

BUTTERFLY VALVE AND WELL
(CONCENTRIC)

NOTES:
ALL PRECAST SECTIONS SHALL CONFIRM TO A.S.T.M. SPEC. C-478

Ⓐ DIA WELL	Ⓑ DIA MAIN
7'-0"	20"



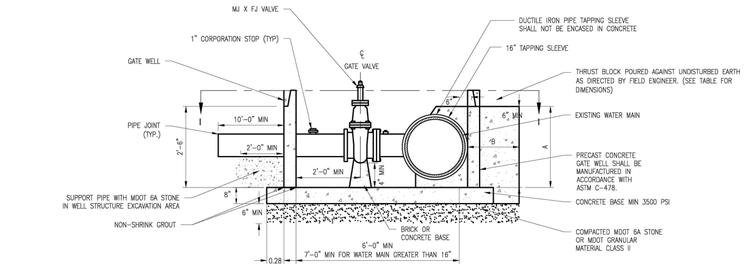
TAPPING SLEEVE VALVE & WELL TYPICAL

(PLAN VIEW, H-H)

NOTES:
1. TAPPING SLEEVES SHALL BE 304 STAINLESS STEEL; JCM INDUSTRIES 459, ROMAC INDUSTRIES SST SERIES, MUELLER 304 SERIES OR APPROVED EQUAL.
2. TAPPING VALVES SHALL BE FLANGED X MECHANICAL JOINT GATE VALVES. OR PROVIDE FL X MJ ADAPTER.
3. LIKE SIZE TAPPING SLEEVES CAN ONLY BE USED WHEN THE EXISTING MAIN IS DUCTILE IRON LAGER THAN 12-INCH IN DIAMETER.
4. HDPE TAPPING SLEEVES MUST BE CERTICIED FROM THE MANUFACTURER FOR USE ON HDPE PIPE.

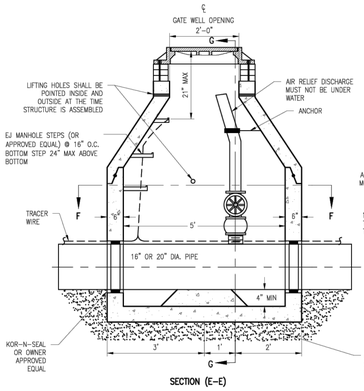
DIA	THRUST BLOCK	
D	A	B
8"	2'0"	21"
12"	2'0"	21"
16"	2'0"	21"
20"	4'0"	2'3"
24"	4'0"	2'3"

D=DIAMETER OF PIPE BEING TAPPED

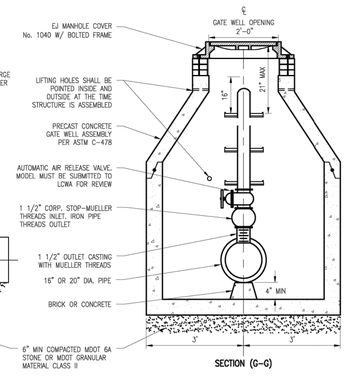


DUCTILE IRON PIPE TAPPING SLEEVE, VALVE & WELL

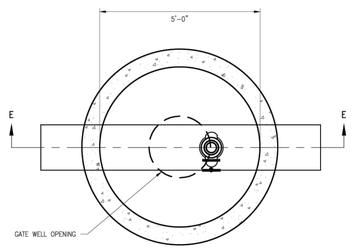
SECTION (H-H)



SECTION (E-E)

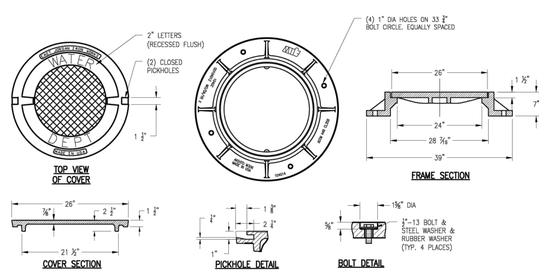


SECTION (G-G)



(PLAN VIEW, F-F)

STANDARD AIR RELEASE VALVE & WELL
FOR 16" & 20" WATER MAIN



GATE WELL FRAME AND COVER

NOTE:
CATALOG NO. 1040A
COVER: GRAY IRON ASTM A48 CL35B
LOAD RATING: HEAVY DUTY
COATING: DIPPED

1 LIVINGSTON COMMUNITY WATER AUTHORITY WATER MAIN STANDARD DETAILS
C803 NOT TO SCALE

OHM
ARCHITECTS ENGINEERS PLANNERS
34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
OHM-ADVISORS.COM

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	10/30/2024	ISSUED FOR PRELIMINARY PLAN REVIEW
	05/18/2024	REISSUED FOR PRELIMINARY PLAN REVIEW
	03/20/2024	REISSUED FOR PRELIMINARY SITE PLAN (PUD REVIEW
	11/21/2023	ISSUED FOR PRE-ENGINEERING REVIEW
	10/13/2023	ISSUED FOR PRELIMINARY PLAN REVIEW

REVISIONS:

Livingston Community Water Authority

CEC
Civil & Environmental Consultants, Inc.
10300 Alliance Road
Suite 300
Cincinnati, OH 45242
Ph: 513.985.0226
www.cecinc.com

COSTCO WHOLESALE
Green Oak Charter Township, Michigan

DATE	PROJ MGR	DWG	CADD	COUNTY	CITY/VILLAGE/COMMUNITY	H:	SCALE	V:	HORZ DATUM	VERT DATUM
October 2019	VP	RH	PR	LIVINGSTON		NTS		NTS	NAVD 88	NAVD 88

LIVINGSTON COMMUNITY WATER AUTHORITY

WATER MAIN STANDARD DETAILS

LCWA WATER DETAILS & NOTES

DATE:	NOVEMBER 2024
DWG SCALE:	NOT TO SCALE
PROJECT NO:	336-603
APPROVED BY:	PTB*
DRAWN BY:	PES
CHECKED BY:	ACH

*SIGNATURE ON FILE.

DRAWING NO.:
C803

SHEET
W1
OF 3

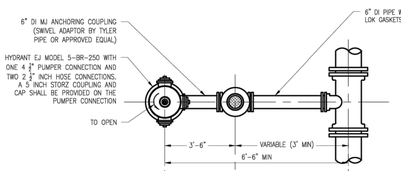
MISS DIG 811

PATRICK T. BENNETT ENGINEER NO. 6201052209 LICENSED PROFESSIONAL ENGINEER STATE OF MICHIGAN

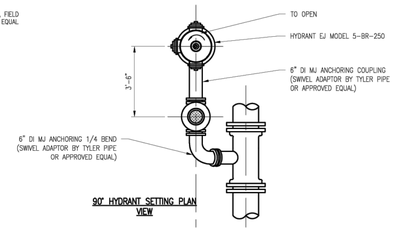
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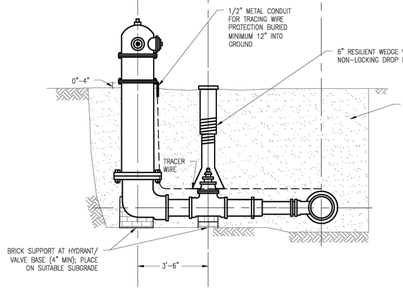
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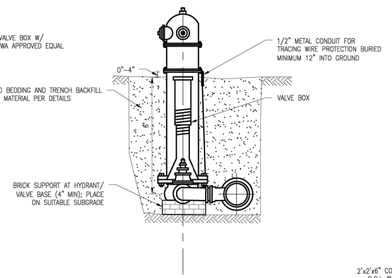
TYPICAL HYDRANT SETTING PLAN VIEW



90° HYDRANT SETTING PLAN VIEW

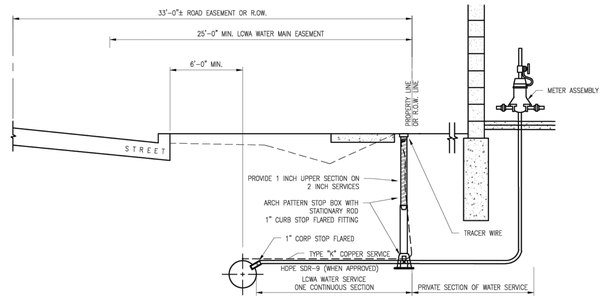


TYPICAL HYDRANT SETTING PROFILE VIEW

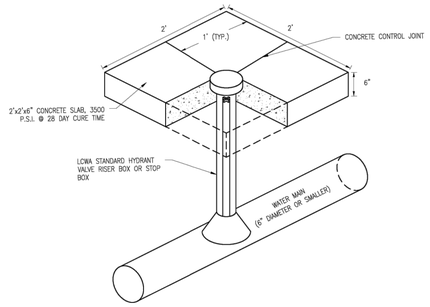


90° HYDRANT SETTING PROFILE VIEW

DETAIL OF HYDRANT SETTINGS

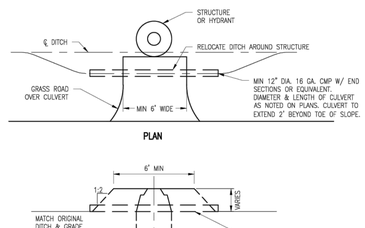


TYPICAL 1" RESIDENTIAL SERVICE

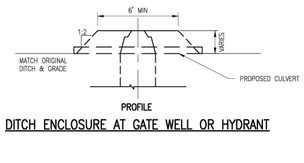


STOP BOX IN PAVEMENT DETAIL

NOTE:
WHERE WATER SERVICE CORPORATION BOX FALLS WITHIN A PAVED AREA (PARKING LOT, SERVICE DRIVE AREA, ETC.) THE STOP BOX SHALL BE PLACED IN A STANDARD HYDRANT VALVE BOX. THE VALVE BOX SHALL BE CENTERED IN A 2'x2'x6" CONCRETE SLAB. CONCRETE CONTROL JOINTS SHALL BE PLACED IN SLAB AT 1' INTERVALS.

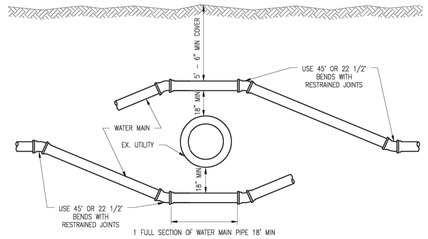


PLAN



PROFILE

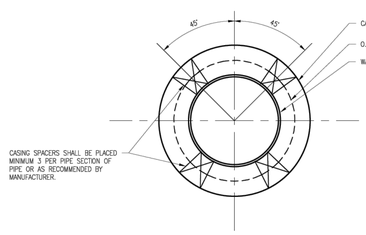
DITCH ENCLOSURE AT GATE WELL OR HYDRANT



1 FULL SECTION OF WATER MAIN PIPE 18' MIN

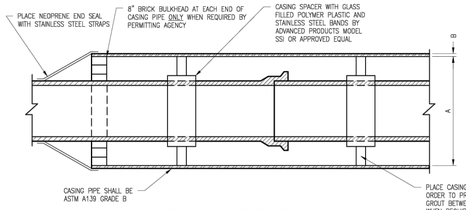
TYPICAL WATER MAIN UTILITY CROSSING

NOTE:
COMPACTED SAND BACKFILL SHALL EXTEND 9" EACH SIDE OF EXISTING PIPE, 12" ABOVE EXISTING PIPE AND SHALL SLOPE AT A ONE ON ONE SLOPE TO THE BOTTOM OF THE TRENCH OR TO FINAL TOP GRADE IF UNDER PAVEMENT.



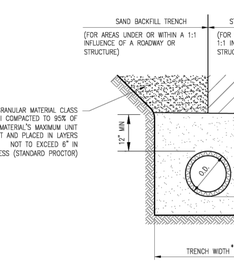
DIA OF WATER MAIN	MIN (ID) "A"	WALL/ROAD CROSSING MIN "B"	RAILROAD CROSSING MIN "B"
6"	16"	.375	.375
8"	20"	.375	.375
12"	24"	.375	.500
16"	30"	.375	.500
20"	36"	.375	.500
24"	42"	.375	.500

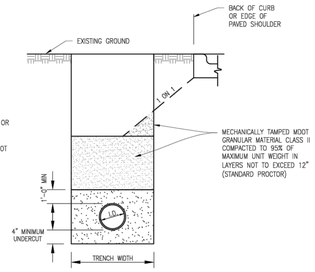
A=INSIDE DIAMETER
B=WALL THICKNESS



PIPE BARREL SUPPORT FOR WATER MAIN CONSTRUCTED IN CASING PIPE

NOTE:
THE CONTRACTOR SHALL SUBMIT IN WRITING THE DETAILS OF THE APPROPRIATE PIPE CASING INSTALLATION FOR THE REVIEW AND APPROVAL BY THE ENGINEER BEFORE INSTALLATION OF ANY CASING STARTS. ALTERNATE METHODS OF SUPPORTING AND MAINTAINING THE POSITION OF THE CARRIER PIPE WITH RESPECT TO THE CASING PIPE (SUPPORT TYPE AND SPACING) MAY BE CONSIDERED.





BEDDING AND TRENCH BACKFILL DETAILS

NOTES:
A. IF THE EXISTING SUBGRADE SOILS MEET THE REQUIREMENTS FOR MDOT GRANULAR MATERIAL CLASS II (MINIMUM 4" THICK), THEN THE WATER MAIN MAY BE LAID DIRECTLY ON THE COMPACTED NATIVE SUBGRADE SOILS.
B. FIELD CONDITIONS MAY REQUIRE UP TO 18" OF MDOT 6A STONE IN ORDER TO SECURE A FIRM TRENCH BOTTOM. ADDITIONAL DEPTH OF TRENCH UNDERCUT SHALL BE DIRECTED BY A GEOTECHNICAL ENGINEER AND SHALL BE REFILLED WITH 1" X 3" STONE.

MAXIMUM TRENCH WIDTHS*	
I.D. PIPE SIZE	TRENCH WIDTH
UP TO 12"	30"
15" TO 36"	O.D. + 12"
42" OR LARGER	O.D. + 24"

1 LIVINGSTON COMMUNITY WATER AUTHORITY WATER MAIN STANDARD DETAILS
C804 NOT TO SCALE

OHM
ARCHITECTS ENGINEERS PLANNERS
34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
OHM-ADVISORS.COM

REVISIONS:

Livingston Community Water Authority

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	10/29/2024	ISSUED FOR PRELIMINARY PLD REVIEW
	03/18/2024	REISSUED FOR PRELIMINARY PLD REVIEW
	05/23/2024	ISSUED FOR PRELIMINARY SITE PLAN / PLD REVIEW
	11/21/2024	ISSUED FOR ENGINEERING REVIEW
	12/12/2024	ISSUED FOR FINAL ENGINEERING REVIEW RE-SUBMITTAL #1

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Civil & Environmental Consultants, Inc.
10300 Alliance Road
Suite 300
Cincinnati, OH 45242
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COSTCO WHOLESALE
Green Oak Charter Township, Michigan

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DATE	PROJ MGR	CADD	COUNTY	SCALE
October 2018	VP	PR	LIVINGSTON	H: NTS
PROJ NUMBER	ENG	CITY/VILLAGE/COMMUNITY		V: NTS
0019	RH	LIVINGSTON		

HORIZ DATUM	VERT DATUM
NAD83 '88	NAVD 88

LIVINGSTON COMMUNITY WATER AUTHORITY

WATER MAIN STANDARD DETAILS

LCWA WATER DETAILS & NOTES

DATE:	NOVEMBER 2024
DWG SCALE:	NOT TO SCALE
PROJECT NO.	
APPROVED BY:	
DRAWN BY:	PES
CHECKED BY:	ACH
	336-6003
	PTB*

*SIGNATURE ON FILE

MISS DIG 811

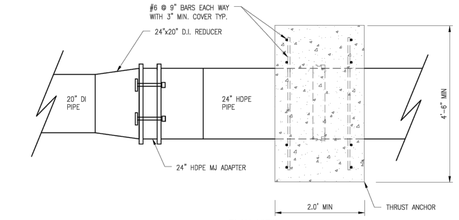
STATE OF MICHIGAN
PATRICK T. BENNETT
ENGINEER
No. 6201052209
LICENSED PROFESSIONAL ENGINEER

DRAWING NO.:
C804

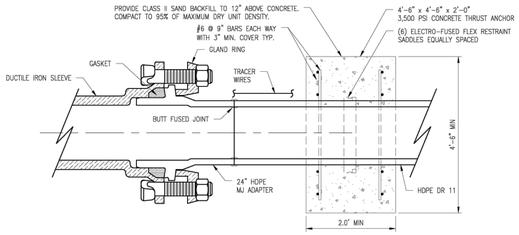
SHEET
W2
OF 3

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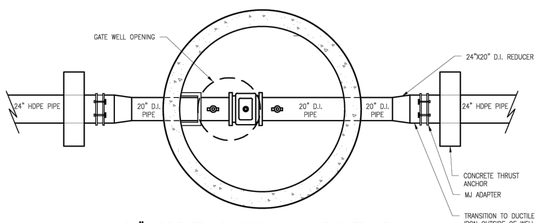
PLAN VIEW



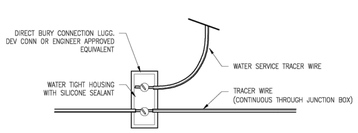
SECTION VIEW

HDPE TO DUCTILE IRON MJ TRANSMISSION

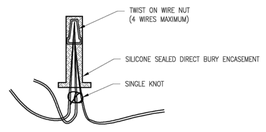
NOTES:
A. PROVIDE 2" MINIMUM CONCRETE COVER OVER ALL REINFORCING STEEL.
B. ADEQUATE CURING TIME OR USE OF HIGH EARLY CONCRETE TO ACHIEVE THE REQUIRED 4,000 PSI STRENGTH SHALL BE PROVIDED FOR ALL THRUST ANCHORS PRIOR TO TESTING MAIN.
C. ALL CONCRETE THRUST ANCHORS MUST BE DESIGNED FOR THE SITE SPECIFIC SOIL, GROUNDWATER AND SYSTEM PRESSURE CONDITIONS. THE DESIGN ENGINEER WILL BE REQUIRED TO SUBMIT CALCULATIONS SUPPORTING THE SIZE AND REINFORCEMENT. DIMENSIONS OF THE THRUST ANCHOR SHALL BE SPECIFIED BY THE DESIGN ENGINEER AND DESIGNED BASED ON WATER MAIN PRESSURE AND SIZE AND SOIL CONDITIONS.
D. ALL HARDWARE SHALL BE STAINLESS STEEL.
E. A MINIMUM OF 48 HOURS TIME SHALL BE PROVIDED AFTER INSTALLATION IS COMPLETE PRIOR TO CONSTRUCTING AND INSTALLING THE THRUST ANCHORS TO ALLOW HDPE PIPE TO ADJUST TO GROUND TEMPERATURE.



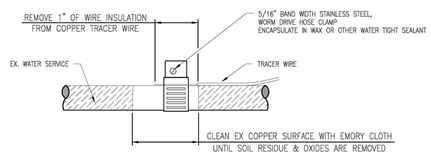
24" HDPE TRANSMISSION MAIN AT GATE WELL
(PLAN VIEW)



MAIN LINE JUNCTION BOX
N.T.S.



SPLICE CONNECTOR
N.T.S.



WATER SERVICE TERMINATION
N.T.S.

TRACER WIRE DETAIL

GENERAL NOTES:

1. All construction procedures and materials used on all water main projects shall conform to MDEQ, AWWA, and current LCWA Water System Design Standards.
2. No installation of water main is to be attempted without the LCWA inspector being present. Unless otherwise specified on plans, top of all water mains shall be 5.5 ft. below existing or proposed ground.
3. The design engineer shall furnish "record plan" water main plans upon job completion. Plans shall locate all water mains, hydrants and gate valves and wells.
4. All required cross connection devices shall be installed as required by the local plumbing inspector and in accordance with the standards of the Michigan Department of Environmental Quality.
5. Three (3) working days before you dig, dial MISS DIG at 1-800-482-7171.
6. Contractor shall notify the LCWA Engineer (734-522-6711) 3 working days prior to start of construction and request an inspection of the job.
7. All bolts on all flanged and mechanical joint fittings shall be domestic origin high strength, low alloy COR-BLUE steel bolts or approved equal. These bolts shall meet the current provisions of American National Standard ANSI/AWWA C111/A21.11 for rubber gasket joints for ductile iron pressure pipes and fittings. Bolt manufacturer's certifications of compliance must accompany each shipment.
8. BACKFILL NOTE: Under road surfaces, pavement, sidewalk, curb, dirveways and where the edge of the trench is within 3 (three) feet of the pavement or as called for on the plans, the trench depth shall be 4 (four) inches lower than the proposed water main elevation. The trench width shall be the outside diameter plus 12 (twelve) inches for pipe diameters up to 36 (thirty-six) inches (See Detail on Sheet 2). The trench shall be backfilled by placing granular material by the "controlled Density Method" or other means having approval of the engineer and compacting it to 95 (ninety-five) percent of its maximum unit weight.
9. Tracing wire shall be provided for all water main, regardless of material. Connection is required at all services, hydrants, and gate well, with exposed wire above the ground surface. Conductivity shall be tested by the Contractor prior to the acceptance of the main. All splices shall be made using a gel-cap product which provides a water proof seal, such as 3M's Direct Bury Splice kit #P054007/09964; Snakebite Splice Connectors or approved equal.
10. Where water main is located under pavement, the LCWA shall not be responsible for repairing pavement within the easement in the event that maintenance or repairs to the water main become necessary.
11. All required cross connection devices shall be installed as required by the local plumbing code and in accordance with the standards of the Michigan Department of Environmental Quality Water Resources Division.
12. The materials specified may only be substituted with an approved equal as determined by the LCWA Engineer. Written authorization must be obtained prior to ordering or installing the approved equal.

MATERIAL SUMMARY SCHEDULE

Material Schedule for Water Distribution specification section.

Item	Type	Standard	Model		
			Option A	Option B	Option C
Valves 6" to 16"	Resilient Wedge MJxMJ	AWWA C515	EJ 22000 Series	Mueller A-2361	
Valves > 16"	Butterfly	AWWA C504			
Hydrants	Traffic Model	AWWA C502	EJ 5BR-250	Approved Equal*	
Water Main 4" to 20"	Ductile Iron	AWWA C151	Dutcile Iron Class 52		
Water Services	Arch Pattern Curb Boxes		Mueller Co. Model# H-10306	Ford Meter Box Co. Model # EA2 Series	
Water Services	Curb Stops (Flared Connection)	AWWA C800	Mueller Co. Model# B-252004N	Ford Meter Box Co. Copper Model # B22-444-NL,B22-666-NL,B22-777-NL, or B44-777	HDPE Ford Meter Box,# B66, or Mueller 15000 series
Water Services	Corporation Stops	AWWA C800	Mueller Model 15000N	Ford Meter Box Co. Model # F600	HDPE Ford Meter Box,# F1001, or Mueller 15000 series
Water Service Piping	Copper K	ASTM B 88			
Water Service Piping	HDPE SDR-9	ASTM D3350 NSF 14/61	ADS Polyflex		
Water Service ≥ 4"	Ductile Iron	AWWA C151	Dutcile Iron Class 52		
Water Main Fittings	Mechanical	AWWA C110			
Water Main Joints	Gaskets	AWWA C111			
Water Main Tapping Sleeve	304 Stainless Steel	AWWA C228-08	Mueller H304 Series	Romac SST Series	Approved Equal*
Tracer Wire	Cooper Wire		Copperhead #1256-EHS	Approved Equal*	
	Directional Drill/Pipe bursitng		Copperhead SoloShotXtreme	Approved Equal*	
Tracer Wire Connections	Splicers		Copperhead Snakebite Splice Connectors	Approved Equal*	
Tracer Boxes	Junction Box		Copperhead SnakePit #CD14TP	Approved Equal*	

*Any approved equal must be submitted in writing to the LCWA engineer.

WATER MAIN NOTES:

1. All water mains shall be ductile iron with a minimum of Class 52 thickness per the following specification; Ductile iron pipe shall be ANSI A21.51 (AWWA-C151) std. wall thickness, double cement lined with bituminous seal coat.
2. Water main cover shall be a minimum of 5.5 feet and no more than 7.5 feet.
3. MEGALUG shall be placed at all valves, bends, tees, plugs, hydrants and mechanical fittings. Surrounding joints shall be restrained using U.S. Pipe Field Lok gaskets or approved equal per the joint restraining schedule or the latest edition of DIPRA's Thrust Restraint Design for Ductile Iron Pipe.

VALVE & SLEEVE NOTES:

1. Gate Valves up to 16 inch diameter shall be resilient, wedge seated gate valve with ductile iron rubber coated wedge, non-rising stem, opening Left, bronze stem and stem nut conforming with AWWA C515, Meuller, EJ, or LCWA approved equal. Valves larger than 16 inch shall be butterfly per AWWA C504.
2. All gate valves with operating nuts at a distance greater than 5.0' below ground surface shall be provided with an extension stem. The length of the extension stem shall be such that it will be within 5.0' of the ground surface, when one is used. The extension stem shall be held in place by an extension stem guide securely fastened to the wall of the gate well. The extension stem shall be mechanically attached to the operating nut. Details of extension stem and method of installation shall be approved by the engineer prior to installation.
3. All precast concrete gate well sections shall be manufactured to conform with ASTM C478, (latest edition), standard specification for precast reinforced concrete manhole sections, except wall thickness, shall be as shown on these details. All joints for precast concrete gate well sections shall be "Modified Grooved Tongue" with gasket manufactured to conform with ASTM C443, (latest edition), Standard specification for Joints for circular concrete sewer and culvert pipe using rubber gaskets.
4. All gate well covers shall be EJ #1040A with bolted frame and have the words "WATER" in raised letters on the frame cover, or approved equal.
5. Tapping sleeve shall be flanged.

HYDRANT NOTES:

1. All hydrants shall be EJ 5BR 250 Traffic Model or LCWA approved equal and shall conform to AWWA Spec. C-502 as amended, and shall have a minimum 6" valve opening which closes with the water pressure. Hydrants shall be traffic style with breakable flange and coupling.
2. Hydrants shall be installed with restrained joints and block/brick support. Poured concrete thrust blocks shall be placed as directed by the LCWA Engineer.
3. Hydrants shall have a swivel flange to allow bonnet to be turned 360 degrees without removing the bonnet and barrel flanges shall be integrally cast with the barrel. Inlet shoe shall have a bronze valve, seat which can be removed without digging.
4. Inlet connection shall be 6" mechanical joint, ASA-A21-11. Stem threads shall be sealed with double "O" rings and shall be permanently lubricated with all weather grease. Hydrants shall be equipped with removable drain plug.
5. Hose Connections: Two (2) 2 1/2" hose nozzles with national standard threads, one (1) 4 1/2" pumper nozzle with a 5" Harrington Integral Hydrant Storz (HIHS-EJIW-50-45) or approved equal. The Hydrants shall be painted red above ground and black below, with a finish coat of Glamortex 501 enamel, color 314 vermilion, or approved equal. The 2 1/2" hydrant caps shall be painted with Glamortex 501 enamel, color bright white, or approved equal. The Storz connection shall not be painted. The center flange shall have high intensity reflective tape.

PIPE RESTRAINT SCHEDULE

Ground buried pressure pipe – Ductile Iron Pipe

PIPE DIAMETER	Dead Ends	TEES	45° BENDS	22 ½° BENDS	REDUCERS
6	60	25	25	25	30
8	75	25	25	25	35
12	110	40	35	25	40
16	140	70	40	25	60
24	200	135	50	25	60

Lengths of pipe restraint are given in feet.

If required, pipe diameter is not listed in this table; the next largest pipe shall be used. This table is based on a test pressure of 180 PSI (operating pressure plus water hammer). For other test pressures, all values to be increased or decreased proportionally. The values provided of restraint length are in each direction from the point of deflection or termination except for tees, at which only the branch in the direction of the stem. If tie rods are used, use four rods minimum and add 1/8-inch to bar diameter as corrosion allowance. Size reduction is based upon the pipe diameter shown in this table. At a minimum, the next joint past the mechanical joint fitting shall be restrained.

Based upon: Internal Pressure: 180
Pipe Depth: 5
Bedding Class Type 4
Soil Type: Good Sand

1 C805 **LIVINGSTON COMMUNITY WATER AUTHORITY WATER MAIN STANDARD DETAILS**
NOT TO SCALE

OHM
ARCHITECTS ENGINEERS PLANNERS
34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
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REVISIONS

Livingston Community Water Authority

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Cincinnati, OH 45242
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SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	10/29/2024	ISSUED FOR PRELIMINARY PLAN REVIEW
	03/18/2024	REISSUED FOR PRELIMINARY PLAT REVIEW
	05/03/2024	ISSUED FOR PRELIMINARY SITE PLAN / PUD REVIEW
	11/01/2024	ISSUED FOR ENGINEERING REVIEW
	12/13/2024	ISSUED FOR FINAL SITE PLAN RE-SUBMITTAL #1

COSTCO WHOLESALE
Green Oak Charter Township, Michigan

LCWA WATER DETAILS & NOTES

DATE:	NOVEMBER 2024
DWG SCALE:	NOT TO SCALE
PROJECT NO:	
DRAWN BY:	PES
CHECKED BY:	ACH
	338-603
APPROVED BY:	PTB*

*SIGNATURE ON FILE.

DRAWING NO.: C805

SHEET W3 OF 3

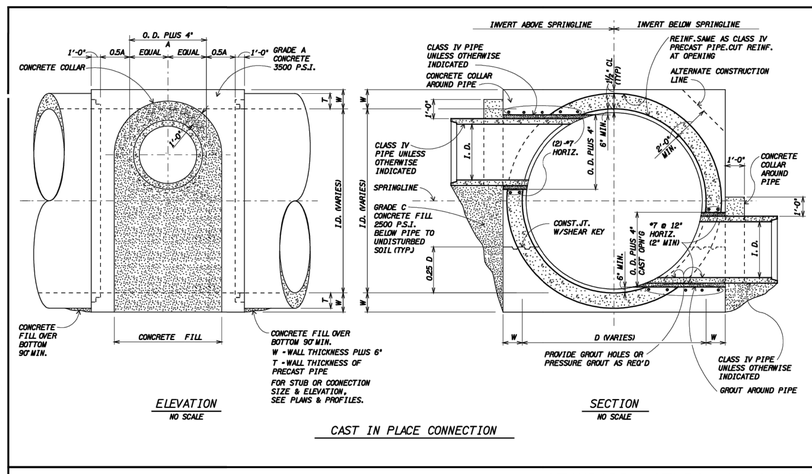
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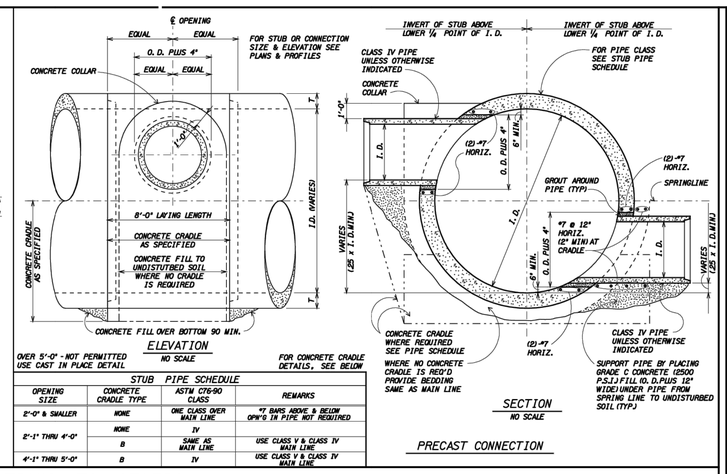
STATE OF MICHIGAN
PATRICK T. BENNETT
ENGINEER
No. 6201052209
LICENSED PROFESSIONAL ENGINEER

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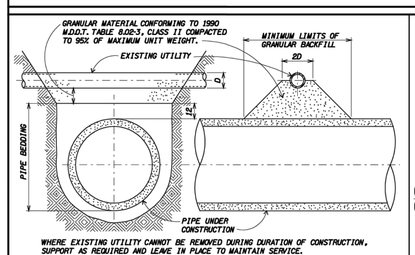
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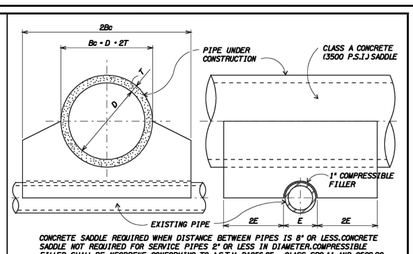




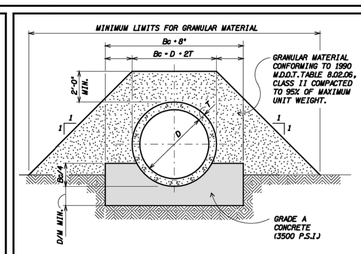
STUB PIPE SCHEDULE			
OPENING SIZE	CONCRETE CRADLE TYPE	ASTM C76-90 CLASS	REMARKS
2'-0" & SMALLER	NONE	ONE CLASS OVER MAIN LINE	*7 BARS ABOVE & BELOW OPN'G IN PIPE NOT REQUIRED
2'-1" THRU 4'-0"	NONE	IV	
	B	SAME AS MAIN LINE	USE CLASS V & CLASS IV MAIN LINE
4'-1" THRU 5'-0"	B	IV	USE CLASS V & CLASS IV MAIN LINE

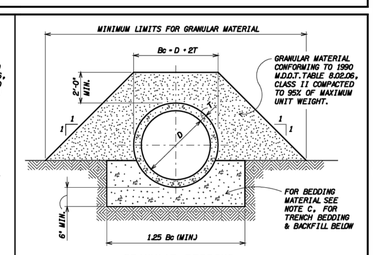
STANDARD STUBS & CONECTIONS TO SEWERS



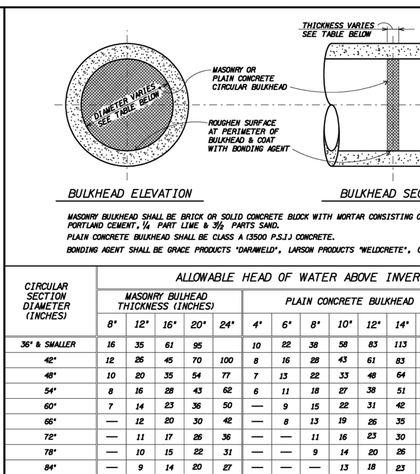


METHOD OF CROSSING EXISTING UTILITIES WITH NEW CONSTRUCTION





EMBANKMENT BEDDING & FILL



MASONRY BULKHEAD SHALL BE BRICK OR SOLID CONCRETE BLOCK WITH MORTAR CONSISTING OF ONE PART PORTLAND CEMENT, ¼ PART LIME & 3½ PARTS SAND.
PLAIN CONCRETE BULKHEAD SHALL BE CLASS A (3500 P.S.I.) CONCRETE.
BONDING AGENT SHALL BE GRACE PRODUCTS "DARAWELD", LARSON PRODUCTS "WELDCRETE", OR EQUAL.

CIRCULAR SECTION DIAMETER (INCHES)	ALLOWABLE HEAD OF WATER ABOVE INVERT * (FEET)											
	MASONRY BULKHEAD THICKNESS (INCHES)					PLAIN CONCRETE BULKHEAD THICKNESS (INCHES)						
	8"	12"	16"	20"	24"	4"	6"	8"	10"	12"	14"	16"	18"	20"	22"	24"
36" & SMALLER	16	35	61	95		10	22	38	58	83	113	—	—	—	—	—
42"	12	26	45	70	100	8	16	28	43	61	83	108	—	—	—	—
48"	10	20	35	54	77	7	13	22	33	48	64	83	105	—	—	—
54"	8	16	28	43	62	6	11	18	27	38	51	66	83	103	—	—
60"	7	14	23	36	50	—	9	15	22	31	42	54	68	84	101	—
66"	—	12	20	30	42	—	8	13	19	26	35	45	57	70	84	100
72"	—	11	17	26	36	—	—	11	16	23	30	39	48	59	71	84
78"	—	10	15	22	31	—	—	9	14	20	26	33	42	51	61	72
84"	—	9	14	20	27	—	—	—	13	18	23	29	36	44	53	63
90"	—	—	12	18	24	—	—	—	12	16	21	26	32	39	47	55
96"	—	—	11	16	22	—	—	—	11	14	19	23	29	35	42	49
102"	—	—	10	15	20	—	—	—	10	13	17	21	26	31	37	44
108"	—	—	—	14	18	—	—	—	—	12	16	20	24	29	34	40
114"	—	—	—	13	17	—	—	—	—	11	15	18	22	26	31	36
120"	—	—	—	12	16	—	—	—	—	—	14	17	20	24	29	33
126"	—	—	—	—	15	—	—	—	—	—	13	16	19	23	26	31
132"	—	—	—	—	14	—	—	—	—	—	—	15	18	21	25	29
144"	—	—	—	—	—	—	—	—	—	—	—	14	16	22	25	

* CONDITIONS BEYOND TABLE VALUES REQUIRE SPECIAL BULKHEADS AS SHOWN ON PLANS

STANDARD MASONRY & PLAIN CONCRETE BULKHEADS

GENERAL CONCRETE NOTES

1. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS & MEASUREMENTS AT THE SITE & SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER PROCEEDING WITH THE WORK.
2. CONCRETE SHALL BE GRADE A WITH A MINIMUM COMPRESSION STRENGTH OF 3500 P.S.I. AT 28 DAYS UNLESS OTHERWISE NOTED.
3. REINFORCEMENT STEEL SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A615-90, GRADE 60, INCLUDING SUPPLEMENTARY REQM'TS S1, REINF. FOR TIES & STIRRUPS MAY BE NEW BILLET STEEL CONFORMING TO ASTM A615-90, GRADE 40.
4. REINFORCEMENT BAR DETAILING & PLACING SHALL CONFORM TO ACI 318-89 "BUILDING CODE", & TO DETAILS & DETAILING OF CONCRETE REINFORCEMENT ACI 315-80, & MANUAL OF ENGINEERING & PLACING DRAWINGS FOR REINFORCED CONC. STRUCT. ACI 315R-SP-66 (08) PLACE (2) #5 BARS, 4'-0" LONGER THAN OPENING, EACH FACE AROUND ALL OPENINGS IN WALLS & SLABS.
5. PROVIDE (1) #5 DIAGONAL x 3'-0" LONG, TOP & BOTTOM, EACH CORNER OF OPENING.
6. WALLS SHALL BE ADEQUATELY BRACED UNTIL SUPPORTING SLABS HAVE REACHED THEIR DESIGN STRENGTH.
7. PROVIDE CORNER BARS SAME SIZE & SPACING AS HORIZONTAL REINFORCEMENT ON OUTSIDE FACE OF ALL CORNERS.
8. MINIMUM COVER TO REINFORCEMENT SHALL BE AS FOLLOWS A) 3" FOR CONCRETE POURED AGAINTS GROUND B) WHERE FORMS ARE USED, MINIMUM COVER SHALL BE 2" FOR BARS LARGER THAN #5 & 1½" FOR BARS #5 & SMALLER.
9. MINIMUM LAP OF REINFORCEMENT SHALL BE CLASS C, AS CALLED FOR IN TABLE 202 OF SP-17A (78).
10. KEYWAYS SHALL BE 2"x4", UNLESS OTHERWISE NOTED.
11. PROVIDE ¾"x 45° CHAMFER AT EXPOSED EDGES UNLESS OTHERWISE NOTED.

TRENCH	TRENCH BACKFILL
TRENCH "A" (SPECIAL)	BANK RUN SAND MEETING THE REQUIREMENTS OF 1990 M.D.O.T. 8.02.06 "GRANULAR MATERIALS FOR FILL & SUBBASE". CLASS II MATERIALS SHALL BE PLACED IN ACCORDANCE WITH 1990 M.D.O.T. 2.08.10-D-1 "CONTROLLED DENSITY METHOD" WITH EACH LAYER COMPACTED TO 95 PERCENT OF MAXIMUM UNIT WEIGHT.
TRENCH "B" (STANDARD)	SUITABLE EXCAVATED MATERIAL (EXCLUDING BLUE CLAY) PLACED IN ONE FOOT LAYERS WITH EACH LAYER COMPACTED BY APPROVED MECHANICAL METHODS TO A DENSITY EQUIVALENT TO THE UNDISTURBED ADJACENT SOIL.

TRENCH BACKFILL NOTES:

SPECIAL BACKFILL FOR TRENCHES (TRENCH "A") SHALL BE USED AT ALL LOCATIONS CALLED FOR ON THE PLANS & REQUIRED IN THE SPECIFICATIONS

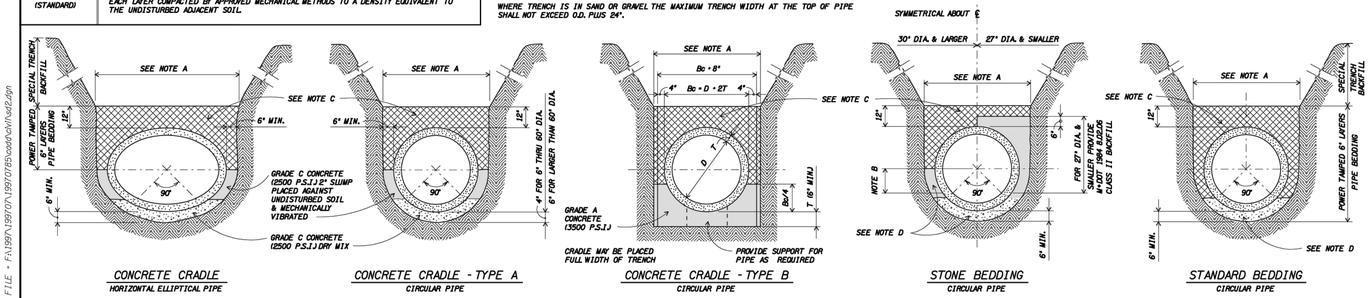
WHERE NOTED ON THE PLANS OR PROFILES THUS ; TRENCH "A" TRENCH "A" SHALL BE USED AT LOCATIONS REQUIRED BY THE SPECIFICATIONS. TRENCH "B" SHALL BE USED FOR THE BALANCE OF THE WORK.

WHERE TRENCH IS IN SAND OR GRAVEL THE MAXIMUM TRENCH WIDTH AT THE TOP OF PIPE SHALL NOT EXCEED O.D. PLUS 24".

TYPES OF BEDDING

STANDARD PIPE BEDDING SHALL BE USED EXCEPT WHERE THE OTHER TYPES OF PIPE BEDDING ARE CALLED FOR ON THE PLANS & PROFILES

MAXIMUM TRENCH WIDTH TABLE (IN)	
PIPE I.D.	TRENCH WIDTH
4 -12	32
15	36
18	39
21	43
24	46
27	50
30	53
36	68
42	75
48	82
54	89
60	96
66	103
72	110
78	117
84	184
90	136
96	143
102	149
108	156
114	163
120	170
132	184
144	198
156	212
168 & LARGER	O.D. PLUS 30



NOTE A: BELOW A POINT 12" ABOVE THE TOP OF THE PIPE, THE TRENCH WIDTH SHALL PROVIDE A CLEARANCE OF NOT LESS THAN 6" BETWEEN PIPE & TRENCH. TRENCH WIDTH SHALL NOT EXCEED THAT SHOWN IN THE MAXIMUM TRENCH WIDTH TABLE.

NOTE B: FOR 30" DIA. AND LARGER PIPE, MATERIAL SHOWN THUS [ ] SHALL BE PEASTONE.

NOTE C: PIPE BEDDING MATERIALS SHOWN THUS [xxxxx] SHALL BE SELECTED EXCAVATED MATERIAL (EXCEPT BLUE CLAY). WHERE TRENCH "A" IS SPECIFIED, SPECIAL TRENCH "A" BACKFILL MATERIAL SHALL BE USED FOR PIPE BEDDING BACKFILL.

NOTE D: PIPE BEDDING CUSHION MATERIALS SHOWN THUS [xxxxx] SHALL CONSIST OF MEETING THE GRADING REQUIREMENTS OF 1990 M DOT, TABLE 8.02-1, COARSE AGGREGATE 6A, BLAST FURNACE SLAG OR CRUSHED STONE CONTAINING SUFFICIENT SMALLER SIZED AGGREGATE TO PREVENT MIGRATION OF EARTH OR BACKFILL MATERIAL INTO BEDDING MATERIAL & CAREFULLY PREPARED SO THAT THE ENTIRE BOTTOM ½ OF THE PIPE WILL BEAR AGAINST THE CUSHION. THE TYPE & THICKNESS OF THE BEDDING SHALL BE AS REQUIRED TO MAINTAIN CORRECT ALIGNMENT & GRADE & SHALL NOT BE LESS THAN 6". (THIS BEDDING CUSHION SUPERCEDES CUSHION REQUIRED BY THE SPECIFICATIONS)

TRENCH BEDDING & BACKFILL

TYPES OF PIPES & JOINTS

PIPE					JOINT	
MATERIAL	SIZE (ROUND)	SPEC.	CLASS	REMARKS	DESCRIPTION	SPEC.
PLAIN CONCRETE	4" - 25"	A.S.T.M. C14 - 90	1, 2 & 3		MODIFIED GROOVE TONGUE WITH RUBBER GASKET.	A.S.T.M C443 - 85A *
REINFORCED CONCRETE	12" - 144"	A.S.T.M. C76 - 90	I - V			
	12" - 144"	1990 M.D.O.T. 8.08.03	I - V	SPECIAL DESIGNS SUPPLEMENT A.S.T.M. C-76	INSIDE CEMENT POINTING FOR 42" # & LARGER PIPE.	
	156" - 204"	A.S.T.M. C76 - 90	I - V	SPECIAL DESIGN		
	EQUIVALENT ROUND 18" - 144"	A.S.T.M. C507 - 90	HE - I THRU HE - IV	ELLIPTICAL PIPE	TONGUE & GROOVE BITUMINOUS JOINT WITH INSIDE CEMENT POINTING.	
	18" - 144"	AWWA. C305 - 74	C76 - 83 EQUIVALENT I - V	PRESSURE PIPE, NON-CYLINDER TYPE	STEEL RINGS & RUBBER JOINTS	AWWA. C302 - 74
VITRIFIED CLAY	4" - 25"	N.C.P.I. ER4 - 67	EXTRA STRENGTH		*AMVIT* *AMVIT-A-RING* *DEFLECT/TITE* *LOKON* *WOBEL* *O-RING* *STRE-TITE* *TYLOK* *UNILOC* *WEDGELOCK*	A.S.T.M. C - 425 - 90a *

* EXCEPT AS SUCH SPECIFICATIONS RELATE TO INFILTRATION LIMITATION.

STANDARD SEWER DETAILS

BRIAN JONCKHEERE
LIVINGSTON COUNTY DRAIN COMMISSIONER
LIVINGSTON COUNTY MICHIGAN

DATE	ADDITIONS AND/OR REVISIONS			
2-24-97	ISSUED FOR BIDS			
DRAWER	SCALE	DR. K.B.B.	CK. E.P.D.	APP. W.H.A.

JOB NO. 97-0785
DATE
HUBBELL, ROTH & CLARK, INC. CONSULTING ENGINEERS
555 HULET DRIVE BLOOMFIELD HILLS, MICH. P.O. BOX 824 48303-0824
SHEET NO. SD-2 OF

SUBMITTAL & REVISION RECORD

NO	DATE	DESCRIPTION
	10/30/2024	ISSUED FOR PRELIMINARY PLAN REVIEW
	11/26/2024	REISSUED FOR PRELIMINARY PLAN REVIEW
	03/13/2025	ISSUED FOR PRELIMINARY SITE PLAN (FLO) REVIEW
	7/15/2025	ISSUED FOR CONSTRUCTION PLAN REVIEW
	10/1/2025	ISSUED FOR FINAL SITE PLAN RE-SUBMITTAL #1

CEC Civil & Environmental Consultants, Inc.
10300 Alliance Road
Suite 300
Cincinnati, OH 45242
Ph: 513.985.0226
www.cecinc.com

COSTCO WHOLESALE
Green Oak Charter Township, Michigan

LIVINGSTON COUNTY STANDARD STORM SEWER DETAILS

DATE:	NOVEMBER 2024
DRAWN BY:	PES
CHECKED BY:	ACH
DWG SCALE:	NOT TO SCALE
PROJECT NO:	336-603
APPROVED BY:	PTB*

*SIGNATURE ON FILE

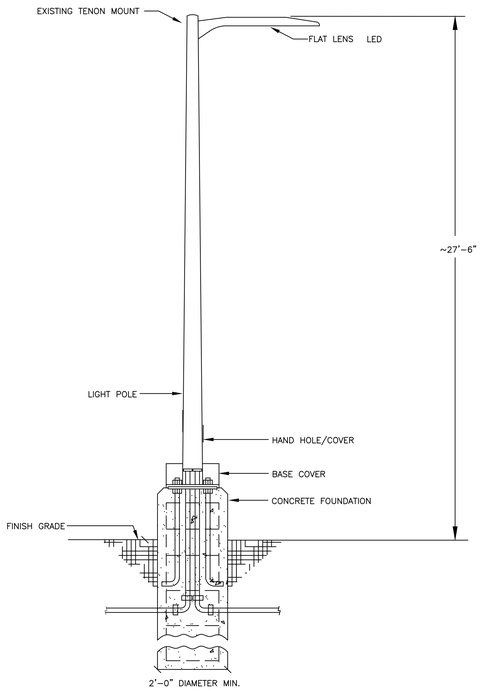
DRAWING NO.: C806

MISS DIG 811

STATE OF MICHIGAN PATRICK T. BENNETT ENGINEER No. 6201052209 LICENSED PROFESSIONAL ENGINEER

1 C804 LIVINGSTON COUNTY STANDARD STORM SEWER DETAILS NOT TO SCALE

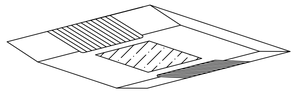
STROKE TIME - 25-MAY-2005 13:00
PLOT NAME - N/A
DESIGN FILE - F:\1997\1997D\1997DTB\cad\civil\sd2.dgn
USER NAME - rossb
A:\135-001\135-4631-D400\dwg\civil\135463-civil-d800.dwg[D806 LIVINGSTON COUNTY STANDARD STORM SEWER DETAILS (5)]5/27/2025 - pshimmel - LP: 5/8/2025 3:16 PM



NOTE: PROVIDE CONCRETE J-BOX AS REQUIRED.
THIS DETAIL IS FOR ELECTRICAL CONDUITS ROUTING ONLY.
SEE STRUCTURAL DRAWINGS FOR CONSTRUCTION DETAIL.

EXIST POLE BASE DETAIL

NOT TO SCALE



FUEL FACILITY – LED (GA)
NO SCALE

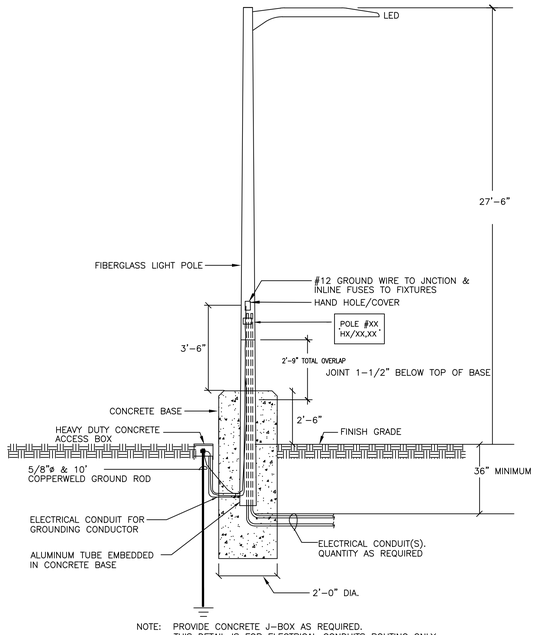
PLAN NOTES:

1. EXISTING POLE LIGHT FIXTURE TO REMAIN.
2. EXISTING POLE TO BE REMOVED AND RELOCATED. DEMO EXISTING BASE AND FIXURE. PROVIDE HEAVY DUTY (AASHTO HS-20) JBOX AT EXISTING LOCATION. PROVIDE NEW BASE AT NEW LOCATION. REPLACE EXISTING POLE FIXTURES WITH NEW FIXTURES AS SHOWN. EXTEND FEEDER TO NEW LOCATION. REWIRE AS SHOWN. FIELD VERIFY.
3. E.C. TO SEAL UNDERGROUND CONDUITS WITHIN 10' OF ENTERING GROUND ON BOTH ENDS. SEAL POLE AND ASSOCIATED J-BOX. PROVIDE EXPLOSION-PROOF-RATED J-BOX AND OTHER ELECTRICAL DEVICES NEAR FUELING FACILITY. REFER TO NEC ARTICLE 514.
4. E.C TO PROVIDE NEW LIGHT POLE, BASE, AND FIXTURE.
5. E.C TO PROVIDE NEW FIXTURE AT EXISTING POLE, RELOCATE EXISTING LIGHT FIXTURE TO NEW LOCATION, PROVIDE NEW BASE, AND LIGHT POLE AT NEW LOCATION.
6. EXISTING POLE AND FIXTURE TO BE REMOVED AND RELOCATED. DEMO EXISTING BASE. PROVIDE HEAVY DUTY (AASHTO HS-20) JBOX AT EXISTING LOCATION. PROVIDE NEW BASE AT NEW LOCATION. EXTEND FEEDER TO NEW LOCATION. REWIRE AS SHOWN. FIELD VERIFY.
7. EXISTING DRIVEWAY POLE LIGHT FIXTURE TO REMAIN. PHOTOMETRY NOT INCLUDED FOR CLARITY.
8. EXISTING POLE AND FIXTURE TO BE REMOVED. DEMO EXISTING BASE. PROVIDE HEAVY DUTY (AASHTO HS-20) JBOX AT EXISTING LOCATION. EXTEND FEEDER TO MAINTAIN CONTINUITY. FIELD VERIFY.

FIXTURE DESCRIPTION	
P	LITHONIA-DSX2-LED-P2-50K-T5W-MVOLT-POLE-185W
P1	LITHONIA-DSX2-LED-P5-50K-T5W-MVOLT-POLE-321W
P2	LITHONIA-DSX2-LED-P2-50K-T3M-MVOLT-POLE-185W
P3	LITHONIA-DSX2-LED-P2-50K-BLC4-EGS-MVOLT-POLE-179W
GA	86W LED, SURFACE SYMETRIC DOWN LIGHT, FLAT LENS, 18' MOUNTING HEIGHT

SITE STATISTICS

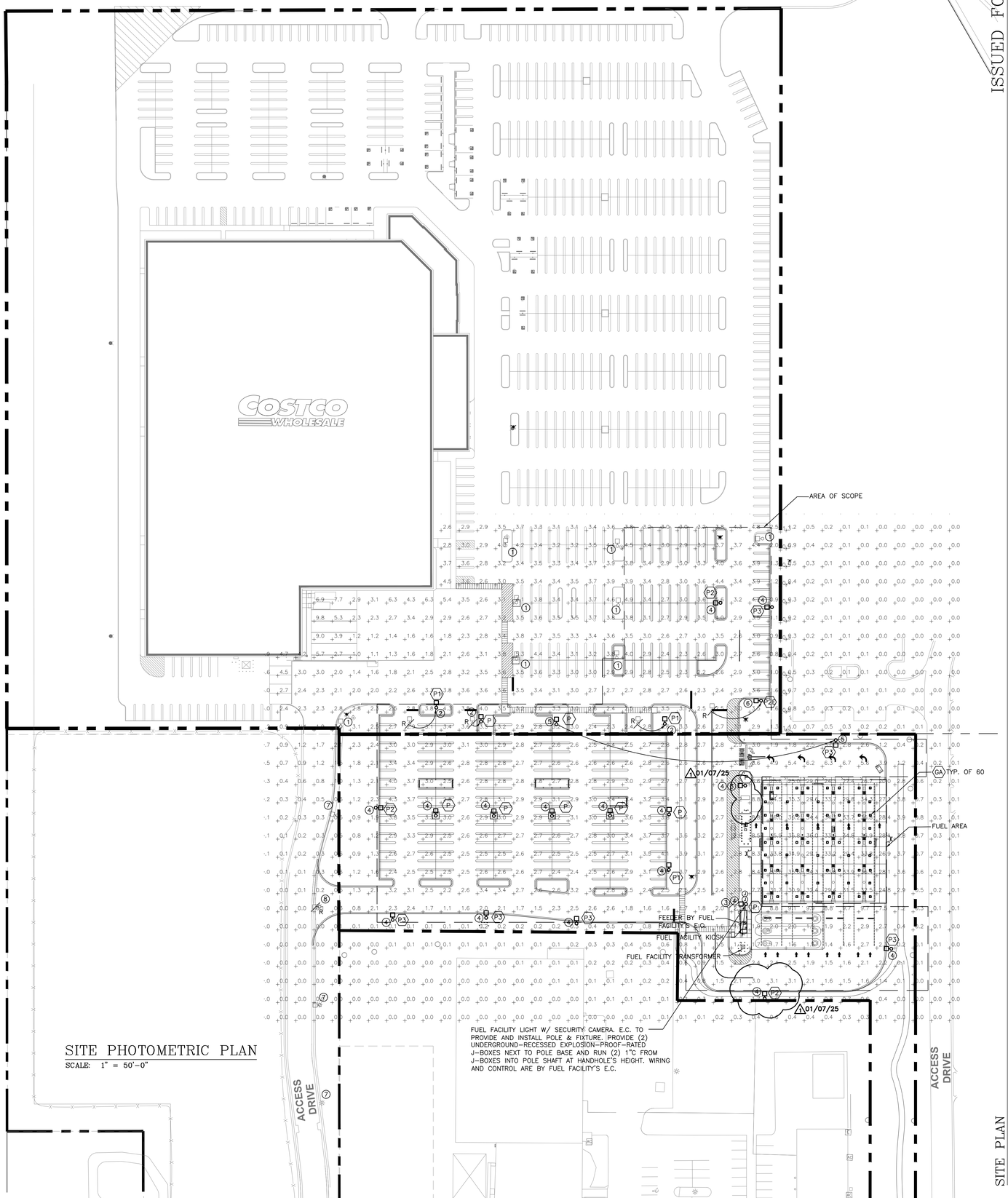
	AREA OF SCOPE FC	FUEL FC
MAX	9.9	36.9
AVG	3.0	31.8
MIN	0.8	20.0
MAX/MIN	12.4:1	1.8:1
AVG/MIN	3.8:1	1.6:1



NOTE: PROVIDE CONCRETE J-BOX AS REQUIRED.
THIS DETAIL IS FOR ELECTRICAL CONDUITS ROUTING ONLY.
SEE STRUCTURAL DRAWINGS S0.2 FOR DETAILS.

NEW POLE DETAIL

SCALE: NTS



SITE PHOTOMETRIC PLAN

SCALE: 1" = 50'-0"

ISSUED FOR PERMIT

SITE PLAN

PROJECT NO:24-065

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ISSUE DATE: MARCH 14, 2024

ARCHITECT REFERENCE NO:03-1591-

REVISION DATE:	ISSUED FOR PERMIT
03/14/24	

DRAWN: FB/MAA CHECKED: JGM/HW

T.E., Inc.
830 N. RIVERSIDE DRIVE
SUITE #200
RENTON, WA 98057
PHONE: 425-970-3753
FAX: 425-970-3756

FUEL FACILITY – PARKING EXPANSION
WAREHOUSE #786
6700 WHITMORE LAKE ROAD
GREEN OAK TOWNSHIP, MI 48116

COSTCO WHOLESALE

SE-1

11/5/2021 5:26:54 PM

NOTE: CONTRACTOR TO DETERMINE FINAL TREE PROTECTION FENCE LAYOUT IN THE FIELD, SEE DETAIL ON SHEET L1.0.

COSTCO WHOLESALE

EXISTING PARKING ISLAND OUTSIDE OF PROJECT AREA

NEW PARKING ISLAND

GATE WAY SHOPPES AT GREEN OAK
INSTR. #20066R-018740
KNOWN AS LIVINGSTON COUNTY
CONDOMINIUM SUBDIVISION PLAN NO. 363

EXISTING TREES TO REMAIN, TYP.

EXISTING TREES TO BE REMOVED, TYP.

EXISTING TREES TO REMAIN, TYP.

PROPERTY LINE, TYP.

EXISTING TREES TO BE REMOVED, TYP.

EXISTING TREES TO REMAIN, TYP.

EXISTING TREES TO REMAIN, TYP.

F.F.E. = 902.45

TRANSFORMER

EXISTING BUILDING

MALTBY ROAD

TRUNK PROTECTION
REQUIRED IF WHEELED CONSTRUCTION EQUIPMENT INVOLVED WITHIN 20' OR LESS. 1" BOARDS NOT LESS THAN 8' LONG OR TO REACH FIRST SCAFFOLD BRANCH. WIRE TO HOLD BOARDS IN PLACE. NO NAILS PERMITTED. INCLUDE WRAPPING OF BURLAP UNDER BOARDS.

BRANCH PROTECTION
PROTECT LOWER BRANCHES OF TREE CANOPY. PROVIDE CONSTRUCTION FENCING OR EQUAL AT DRIPLINE (MIN.)

ROOT PROTECTION ZONE
VARIES PER TREE SIZE
EXTENDS FROM DRIPLINE TO DRIPLINE

PLACE SIGNS:
KEEP OUT
TREE PROTECTION
AREA
EVERY 50' ATTACHED TO FENCING

TREE PROTECTION NOTES

1. ALL TREES TO BE PROTECTED AND PRESERVED SHALL BE PER DETAIL. GROUPING OF MORE THAN ONE TREE MAY OCCUR.
2. TREES TO BE PROTECTED AND PRESERVED SHALL BE IDENTIFIED ON THE TRUNK WITH WHITE SURVEY TAPE.
3. TO PREVENT ROOT SMOTHERING, SOIL STOCKPILES, SUPPLIES, EQUIPMENT OR ANY OTHER MATERIAL SHALL NOT BE PLACED OR STORED WITHIN THE DRIP LINE OR WITHIN 15 FEET OF A TREE TRUNK, WHICHEVER IS GREATER.
4. TREE ROOTS SHALL NOT BE CUT UNLESS CUTTING IS UNAVOIDABLE.
6. WHEN ROOT CUTTING IS UNAVOIDABLE, A CLEAN SHARP CUT SHALL BE MADE TO AVOID SHREDDING OR SMASHING. ROOT CUTS SHOULD BE MADE BACK TO A LATERAL ROOT. WHENEVER POSSIBLE, ROOTS SHOULD BE CUT BETWEEN LATE FALL AND BUD OPENING, WHEN ROOT ENERGY SUPPLIES ARE HIGH AND CONDITIONS ARE LEAST FAVORABLE FOR DISEASE CAUSING AGENTS. EXPOSED ROOTS SHALL BE COVERED IMMEDIATELY TO PREVENT DEHYDRATION. ROOTS SHALL BE COVERED WITH SOIL OR BURLAP AND KEPT MOIST.
7. WATERING OF PROTECTED TREES IN WHICH ROOTS WERE CUT SHALL BE PROVIDED BY THE CONTRACTOR.
8. AUGER TUNNELING RATHER THAN TRENCHING SHOULD BE USED FOR UTILITY PLACEMENT WITHIN DRIP LINE.
9. FENCING MATERIAL SHALL ENCIRCLE ANY TREE OR SHRUB WHOSE OUTER DRIP LINE EDGE IS WITHIN 20 FEET OF ANY CONSTRUCTION ACTIVITIES.
10. FENCING MATERIAL SHALL BE BRIGHT, CONTRASTING COLOR, DURABLE, AND A MINIMUM OF FOUR FEET IN HEIGHT.
11. FENCING MATERIAL SHALL BE SET AT THE DRIP LINE OR 15 FEET FROM TREE TRUNK, WHICHEVER IS GREATER, AND MAINTAINED IN AN UPRIGHT POSITION THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES.
12. ANY GRADE CHANGES (SUCH AS THE REMOVAL OF TOPSOIL OR ADDITION OF FILL MATERIAL) WITHIN THE DRIP LINE SHOULD BE AVOIDED FOR EXISTING TREES TO REMAIN. RETAINING WALLS AND TREE WELLS ARE ACCEPTABLE ONLY WHEN CONSTRUCTED PRIOR TO GRADE CHANGE.
13. REFER TO THIS DETAIL FOR TREE PROTECTION FENCE GUIDELINES FOR FENCE LOCATIONS.

1 TREE PROTECTION
NTS

CONSULTANT
Kimley»Horn of Michigan, Inc.

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3000 TOWN CENTER, SUITE 2600
SOUTHFIELD, MI 48075
PHONE: 630-487-5550
WWW.KIMLEY-HORN.COM

NORTH ARROW AND SCALE

NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

SEAL AND SIGNATURES

STATE OF MICHIGAN
JOSEPH COGSWELL
LANDSCAPE ARCHITECT
No. 3901046998
LICENSED LANDSCAPE ARCHITECT
Expiration: 7/25/26

COSTCO WHOLESALE
PARKING EXPANSION
WHITMORE LAKE ROAD
GREEN OAK TOWNSHIP, MI

DATE	ISSUED FOR	REV
11/01/2024	ISSUED FOR ENGINEERING REVIEW	
12/20/2024	CD	

L1.0
TREE PRESERVATION PLAN

AS INDICATED

11/5/2021 5:26:54 PM

TREE DISPOSITION TABLE

Tag No.	Common Name	Landmark	D.B.H.	Condition	Notes	Status	Replacement Trees (in DBH value)	Replacement Trees Required	Notes
50000	Red Pine		17"	Good		Remove		1	
50001	Red Pine		16"	Good		Remove		1	
50002	Red Cedar		11"	Good		Remove		1	
50003	Red Cedar		10"	Fair		Remove		1	
50004	White Mulberry		10"	Good		Remove			Tree is on undesirable species list
50005	Red Cedar		9"	Good	Twin	Remove		1	
50006	White Mulberry		9"	Good		Remove			Tree is on undesirable species list
50007	Red Cedar		12"	Good		Remove		1	
50008	Red Cedar		11"	Good		Remove		1	
50009	White Mulberry		11"	Good		Remove			Tree is on undesirable species list
50010	Red Cedar		8"	Good		Remove		1	
50011	Black Cherry	Yes	25"	Good		Remove	12.5		
50012	Red Cedar		7"	Fair		Remove			DBH less than 8" - no replacement
50013	Siberian Elm		38"	Fair-Poor		Remove			Tree in poor condition and on undesirable species list
50014	Black Cherry		22"	Good		Remove		1	
50015	Black Cherry	Yes	25"	Good		Remove	12.5		
50016	Red Cedar		13"	Fair		Remove		1	
50017	White Mulberry		10"	Fair		Remove			Tree is on undesirable species list
50018	Red Cedar		10"	Good		Remove		1	
50019	Red Cedar		10"	Good		Remove		1	
50020	Red Cedar	Yes	18"	Good	Cluster	Remove	9		
50021	Red Cedar		12"	Fair	Twin	Remove		1	
50022	White Mulberry		11"	Fair		Remove			Tree is on undesirable species list
50023	Red Cedar	Yes	18"	Good	Cluster	Remove	9		
50024	Red Cedar		8"	Poor		Remove			Tree in poor condition
50025	Black Cherry		14"	Fair		Remove		1	
50026	Red Cedar	Yes	18"	Good	Cluster	Remove	9		
50027	Red Cedar		15"	Fair	Cluster	Remove		1	
50028	White Mulberry		7"	Good		Remove			DBH less than 8" - no replacement
50029	Red Cedar		13"	Good		Remove		1	
50030	Black Cherry		23"	Good		Remove		1	
50031	Red Cedar	Yes	20"	Good		Remove	10		
50032	Black Cherry		10"	Good		Remove		1	
50033	Red Cedar		12"	Good		Remove		1	
50034	Black Cherry	Yes	27"	Good		Remove	13.5		
50035	Red Cedar	Yes	18"	Good		Remove	9		
50041	White Mulberry		10"	Fair		Remove			Tree is on undesirable species list
50042	Red Pine	Yes	24"	Poor	Dead	Remove	12		
50043	Siberian Elm		13"	Good		Remove			Tree is on undesirable species list
50046	Red Pine	Yes	25"	Poor		Remove	12.5		
50047	Blue Spruce	Yes	26"	Fair	Diseased	Remove	13		
50048	Red Pine		20"	Good		Remove		1	
50049	Blue Spruce		16"	Good		Remove		1	
50050	Basswood		22"	Good		Remove		1	
50051	Basswood		14"	Good					
50052	Basswood		15"	Good					
50053	Basswood		22"	Good					
50054	Basswood		10"	Good	Triple				
50055	Basswood		10"	Good	Triple				
50056	Basswood		10"	Good					
50057	Siberian Elm		8"	Good		Remove			Tree is on undesirable species list
50058	Siberian Elm		10"	Good		Remove			Tree is on undesirable species list
50059	Siberian Elm		7"	Fair		Remove			DBH less than 8" - no replacement
50060	Siberian Elm		13"	Good		Remove			Tree is on undesirable species list
50061	Siberian Elm		8"	Good		Remove			Tree is on undesirable species list
50062	Siberian Elm		9"	Fair		Remove			Tree is on undesirable species list
50063	Siberian Elm		7"	Fair		Remove			DBH less than 8" - no replacement
50064	Siberian Elm		8"	Good		Remove			Tree is on undesirable species list
50065	Siberian Elm		8"	Good		Remove			Tree is on undesirable species list
50066	Red Cedar		15"	Poor		Remove			Tree in poor condition
50067	Red Cedar		7"	Poor		Remove			DBH less than 8" - no replacement
50068	Red Cedar		9"	Poor		Remove			Tree in poor condition
50069	Siberian Elm		11"	Fair		Remove			Tree is on undesirable species list
50070	Red Pine		10"	Fair		Remove		1	
50071	Siberian Elm		22"	Good		Remove			Tree is on undesirable species list
50072	Siberian Elm		13"	Fair		Remove			Tree is on undesirable species list
50073	Red Pine		10"	Poor		Remove			Tree in poor condition
50074	White Mulberry		6"	Fair		Remove			DBH less than 8" - no replacement
50075	Siberian Elm		15"	Good		Remove			Tree is on undesirable species list
50076	Siberian Elm		16"	Good	Twin	Remove			Tree is on undesirable species list
50077	Hornbeam		7"	Good		Remove			DBH less than 8" - no replacement
50078	Red Pine		13"	Fair		Remove		1	
50079	Siberian Elm		10"	Fair	Twin	Remove			Tree is on undesirable species list
50080	White Mulberry		11"	Good		Remove			Tree is on undesirable species list
50081	Red Pine		12"	Poor		Remove			Tree in poor condition
50082	Hornbeam		9"	Good		Remove		1	
50083	Siberian Elm		22"	Good	Cluster	Remove			Tree is on undesirable species list
50084	Hornbeam		8"	Good		Remove		1	
50085	Hornbeam		9"	Good		Remove		1	
50086	Hornbeam		7"	Good		Remove			DBH less than 8" - no replacement
50087	Hornbeam		7"	Good		Remove			DBH less than 8" - no replacement
50088	Hornbeam		8"	Good		Remove		1	
50089	Hornbeam		10"	Good		Remove		1	
50090	Red Pine		12"	Fair		Remove		1	
50091	Red Pine		12"	Fair		Remove		1	
50092	Red Pine		13"	Fair		Remove		1	
50093	Red Pine		8"	Fair		Remove		1	
50094	Red Pine		8"	Fair		Remove		1	
50095	Blue Spruce		10"	Good					
50096	Blue Spruce		10"	Good					
50097	Blue Spruce		8"	Good					
50098	Blue Spruce		9"	Good					
50099	Blue Spruce		9"	Good					
50100	Blue Spruce		9"	Good					
50101	Blue Spruce		10"	Good					
50102	Blue Spruce		9"	Good					
50103	Blue Spruce		9"	Good					
50104	Blue Spruce		8"	Good					
50105	Red Pine		10"	Fair					
50106	Siberian Elm		7"	Poor		Remove			DBH less than 8" - no replacement
50107	Honey Locust		10"	Poor		Remove			Tree in poor condition
50108	Honey Locust		10"	Fair					
50109	Red Pine		11"	Fair					
50110	Red Pine		18"	Fair					
50111	Red Pine		21"	Good					
50112	Red Pine		14"	Good					
50113	Red Pine		18"	Good					
50114	Red Pine		18"	Good					
50116	Siberian Elm		12"	Good	Triple	Remove			Tree is on undesirable species list
50117	Siberian Elm		11"	Good		Remove			Tree is on undesirable species list
50118	Red Pine		17"	Good					
50119	Red Pine		16"	Good					
50120	Red Pine		9"	Fair					
50121	Siberian Elm		12"	Good					
50122	Red Pine		10"	Fair					
50123	Red Oak		7"	Good					DBH less than 8" - no replacement
50124	Red Pine		6"	Good		Remove			DBH less than 8" - no replacement
50125	Red Pine		7"	Good		Remove			DBH less than 8" - no replacement
50126	Red Pine		7"	Good		Remove			DBH less than 8" - no replacement
50127	Red Oak		6"	Good					DBH less than 8" - no replacement
50128	Red Oak		9"	Good		Remove		1	
50129	Red Pine		6"	Fair		Remove			DBH less than 8" - no replacement
50130	Red Pine		6"	Fair		Remove			DBH less than 8" - no replacement
50131	Red Pine		6"	Fair		Remove			DBH less than 8" - no replacement
50132	Red Pine		6"	Fair		Remove			DBH less than 8" - no replacement
50133	Red Pine		11"	Poor					
50134	Red Pine		19"	Poor					
50136	Basswood		10"	Good					
50137	Red Pine		8"	Good					
50138	White Pine		6"	Good					DBH less than 8" - no replacement
50139	Red Pine		6"	Good					DBH less than 8" - no replacement
50140	White Pine		10"	Good					
50141	White Pine		16"	Good					
50142	Red Oak		10"	Good					
50143	Red Pine		10"	Fair					
50144	Basswood		7"	Fair					DBH less than 8" - no replacement
50145	White Pine		10"	Good					
50146	White Pine		8"	Good					
50147	Red Pine		12"	Good					
50148	Red Pine		14"	Good					
50149	White Pine		8"	Fair					
50150	White Pine		12"	Good					
50151	Red Pine		12"	Fair					
50152	White Pine		14"	Good					
50153	White Pine		8"	Fair					
50154	Red Pine		8"	Fair					
50155	Basswood		9"	Good					
50156	Siberian Elm		13"	Good					
50157	Siberian Elm		11"	Good					
50158	Red Oak		6"	Good					DBH less than 8" - no replacement
50159	Red Oak		10"	Good					
50160	Red Pine		13"	Poor					
50161	Red Pine		16"	Good					
50162	Red Pine		11"	Good					
50163	Basswood		10"	Good					
50164	Basswood		7"	Fair					DBH less than 8" - no replacement
50165	Red Oak		7"	Good					DBH less than 8" - no replacement
50166	Red Oak		6"	Good					DBH less than 8" - no replacement
50167	Red Pine		12"	Fair					
50168	Red Oak		9"	Good					
50169	Red Oak		6"	Good					DBH less than 8" - no replacement
50170	Red Oak		6"	Good					DBH less than 8" - no replacement
50171	Red Oak		7"	Good					DBH less than 8" - no replacement
50172	Red Oak		6"	Good					DBH less than 8" - no replacement
50173	Red Oak		6"	Good					DBH less than 8" - no replacement
50174	White Pine		16"	Good					
50175	Siberian Elm		8"	Good					
50176	White Pine		20"	Good					
50177	Red Pine		20"	Good					
50178	Red Pine		19"	Good					
50179	Red Pine		11"	Good					
50180	Red Pine		12"	Good					
50181	Red Pine		9"	Poor					
50182	Red Pine		10"	Good					
50183	Red Pine		18"	Good					
50184	Red Pine		17"	Good					
50185	Bradford Pear		8"	Good					
50186	Bradford Pear		7"	Good					DBH less than 8" - no replacement
50187	Bradford Pear		8"	Good					
50188	Bradford Pear		8"	Good					
50189	Bradford Pear		8"	Good					
50190	Bradford Pear		8"	Good					
50191	Norway Maple		9"	Good					
50192	Blue Spruce		11"	Good					
50193	Blue Spruce		9"	Good					
50194	Blue Spruce		8"	Good					
50195	Blue Spruce		9"	Good					
50196	Blue Spruce		9"	Good					
50197	Blue Spruce		9"	Good					
50198	Honey Locust	Yes	25"	Fair					
50199	Red Pine		10"	Fair					
50200	Box Elder		10"	Fair		Remove			
50201	Red Pine		13"	Poor		Remove			Tree in poor condition
50202	Red Pine		10"	Poor		Remove			Tree in poor condition
50203	Red Pine		12"	Fair-Poor		Remove			Tree in poor condition
50204	Red Pine		11"	Poor		Remove			Tree in poor condition
50205	Red Pine		13"	Poor		Remove			Tree in poor condition
50206	Red Pine		12"	Fair-Poor		Remove			Tree in poor condition

122" DBH	36 Trees
Total Landmark Replacement DBH Required	Total General Replacement Trees Required

All calculations for replacement trees shown on sheet L2.0

36 replacement trees required at 2" DBH minimum
122" DBH replacement trees required for landmark trees

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NORTH ARROW AND SCALE

SEAL AND SIGNATURES

STATE OF MICHIGAN
JOSEPH COGSWELL
LANDSCAPE ARCHITECT
No. 3901046998
LICENSED LANDSCAPE ARCHITECT
Expiration: 7/25/26

COSTCO WHOLESALE
PARKING EXPANSION
WHITMORE LAKE ROAD
GREEN OAK TOWNSHIP, MI

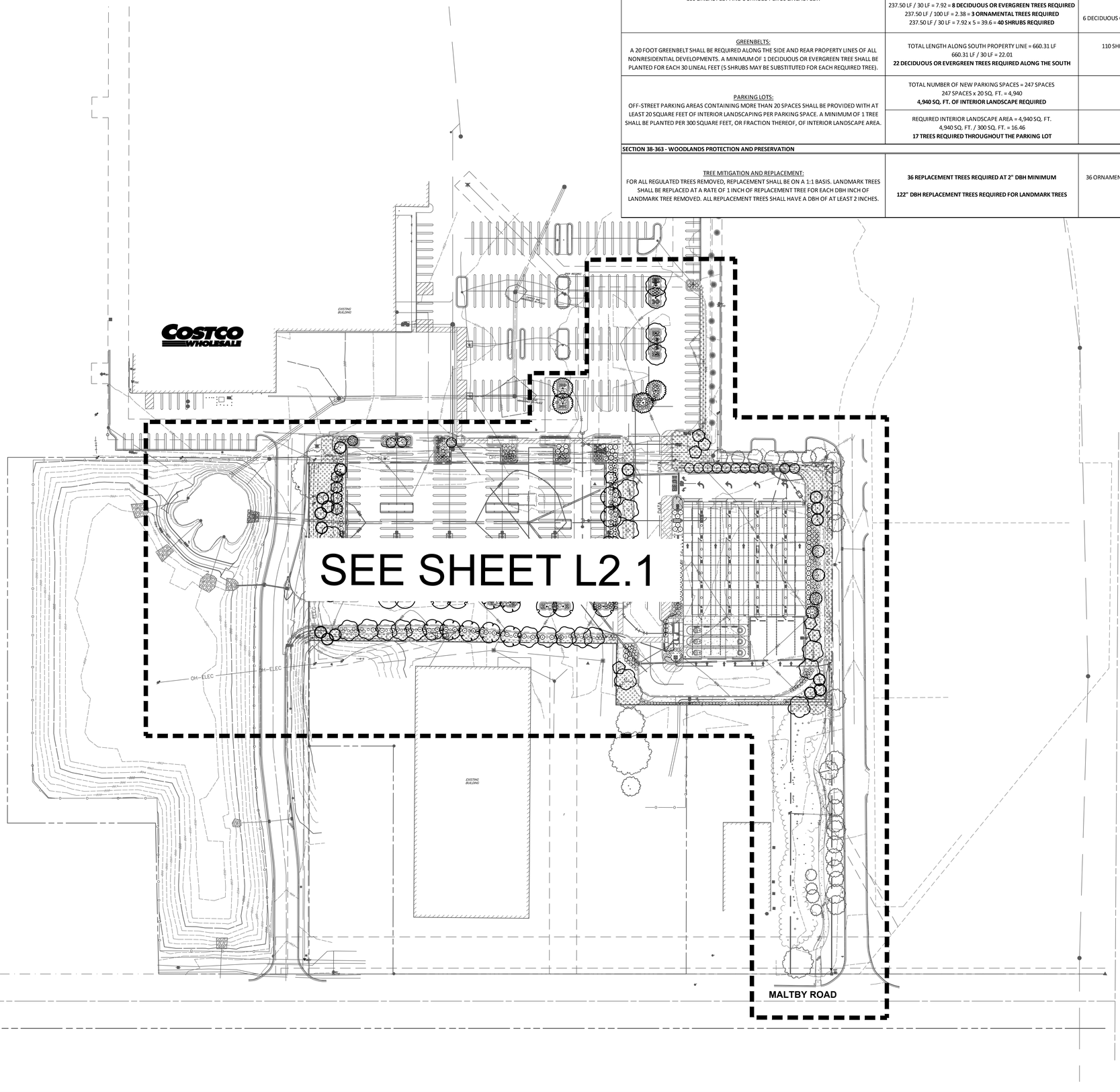
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L1.1
TREE PRESERVATION TABLE

AS INDICATED

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GREEN OAK TOWNSHIP, MI - LANDSCAPE CODE REQUIREMENTS		
ZONING ORDINANCE	**REQUIRED**	**PROPOSED**
SECTION 38-177 - LANDSCAPING AND SCREENING		
LANDSCAPING ADJACENT TO ROAD: WHERE REQUIRED, LANDSCAPING ADJACENT TO PUBLIC AND PRIVATE ROADS SHALL COMPLY WITH THE FOLLOWING: 1 DECIDUOUS OR EVERGREEN TREE PER 30 LINEAL FEET, 1 ORNAMENTAL TREE PER 100 LINEAL FEET AND 5 SHRUBS PER 30 LINEAL FEET.	TOTAL LENGTH ALONG EASTERN PROPERTY LINE = 612.50 LF 612.50 LF / 30 LF = 20.4 = **21 DECIDUOUS OR EVERGREEN TREES REQUIRED** 612.50 LF / 100 LF = 6.125 = **7 ORNAMENTAL TREES REQUIRED** 612.50 LF / 30 LF = 20.42 x 5 = 102.1 = **102 SHRUBS REQUIRED**	*53 EXISTING TREES TO REMAIN ALONG THE EAST PROPERTY LINE (ONLY TREES WITHIN PROPERTY LIMITS)* 7 ORNAMENTAL TREES AND 102 SHRUBS PROVIDED ALONG THE EAST PROPERTY LINE
	TOTAL LENGTH ALONG WEST PROPERTY LINE = 237.50 LF 237.50 LF / 30 LF = 7.92 = **8 DECIDUOUS OR EVERGREEN TREES REQUIRED** 237.50 LF / 100 LF = 2.38 = **3 ORNAMENTAL TREES REQUIRED** 237.50 LF / 30 LF = 7.92 x 5 = 39.6 = **40 SHRUBS REQUIRED**	*2 EXISTING TREES TO REMAIN ALONG THE WEST PROPERTY LINE* 6 DECIDUOUS COLUMNAR TREES, 3 ORNAMENTAL TREES AND 40 SHRUBS PROVIDED ALONG THE WEST PROPERTY LINE
GREENBELTS: A 20 FOOT GREENBELT SHALL BE REQUIRED ALONG THE SIDE AND REAR PROPERTY LINES OF ALL NONRESIDENTIAL DEVELOPMENTS. A MINIMUM OF 1 DECIDUOUS OR EVERGREEN TREE SHALL BE PLANTED FOR EACH 30 LINEAL FEET (5 SHRUBS MAY BE SUBSTITUTED FOR EACH REQUIRED TREE).	TOTAL LENGTH ALONG SOUTH PROPERTY LINE = 660.31 LF 660.31 LF / 30 LF = 22.01 **22 DECIDUOUS OR EVERGREEN TREES REQUIRED ALONG THE SOUTH**	110 SHRUBS PROVIDED ALONG SOUTH PROPERTY LINE IN LIEU OF 22 DECIDUOUS OR EVERGREEN TREES 20 FT GREENBELT DEVIATION REQUIRED
PARKING LOTS: OFF-STREET PARKING AREAS CONTAINING MORE THAN 20 SPACES SHALL BE PROVIDED WITH AT LEAST 20 SQUARE FEET OF INTERIOR LANDSCAPING PER PARKING SPACE. A MINIMUM OF 1 TREE SHALL BE PLANTED PER 300 SQUARE FEET, OR FRACTION THEREOF, OF INTERIOR LANDSCAPE AREA.	TOTAL NUMBER OF NEW PARKING SPACES = 247 SPACES 247 SPACES x 20 SQ. FT. = 4,940 **4,940 SQ. FT. OF INTERIOR LANDSCAPE REQUIRED**	8,671.11 SQ. FT. OF INTERIOR LANDSCAPE PROVIDED THROUGHOUT THE PARKING LOT
	REQUIRED INTERIOR LANDSCAPE AREA = 4,940 SQ. FT. 4,940 SQ. FT. / 300 SQ. FT. = 16.46 **17 TREES REQUIRED THROUGHOUT THE PARKING LOT**	17 DECIDUOUS TREES PROVIDED THROUGHOUT THE PARKING LOT
SECTION 38-363 - WOODLANDS PROTECTION AND PRESERVATION		
TREE MITIGATION AND REPLACEMENT: FOR ALL REGULATED TREES REMOVED, REPLACEMENT SHALL BE ON A 1:1 BASIS. LANDMARK TREES SHALL BE REPLACED AT A RATE OF 1 INCH OF REPLACEMENT TREE FOR EACH DBH INCH OF LANDMARK TREE REMOVED. ALL REPLACEMENT TREES SHALL HAVE A DBH OF AT LEAST 2 INCHES.	**36 REPLACEMENT TREES REQUIRED AT 2" DBH MINIMUM** **122" DBH REPLACEMENT TREES REQUIRED FOR LANDMARK TREES**	36 ORNAMENTAL TREES AT 2" DBH PROPOSED (PLACED IN LIEU OF CANOPY TREES DUE TO POWER LINE CONFLICTS) 35 DECIDUOUS TREE REPLACEMENTS AT 3.5" DBH PROPOSED (TOTAL = 122.5" DBH)



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NORTH ARROW AND SCALE

NORTH

GRAPHIC SCALE IN FEET
0 25 50 100

SEAL AND SIGNATURES

STATE OF MICHIGAN
JOSEPH COGSWELL
LANDSCAPE ARCHITECT
No. 3901046098
LICENSED LANDSCAPE ARCHITECT

Expiration: 7/25/26

COSTCO WHOLESALE
PARKING EXPANSION
WHITMORE LAKE ROAD
GREEN OAK TOWNSHIP, MI

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L2.0
OVERALL LANDSCAPE PLAN

AS INDICATED

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EXISTING TREES AND LANDSCAPE ISLANDS TO REMAIN, OUTSIDE OF PROJECT AREA. IF DISTURBED, CONTRACTOR TO REPLACE IN KIND.

EXISTING LANDSCAPE TO REMAIN. IF DISTURBED CONTRACTOR TO REPLACE IN KIND

TURF SOD TO ALL DISTURBED AREAS, TYP.

EXISTING TREES TO REMAIN, SEE SHEET L1.0 FOR TREE PRESERVATION PLAN

TURF SOD TO ALL DISTURBED AREAS, TYP.

EXISTING TREES TO REMAIN, SEE SHEET L1.0 FOR TREE PRESERVATION PLAN

LANDSCAPE BED EDGE, TYP.

CONTRACTOR SHALL SEED TO LIMITS OF DISTURBANCE, MATCH EXISTING

EXISTING TREES TO REMAIN, SEE SHEET L1.0 FOR TREE PRESERVATION PLAN

TURF SOD TO ALL DISTURBED AREAS, TYP.

EXISTING TREES TO REMAIN, SEE SHEET L1.0 FOR TREE PRESERVATION PLAN

TURF SOD TO ALL DISTURBED AREAS, TYP.

EXISTING BUILDING

EXISTING BUILDING

F.F.E. = 902.45

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NORTH ARROW AND SCALE

NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

SEAL AND SIGNATURES

STATE OF MICHIGAN
JOSEPH COGSWELL
LANDSCAPE ARCHITECT
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L2.1

LANDSCAPE PLAN

AS INDICATED

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PLANT SCHEDULE

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	CONT	CAL / INSTALL SIZE	MATURE HT.	MATURE SP.	OTHER
TREES								
	AB	2	ACER X FREEMANII 'JEFFERSRED' / AUTUMN BLAZE® FREEMAN MAPLE	B & B	2.5" CAL. MIN	40` - 55` HT.	30` - 40` SP.	
	AF	4	ACER RUBRUM 'FRANK JR.' / REDPOINTE® MAPLE	B & B	2.5" CAL. MIN	45` HT.	30` SP.	
	AG	5	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE' / AUTUMN BRILLIANCE APPLE SERVICEBERRY ORNAMENTAL TREE	B & B	1.5" CAL. MIN	25` - 35` HT.	20` SP.	SINGLE STEM
	AO	4	ACER RUBRUM 'JFS-KW78' / ARMSTRONG GOLD® MAPLE COLUMNAR TREE	B & B	2.5" CAL. MIN	35` - 45` HT.	8` - 12` SP.	
	CO	4	CELTIS OCCIDENTALIS / COMMON HACKBERRY	B & B	2.5" CAL. MIN	40` - 60` HT.	40` - 60` SP.	
	MJ	5	MALUS X 'JEWELCOLE' / RED JEWEL™ CRABAPPLE ORNAMENTAL TREE	B & B	1.5" CAL. MIN	15` - 20` HT.	10` - 15` SP.	SINGLE STEM
	QA	2	QUERCUS ALBA / WHITE OAK	B & B	2.5" CAL. MIN	50` - 80` HT.	50` - 80` SP.	
	QR	2	QUERCUS ROBUR X ALBA 'CRIMSON SPIRE' / CRIMSON SPIRE OAK COLUMNAR TREE	B & B	2.5" CAL. MIN	35` - 45` HT.	10` - 15` SP.	
	UP	5	ULMUS AMERICANA 'PRINCETON' / PRINCETON AMERICAN ELM	B & B	2.5" CAL. MIN	60` HT.	50` SP.	
REPLACEMENT TREES								
	AB3	6	ACER SACCHARUM 'BARRETT COLE' / APOLLO® SUGAR MAPLE COLUMNAR TREE	B & B	3.5" DBH MIN	35` HT.	8` - 10` SP.	
	CC	11	CERCIS CANADENSIS / EASTERN REDBUD ORNAMENTAL TREE	B & B	2" DBH MIN	20` HT.	25` - 35` SP.	SINGLE STEM
	GY	6	GYMNOCLADUS DIOICA 'ESPRESSO' / KENTUCKY COFFEETREE	B & B	3.5" DBH MIN	50` HT.	30` SP.	
	MA2	9	MALUS X 'ADIRONDACK' / ADIRONDACK CRABAPPLE ORNAMENTAL TREE	B & B	2" DBH MIN	12` - 18` HT.	8` - 10` SP.	SINGLE STEM
	QA3	11	QUERCUS ROBUR X ALBA 'CRIMSON SPIRE' / CRIMSON SPIRE OAK COLUMNAR TREE	B & B	2" DBH MIN	35` - 45` HT.	10` - 15` SP.	
	QB2	16	QUERCUS BICOLOR / SWAMP WHITE OAK	B & B	3.5" DBH MIN	45` HT.	45` SP.	
	SI	5	SYRINGA RETICULATA 'IVORY SILK' / IVORY SILK JAPANESE TREE LILAC ORNAMENTAL TREE	B & B	2" DBH MIN	20` - 25` HT.	15` - 20` SP.	SINGLE STEM
	TM2	7	TILIA AMERICANA `MCKSENTRY` / SENTRY LINDEN	B & B	3.5" DBH MIN	40` - 45` HT.	25` - 30` SP.	

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	CONT	SPACING	INSTALL SIZE	MATURE HT.	MATURE SP.
SHRUBS								
	AL	88	ARONIA MELANOCARPA 'UCONNAM165' TM / LOW SCAPE MOUND BLACK CHOKEBERRY	-	SEE PLAN	6" HT. MIN.	18" - 24" HT.	18" - 24" SP.
	CI	42	CORNUS ALBA 'BAILHALO' / IVORY HALO® TATARIAN DOGWOOD	-	SEE PLAN	24" HT. MIN.	4` - 6` HT.	4` - 6` SP.
	CS	36	CEPHALANTHUS OCCIDENTALIS 'SMCOSS' / SUGAR SHACK® BUTTONBUSH	-	SEE PLAN	24" HT. MIN.	3` - 4` HT.	3` - 4` SP.
	DL	48	DIERVILLA SESSILIFOLIA 'LPDC PODARAS' / COOL SPLASH® DWARF BUSH HONEYSUCKLE	-	SEE PLAN	12" HT. MIN.	2` - 3` HT.	3` - 4` SP.
	DM	26	PHYSOCARPUS OPULIFOLIUS 'DONNA MAY' TM / LITTLE DEVIL DWARF NINEBARK	-	SEE PLAN	24" HT. MIN.	3` - 4` HT.	3` - 4` SP.
	DX	54	DEUTZIA X 'NCDX1' / YUKI SNOWFLAKE® DEUTZIA	-	SEE PLAN	6" HT. MIN.	18" - 24" HT.	18" - 24" SP.
	FN	53	FORSYTHIA X INTERMEDIA 'NIMBUS' / SHOW OFF® SUGAR BABY® DWARF FORSYTHIA	-	SEE PLAN	6" HT. MIN.	18" - 24" HT.	2` - 3` SP.
	HS	60	DIERVILLA X SPLENDENS 'EL MADRIGAL' / FIREFLY NIGHTGLOW BUSH HONEYSUCKLE	-	SEE PLAN	12" HT. MIN.	2` - 3` HT.	2` - 3` SP.
	PJ	54	POTENTILLA FRUTICOSA `JACKMANII` / JACKMAN`S BUSH CINQUEFOIL	-	SEE PLAN	24" HT. MIN.	3` - 4` HT.	3` - 4` SP.
	PS2	27	PHYSOCARPUS OPULIFOLIUS 'SEWARD' / SUMMER WINE NINEBARK	-	SEE PLAN	24" HT. MIN.	4` - 6` HT.	4` - 6` SP.
	PX	37	DIERVILLA X 'G2X885411' / KODIAK® RED DIERVILLA	-	SEE PLAN	24" HT. MIN.	3` - 4` HT.	3` - 4` SP.
	SF	31	SPIRAEA JAPONICA 'NEON FLASH' / NEON FLASH JAPANESE SPIREA	-	SEE PLAN	12" HT. MIN.	2` - 3` HT.	3` - 4` SP.
	SM	30	SPIRAEA JAPONICA 'WALBUMA' / MAGIC CARPET JAPANESE SPIREA	-	SEE PLAN	6" HT. MIN.	12" - 18" HT.	2` - 3` SP.
	VA	44	VIBURNUM DENTATUM 'CHRISTOM' TM / BLUE MUFFIN ARROWWOOD VIBURNUM	-	SEE PLAN	24" HT. MIN.	4` - 6` HT.	4` - 6` SP.
	WB	75	WEIGELA FLORIDA 'BRAMWELL' TM / FINE WINE WEIGELA	-	SEE PLAN	24" HT. MIN.	3` - 4` HT.	3` - 4` HT.
	WS	40	WEIGELA FLORIDA 'BOKRASPIWI' / SPILLED WINE® WEIGELA	-	SEE PLAN	6" HT. MIN.	18" - 24" HT.	2` - 3` SP.
	WV	22	WEIGELA FLORIDA 'VERWEIG' / MY MONET® WEIGELA	-	SEE PLAN	6" HT. MIN.	12" - 18" HT.	2` - 3` SP.
EVERGREEN SHRUBS								
	JF	34	JUNIPERUS CHINENSIS 'SEA GREEN' / SEA GREEN JUNIPER	-	SEE PLAN	24" HT. MIN.	4` - 6` HT.	6` - 8` SP.
	TT	38	TAXUS X MEDIA 'TAUNTONII' / TAUNTON YEW	-	SEE PLAN	24" SP. MIN.	3` - 4` HT.	4` - 6` SP.

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	CONT	SPACING	MATURE HT.
SHRUB AREAS						
	AB2	62	AMSONIA X 'BLUE ICE' / BLUE ICE BLUESTAR	1 GAL	24" OC	12" - 18" HT.
	AS4	46	ALLIUM X 'SUMMER BEAUTY' / SUMMER BEAUTY ORNAMENTAL ONION	1 GAL	24" OC	12" - 18" HT.
	RH	108	RUDBECKIA HIRTA / BLACK-EYED SUSAN	1 GAL	24" OC	24" - 36" HT.

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME
GROUND COVERS			
			TURF SOD

NOTE: SMALL SHRUBS (AL, DL, DX, FN, HS, SF, SM, WS, WV) LISTED AT 6-12" AT INSTALL ARE LOCATED AT ENDS OF PARKING LOT ISLANDS OR IN AREAS THAT ARE ABOVE CODE MINIMUM REQUIREMENTS. ALL OTHER SHRUBS COMPLY WITH CODE MINIMUM STANDARDS.

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NORTH ARROW AND SCALE

SEAL AND SIGNATURES

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L2.2

LANDSCAPE PLANT SCHEDULE

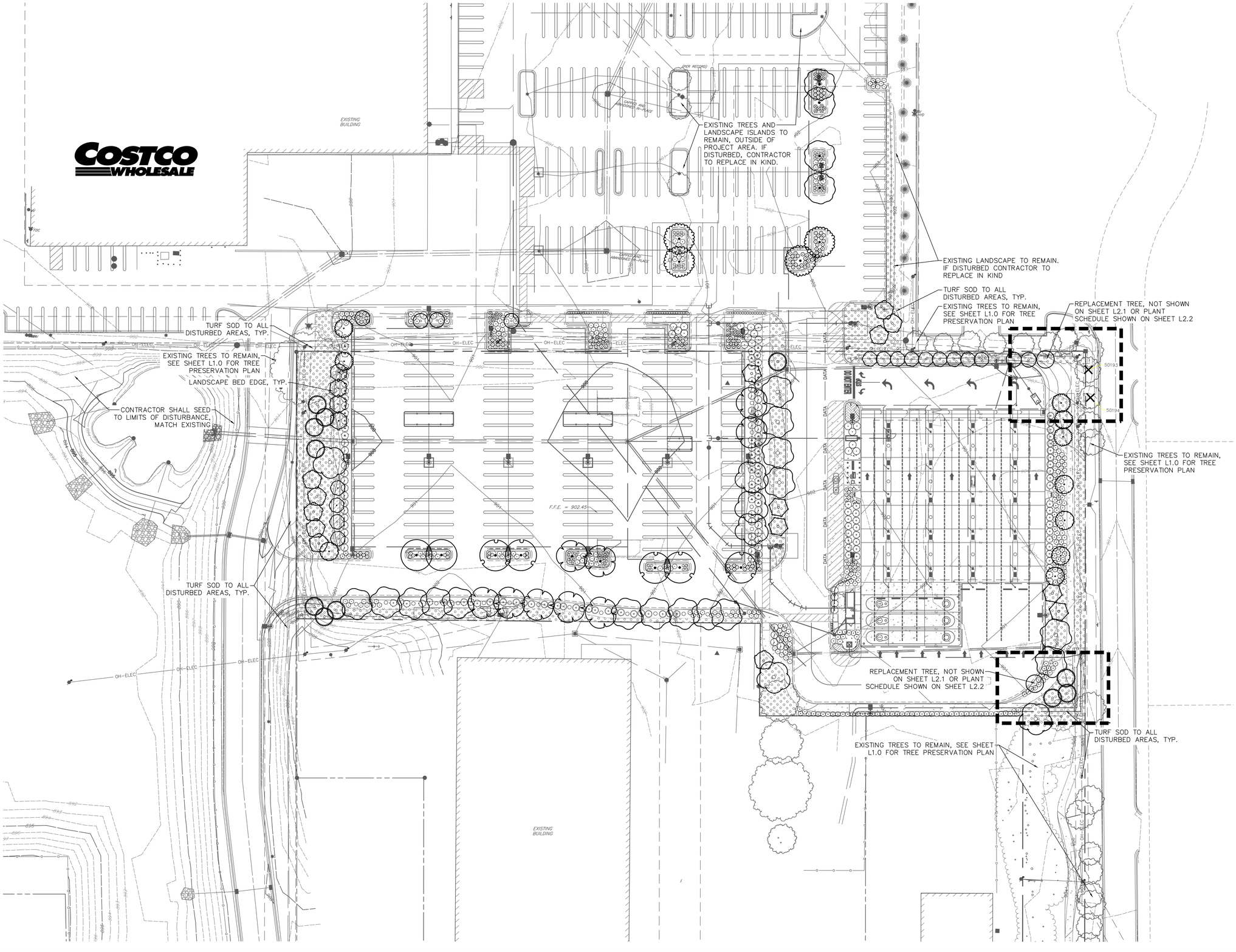
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THIS EXHIBIT SHOWS ACCESS DRIVE CONDITION ALONG THE EAST SIDE OF THE SIDE ADJACENT TO FUEL. SEE DARK DASHED BOXES FOR IMPACTED AREAS. CONTAINS ADDITIONAL TREE REMOVAL NOT SHOWN ON SHEET L1.0 AND L1.1. CONTAINS ADDITIONAL TREES TO ACCOUNT FOR REMOVED TREES, NOT SHOWN ON SHEET L2.1 OR PLANT SCHEDULE SHOWN ON SHEET L2.2.

ACCESS DRIVE WILL DEMO EXISTING TREES 50193 (BLUE SPRUCE, 9") & 50194 (BLUE SPRUCE, 8") - 2 ADDITIONAL REPLACEMENT TREES AT 2" DBH REQUIRED TO BE PROVIDED ONSITE (SEE RED CIRCLES ON PLAN BELOW)

SEE SHEET L2.1 FOR OVERALL LANDSCAPE PLAN AND PLANT SPECIES LABELS.



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NORTH ARROW AND SCALE

NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

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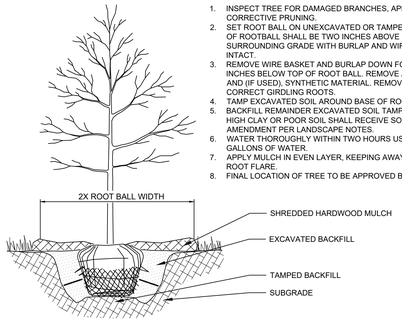
L2.3
LANDSCAPE PLAN ALTERNATE - ACCESS DRIVE

AS INDICATED

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NOTES:

1. INSPECT TREE FOR DAMAGED BRANCHES, APPLY CORRECTIVE PRUNING.
2. SET ROOT BALL ON UNEXCAVATED OR TAMPED SOIL. TOP OF ROOTBALL SHALL BE TWO INCHES ABOVE SURROUNDING GRADE WITH BURLAP AND WIRE BASKET INTACT.
3. REMOVE WIRE BASKET AND BURLAP DOWN FOUR TO SIX INCHES BELOW TOP OF ROOT BALL. REMOVE ALL TWINE AND (IF USED), SYNTHETIC MATERIAL. REMOVE OR CORRECT GIRDLING ROOTS.
4. TAMP EXCAVATED SOIL AROUND BASE OF ROOTBALL.
5. BACKFILL REMAINDER EXCAVATED SOIL TAMPED LIGHTLY. HIGH CLAY OR POOR SOIL SHALL RECEIVE SOIL AMENDMENT PER LANDSCAPE NOTES.
6. WATER THOROUGHLY WITHIN TWO HOURS USING 10 TO 15 GALLONS OF WATER.
7. APPLY MULCH IN EVEN LAYER, KEEPING AWAY FROM ROOT FLARE.
8. FINAL LOCATION OF TREE TO BE APPROVED BY OWNER.

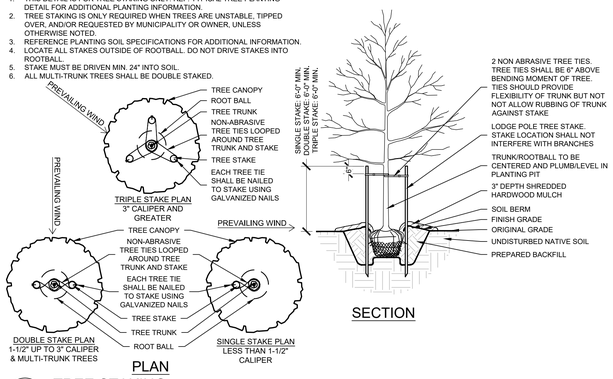


1 TREE PLANTING

NTS

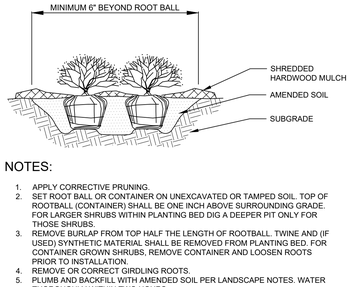
NOTES:

1. THIS DETAIL IS FOR TREE STAKING ONLY. REF. TYPICAL TREE PLANTING DETAIL FOR ADDITIONAL PLANTING INFORMATION.
2. TREE STAKING IS ONLY REQUIRED WHEN TREES ARE UNSTABLE, TIPPED OVER, AND/OR REQUESTED BY MUNICIPALITY OR OWNER, UNLESS OTHERWISE NOTED.
3. REFERENCE PLANTING SOIL SPECIFICATIONS FOR ADDITIONAL INFORMATION.
4. LOCATE ALL STAKES OUTSIDE OF ROOTBALL. DO NOT DRIVE STAKES INTO ROOTBALL.
5. STAKE MUST BE DRIVEN MIN. 24" INTO SOIL.
6. ALL MULTI-TRUNK TREES SHALL BE DOUBLE STAKED.



2 TREE STAKING

N.T.S.



NOTES:

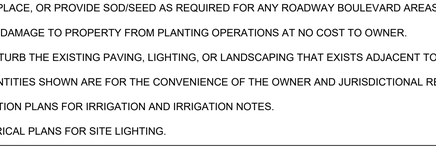
1. APPLY CORRECTIVE PRUNING.
2. SET ROOT BALL OR CONTAINER ON UNEXCAVATED OR TAMPED SOIL. TOP OF ROOTBALL (CONTAINER) SHALL BE ONE INCH ABOVE SURROUNDING GRADE. FOR LARGER SHRUBS WITHIN PLANTING BED DIG A DEEPER PIT ONLY FOR THOSE SHRUBS.
3. REMOVE BURLAP FROM TOP HALF THE LENGTH OF ROOTBALL. TWINE AND (IF USED) SYNTHETIC MATERIAL SHALL BE REMOVED FROM PLANTING BED. FOR CONTAINER GROWN SHRUBS, REMOVE CONTAINER AND LOOSEN ROOTS PRIOR TO INSTALLATION.
4. REMOVE OR CORRECT GIRDLING ROOTS.
5. PLUMB AND BACKFILL WITH AMENDED SOIL PER LANDSCAPE NOTES. WATER THOROUGHLY WITHIN TWO HOURS.
6. APPLY MULCH IN EVEN LAYER, KEEPING AWAY FROM ROOT FLARE. MULCH LIMITS FOR SHRUBS EXTEND TO ALL LIMITS OF PLANTING BED, SEE PLANS FOR BED LAYOUTS.

4 SHRUB PLANTING

NTS

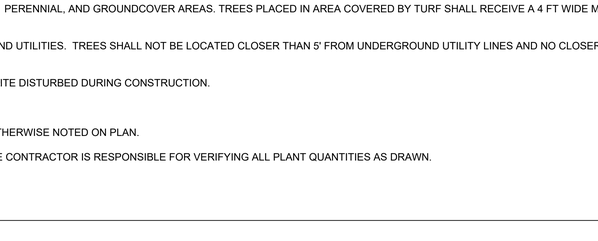
NOTES:

1. EXCAVATE PLANTING BED.
2. BED HEIGHT IS TO BE 2" ABOVE FINISH GRADE AND WELL DRAINED.
3. REMOVE CONTAINER, SCORE SOIL MASS TO REDIRECT AND PREVENT CIRCLING ROOTS. CORRECT GIRDLING ROOTS.
2. PLANT MATERIAL SHALL BE LAID OUT BY FOLLOWING THE BED EDGE, WORKING TOWARDS THE CENTER OF THE BED USING TRANGULAR (STAGGERED) SPACING AS PLAUSIBLE.
3. PLUMB AND BACKFILL WITH PLANTING MIX AS SPECIFIED IN LANDSCAPE NOTES.
4. APPLY MULCH IN EVEN LAYER, KEEPING AWAY FROM ROOT FLARE. MULCH LIMITS FOR PERENNIALS/GROUNDCOVER EXTEND TO ALL LIMITS OF PLANTING BED, SEE PLANS FOR BED LAYOUTS.
5. SPACING TO BE AS SPECIFIED IN THE PLANT LIST. PERENNIALS SHALL BE PLACED WITH THEIR CENTER 24" FROM EDGE OF BED.



5 PERENNIAL PLANTING

NTS



4 BED EDGE

N.T.S.

GREEN OAK TOWNSHIP - SECTION 38-177(d)-3

PLANT MATERIAL SPECIFICATIONS. THE FOLLOWING SPECIFICATIONS SHALL APPLY TO ALL PLANT MATERIAL PROPOSED IN ACCORDANCE WITH THE LANDSCAPING REQUIREMENTS OF THIS SECTION:

A. DECIDUOUS SHADE TREES SHALL BE A MINIMUM OF 2 ½ INCHES IN CALIPER WHEN MEASURED 6 INCHES ABOVEGRADE, AND THE FIRST BRANCH SHALL BE A MINIMUM OF 4 FEET ABOVEGRADE WHEN PLANTED.
B. DECIDUOUS ORNAMENTAL TREES SHALL BE A MINIMUM OF 1 ½ INCHES IN CALIPER WHEN MEASURED 6 INCHES ABOVEGRADE, AND SHALL HAVE A MINIMUM HEIGHT OF 4 FEET ABOVEGRADE WHEN PLANTED.
C. EVERGREEN TREES SHALL BE A MINIMUM OF 6 FEET IN HEIGHT WHEN PLANTED AND SHALL HAVE A MINIMUM SPREAD OF 2 ½ FEET. THE SIZE OF THE BURLAPPED ROOT BALL SHALL BE AT LEAST 10 TIMES THE CALIPER MEASURED 6 INCHES ABOVEGRADE.
D. SHRUBS SHALL BE A MINIMUM OF 2 FEET IN HEIGHT WHEN PLANTED. LOW GROWING SHRUBS SHALL HAVE A MINIMUM SPREAD OF 24 INCHES WHEN PLANTED.
E. HEDGES SHALL BE PLANTED AND MAINTAINED SO AS TO FORM A CONTINUOUS, UNBROKEN VISUAL SCREEN WITHIN 2 YEARS AFTER PLANTING, BARRING UNUSUAL GROWING CONDITIONS SUCH AS DROUGHT AND DISEASE. HEDGES SHALL BE A MINIMUM OF 2 FEET IN HEIGHT WHEN PLANTED.

Summary of Plant Material Specifications[1]

	Minimum Caliper	*Minimum Height*	*Minimum Spread*
Deciduous Trees	2½ inches[2]	4 feet (first branch)	--
Ornamental Trees	1½ inches[2]	4 feet (first branch)	--
Evergreen Trees	--	6 feet	2½ feet
Shrubs	--	2 feet	2 feet
Hedges	--	2 feet	--

LANDSCAPE NOTES

SPECIFICATIONS SHALL SUPERCEDE LANDSCAPE NOTES.

1. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING MATERIALS AND PLANTS SHOWN ON THE LANDSCAPE PLAN. THE CONTRACTOR IS RESPONSIBLE FOR THE COST TO REPAIR UTILITIES, ADJACENT LANDSCAPE, PUBLIC AND PRIVATE PROPERTY THAT IS DAMAGED BY THE CONTRACTOR OR THEIR SUBCONTRACTOR'S OPERATIONS DURING INSTALLATION OR DURING THE SPECIFIED MAINTENANCE PERIOD. CALL FOR UTILITY LOCATIONS PRIOR TO ANY EXCAVATION.
2. THE CONTRACTOR SHALL REPORT ANY DISCREPANCY IN PLAN VS. FIELD CONDITIONS IMMEDIATELY TO THE LANDSCAPE ARCHITECT, PRIOR TO CONTINUING WITH THAT PORTION OF WORK. ACTUAL LOCATION OF PLANT MATERIAL IS SUBJECT TO FIELD AND SITE CONDITIONS.
3. NO PLANTING WILL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY OF THEIR TRENCHES OR EXCAVATIONS THAT SETTLE.
5. CONFORM TO AMERICAN ASSOCIATION OF NURSERYMEN'S SPECIFICATIONS TRUE TO NAME. PLANTS TO BE FIRST QUALITY, WELL FOLIATED WITH WELL-DEVELOPED ROOT SYSTEMS AND A NORMAL, WELL-SHAPED TRUNK AND LEADER, LIMBS, STEMS AND A HEAD. PLANTS DEEMED UNSUITABLE MAY BE REJECTED BEFORE OR AFTER DELIVERY. PLANT MATERIAL IS REQUIRED TO BE FREE OF EVIDENCE OF DISEASE, INSECTS, INSECT EGGS, AND LARVAE. OVERSIZE PLANTS MAY BE USED WITH APPROVAL, BUT AT NO INCREASE IN PRICE. BALLS THAT ARE CRACKED, BROKEN OR DRY TO THE CENTER WILL BE REJECTED.
6. THE OWNER'S REPRESENTATIVE MAY REJECT ANY PLANT MATERIALS THAT ARE DISEASED, DEFORMED, OR OTHERWISE NOT EXHIBITING SUPERIOR QUALITY.
7. GUARANTEE TREES, SHRUBS AND GROUND COVER FOR A PERIOD OF ONE YEAR AFTER DATE OF ACCEPTANCE AGAINST DEFECTS INCLUDING DEATH AND UNSATISFACTORY GROWTH, EXCEPT FOR DEFECTS RESULTING FROM NEGLECT BY OWNER, ABUSE OR DAMAGE BY OTHERS, OR UNUSUAL PHENOMENA OR INCIDENTS WHICH ARE BEYOND LANDSCAPE CONTRACTOR'S CONTROL.
8. AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2014 OR MOST CURRENT VERSION) REQUIREMENTS FOR SIZE AND TYPE.
9. PLANTS TO BE INSTALLED AS PER ANSI STANDARD PLANTING PRACTICES.
10. PRIOR TO PLANTING, FIELD VERIFY THAT THE ROOT COLLAR/ROOT FLAIR IS LOCATED AT THE TOP OF THE BALLED & BURLAP TREE. IF THIS IS NOT THE CASE, SOIL SHALL BE REMOVED DOWN TO THE ROOT COLLAR/ROOT FLAIR. WHEN THE BALLED & BURLAP TREE IS PLANTED, THE ROOT COLLAR/ROOT FLAIR SHALL BE EVEN OR SLIGHTLY ABOVE FINISHED GRADE.
11. OPEN TOP OF BURLAP ON BB MATERIALS; REMOVE POT ON POTTED PLANTS; SPLIT AND BREAK APART PEAT POTS.
12. PRUNE PLANTS AS NECESSARY - PER STANDARD NURSERY PRACTICE AND TO CORRECT POOR BRANCHING OF EXISTING AND PROPOSED TREES.
13. WRAP ALL SMOOTH-BARKED TREES - FASTEN TOP AND BOTTOM. REMOVE BY APRIL 1ST.
14. STAKING OF TREES AS NEEDED; REPOSITION, PLUMB AND STAKE IF NOT PLUMB AFTER ONE YEAR.
15. THE NEED FOR SOIL AMENDMENTS SHALL BE DETERMINED UPON SITE SOIL CONDITIONS PRIOR TO PLANTING. LANDSCAPE CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT FOR THE NEED OF ANY SOIL AMENDMENTS.
16. TOPSOIL SHALL BE HIGH-QUALITY, AMENDED PER AGRONOMICAL SOIL REPORT AND BE AND GRADED BY GENERAL CONTRACTOR TO THE FOLLOWING MINIMUM DEPTHS BELOW FINISHED GRADE. REFER TO SOIL SPECIFICATION FOR MORE DETAIL.
    - PLANTING AREAS WITHIN 10 FEET OF BUILDINGS: 6 INCHES
    - OTHER PLANTING AREAS: 4 INCHES
    - LANDSCAPE ISLANDS: 6 INCHES
    - TURF AREAS: 4 INCHES
17. SEED/SOD LIMIT LINES ARE APPROXIMATE. CONTRACTOR SHALL SEED/SOD ALL AREAS WHICH ARE DISTURBED BY GRADING WITH THE SPECIFIED SEED/SOD MIXES. ALL DISTURBED AREAS TO BE SODDED OR SEEDED, UNLESS OTHERWISE NOTED. SOD/SEED SHALL BE LOCAL HARDY TURF GRASS MIX UNLESS, OTHERWISE NOTED.
18. EDGING TO BE A SPADED EDGE UNLESS INDICATED OTHERWISE ON THE PLANS. SPADED EDGE TO PROVIDE V-SHAPED DEPTH AND WIDTH TO CREATE SEPARATION BETWEEN MULCH AND GRASS. A SPADED BED EDGE SHALL SEPARATE MULCH BEDS FROM TURF OR SEEDED AREAS. A SPADED EDGE IS NOT REQUIRED ALONG CURBED EDGES.
19. CONTRACTOR SHALL INSTALL NATURAL BROWN SHREDDED HARDWOOD MULCH AT A 3" DEPTH TO ALL TREES, SHRUB, PERENNIAL, AND GROUNDCOVER AREAS. TREES PLACED IN AREA COVERED BY TURF SHALL RECEIVE A 4 FT WIDE MAXIMUM TREE RING WITH 3" DEPTH SHREDDED HARDWOOD MULCH.
20. INSTALLATION OF TREES WITHIN PARKWAYS SHALL BE COORDINATED IN THE FIELD WITH LOCATIONS OF UNDERGROUND UTILITIES. TREES SHALL NOT BE LOCATED CLOSER THAN 5' FROM UNDERGROUND UTILITY LINES AND NO CLOSER THAN 10' FROM UTILITY STRUCTURES.
21. REPAIR, REPLACE, OR PROVIDE SOD/SEED AS REQUIRED FOR ANY ROADWAY BOULEVARD AREAS ADJACENT TO THE SITE DISTURBED DURING CONSTRUCTION.
22. REPAIR ALL DAMAGE TO PROPERTY FROM PLANTING OPERATIONS AT NO COST TO OWNER.
23. DO NOT DISTURB THE EXISTING PAVING, LIGHTING, OR LANDSCAPING THAT EXISTS ADJACENT TO THE SITE UNLESS OTHERWISE NOTED ON PLAN.
24. PLANT QUANTITIES SHOWN ARE FOR THE CONVENIENCE OF THE OWNER AND JURISDICTIONAL REVIEW AGENCIES. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL PLANT QUANTITIES AS DRAWN.
25. SEE IRRIGATION PLANS FOR IRRIGATION AND IRRIGATION NOTES.
26. SEE ELECTRICAL PLANS FOR SITE LIGHTING.

CONSULTANT

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NORTH ARROW AND SCALE

SEAL AND SIGNATURES



Expiration: 7/25/26

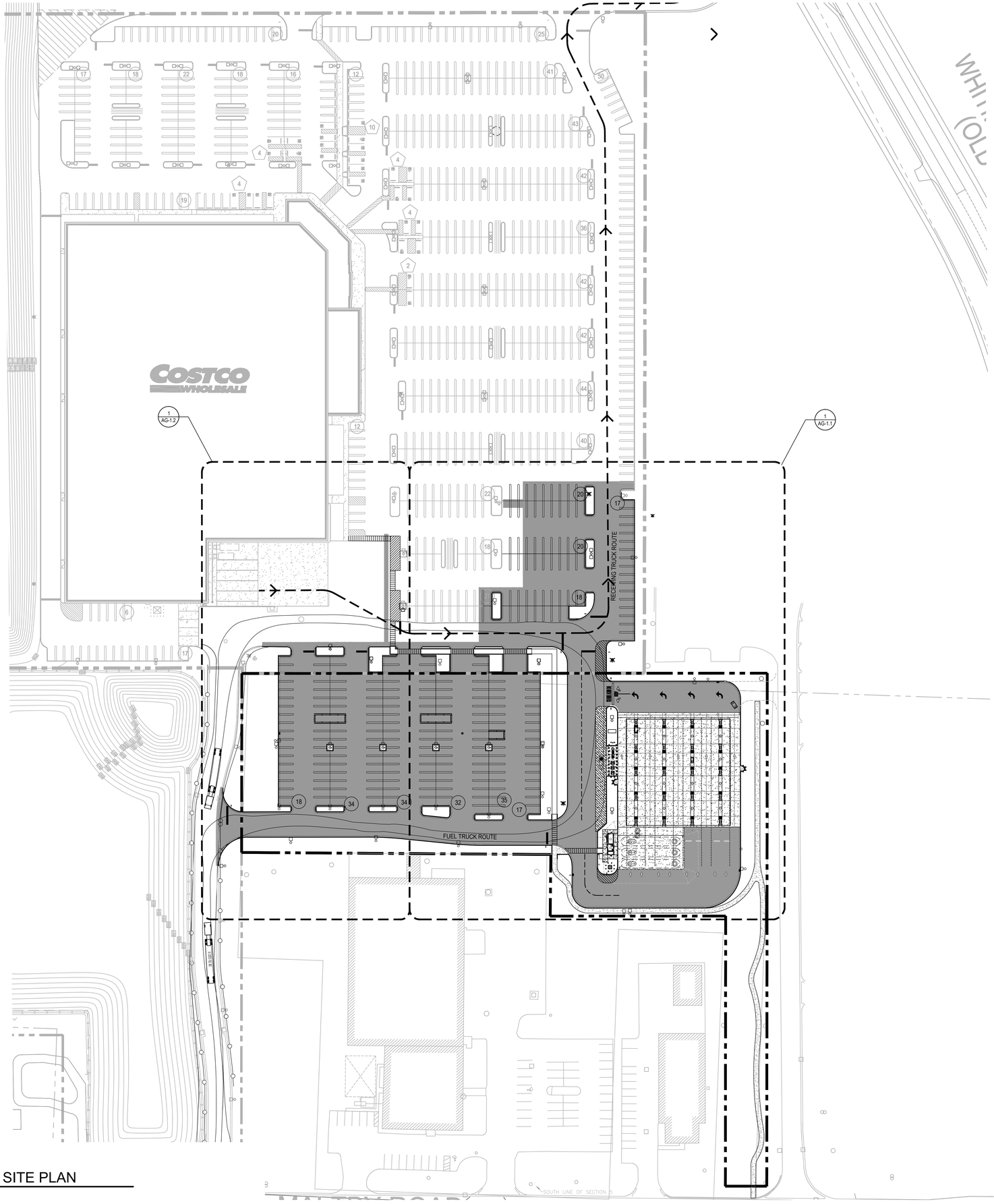
COSTCO WHOLESALE
PARKING EXPANSION
WHITMORE LAKE ROAD
GREEN OAK TOWNSHIP, MI

DATE	ISSUED FOR	REV
11/01/2024	ISSUED FOR ENGINEERING REVIEW	
12/20/2024	CD	

L2.4

LANDSCAPE NOTES AND DETAILS

AS INDICATED



OVERALL SITE PLAN

SCALE: 1" = 50'-0"

PROJECT DATA

CLIENT:	COSTCO WHOLESALE 730 LAKE DRIVE ISSAQUAH, WA 98027
PROJECT ADDRESS:	6700 WHITMORE LAKE RD GREEN OAK TOWNSHIP, MI
ZONING:	PLANNED UNIT DEVELOPMENT (PUD)
EXISTING SITE AREA:	15.56 ACRES (677,960 SF) INCLUDES: 2.2 ACRES (95,832 SF) LANDSCAPE / BERM
PROPOSED SITE AREA:	4.00 ACRES (174,240 SF)
TOTAL SITE AREA:	19.56 ACRES (852,200 SF)
JURISDICTION:	GREEN OAK TOWNSHIP
SETBACKS:	AS NOTED
BOUNDARIES INFORMATION:	THIS PLAN HAS BEEN PREPARED BY USING A SITE PLAN PROVIDED BY CONTINENTAL PROPERTIES COMPANY INC., DATED 6/7/2003

EXIST. BUILDING DATA: (EXISTING UNCHANGED)	
BUILDING AREA	135,140 S.F.
TIRE CENTER	5,214 S.F.
TOTAL BUILDING	140,354 S.F.
EXIST. ENCLOSED CANOPY	4,156 S.F.

PARKING DATA:	
EXISTING PARKING PROVIDED:	
(#) 10' WIDE STALLS	682 STALLS
(#) HANDICAP STALLS	28 (4 VAN) STALLS
TOTAL PARKING PROVIDED	710 STALLS
NO OF STALLS PER 1000 S.F. OF BUILDING AREA:	5.06 STALLS
PROPOSED PARKING PROVIDED:	
(#) 10' WIDE STALLS	888 STALLS
(#) HANDICAP STALLS	28 (4 VAN) STALLS
TOTAL PARKING PROVIDED	916 STALLS
NO OF STALLS PER 1000 S.F. OF BUILDING AREA:	6.53 STALLS
TOTAL PARKING GAINED	206 STALLS
JURISDICTIONAL PARKING REQUIRED	1 STALL/200 S.F. 702 STALLS

NOTES:
1. EXISTING CONDITIONS TO BE FIELD VERIFIED.
2. SITE PLAN COORDINATED WITH CIVIL DRAINAGE & GRADING PLAN / C3 AND UTILITY PLAN / C5 DATED 1/22/04

IMPERVIOUS PERCENTAGE CALCULATIONS:

EXISTING PROPERTY:	
TOTAL	15.56 ACRES
IMPERVIOUS	12.05 ACRES (77.42%)
PERVIOUS	3.51 ACRES
PROPOSED EXPANSION:	
TOTAL	4.00 ACRES
IMPERVIOUS	3.02 ACRES (75.38%)
PERVIOUS	0.98 ACRES
COMBINED:	
TOTAL	19.56 ACRES
IMPERVIOUS	15.17 ACRES (77.55%)
PERVIOUS	4.39 ACRES

COSTCO WHOLESALE

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786

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FINAL PUD AMENDMENT SUBMITTAL

0 25' 50' 100'
1" = 50'-0"

BRIAN J. BONAR, ARCHITECT

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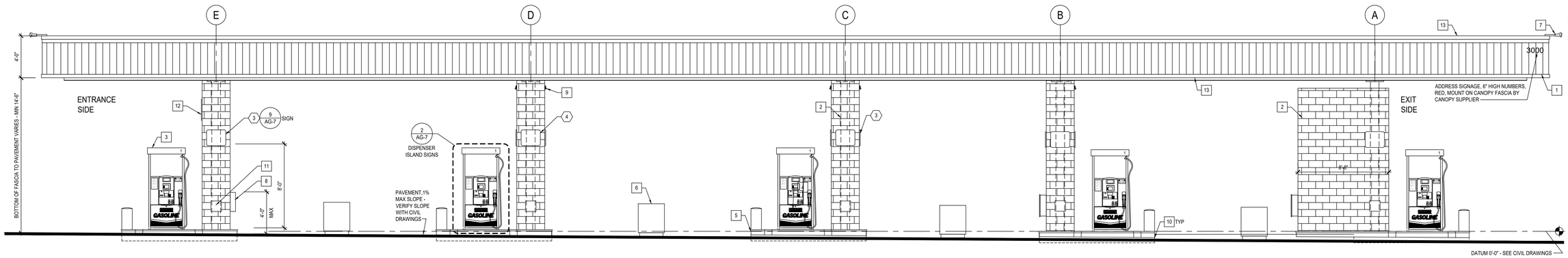
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03-1591-12
PM: HOWARD SCHULIEN
DRAWN: FI

OVERALL SITE PLAN

SD101

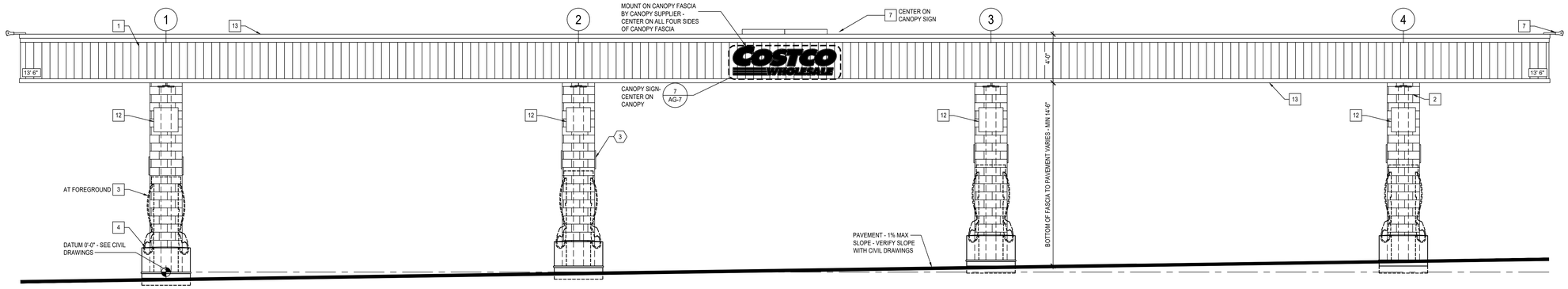
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1 CANOPY AND DISPENSER ISLANDS WEST ELEVATION (EAST ELEV. SIM.)

SCALE: 1/4" = 1'-0"

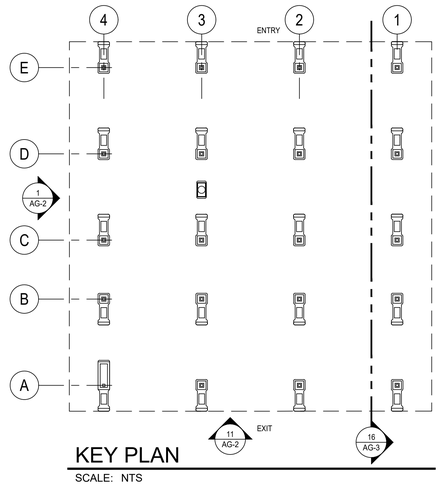
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11 CANOPY AND DISPENSERS ISLANDS SOUTH ELEVATION (NORTH ELEV. SIM.)

SCALE: 1/4" = 1'-0"

0124



KEY PLAN

SCALE: NTS

KEYNOTES

1	PRE-FINISHED METAL FASCIA PANEL, COLOR MEDIUM BRONZE - SUPPLIED AND INSTALLED BY CANOPY SUPPLIER UNDER SEPARATE CONTRACT
2	CMU COLUMN WRAP, BOULDER GREY - 8X8X16 SPLIT FACE WITH WATER REPELLENT ADDITIVE UNO SEE STRUCTURAL DRAWINGS - SUPPLIED AND INSTALLED BY GC
3	ACCESSIBLE MULTIPRODUCT DISPENSER
4	CONCRETE-FILLED METAL FORMED GUARD AT ENDS OF ISLANDS - TOP OF GUARD AT 30" ABOVE TRAFFIC SURFACE - PAINT SIDES ONLY WITH GLOSS BLUE, REFER TO SPECIFICATION
5	RAISED CONCRETE ISLAND WITH METAL EDGE FORM - PAINT SIDES ONLY WITH GLOSS BLACK, REFER TO SPECIFICATION
6	WASTE RECEPTOR, BOLT DOWN, CENTER OF EACH ISLAND (SOIC)
7	CANOPY FASCIA SIGN LIGHT FIXTURE (SOIC) - REFER TO DETAIL 16 / AG-3
8	FIRE EXTINGUISHER AND CABINETS MOUNTED ON COLUMN SIDE AWAY FROM DISPENSER - FIRE EXTINGUISHER CABINET TO BE: BROOKS MODEL # MARK II, RED CABINET WITH CLEAR COVER (OR EQUAL) - FIRE EXTINGUISHER AND CABINET, BY GC
9	VIDEO CAMERA - VERIFY LOCATION WITH OWNER CONSTRUCTION PROJECT MANAGER. GC SHALL RUN CONDUIT AND INSTALL 3" ROUND OR OCTAGONAL J-BOX FOR MOUNTING CAMERAS - SEE ELECTRICAL DRAWINGS
10	CAULK PERIMETER OF DISPENSER BASE WITH PETROLEUM RESISTANT SEALANT - SEE T-DWGS, TYPICAL
11	12" X 12" ELECTRICAL ACCESS PANELS, SUPPLIED BY GC
12	FUELING INDICATOR LIGHT SYSTEM
13	COPING BOTTOM AND TOP OF FASCIA PANEL - COLOR CHARCOAL - REFER TO DETAIL 4/AG-3

GENERAL NOTES

A. SEE ENLARGED SITE PLAN FOR ADDITIONAL GENERAL NOTES AND ADDITIONAL DETAIL REFERENCES.

SOIC - FUEL FACILITY SIGNAGE

	QTY	DESCRIPTION	TYPICAL PLACEMENT
1	2	MEMBERS ONLY / ENTER HERE WITH COSTCO LOGO 18" x 24" ALUMINUM	METAL POST EACH SIDE ON ENTRANCE(S) - SEE DETAIL 5/AG-7
3	24	NO SMOKING / STOP ENGINE 18" x 22" ALUMINUM	AT ENTRY AND EXIT COLUMNS - FLUSH MOUNT ON COLUMNS SEE SITE PLAN
4	32	IN CASE OF FIRE OR SPILL 18" x 22" ALUMINUM	AT CENTER COLUMNS - FLUSH MOUNT ALL SIDES OF COLUMN SEE SITE PLAN
5	1	IN CASE OF FIRE OR SPILL 18" x 24" ALUMINUM, ONE SIDE	MOUNT ON CONTROLLER ENCLOSURE NEXT TO EMERGENCY PHONE, VISIBLE FROM THE PUMPS
6	1	NO CASH ON PREMISES VINYL	MOUNT ON CONTROLLER ENCLOSURE, NEAR DOOR
7	2	EMERGENCY SHUT-OFF	ABOVE EMERGENCY SHUT-OFF ON ENCLOSURE - SEE 4/AG-5; BELOW EMERGENCY SHUT-OFF - SEE 19/AG-6
8	2	STOP/DO NOT ENTER 24" X 24" ALUMINUM	METAL POST EACH SIDE OF EXIT - SEE DETAIL 4/AG-7

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COMMERCE TOWNSHIP, MI

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FINAL PUD AMENDMENT SUBMITTAL

0 10' 20' 40'
1" = 20'-0"

BRIAN J. BONAR, ARCHITECT

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	09.04.24	PERMIT ISSUE
	09.10.24	BID SET
1	11.01.24	BID ADDENDUM 01

02-1700-16
PM: HOWARD SCHULIEN
DRAWN: CB
MAY 13, 2022

CANOPY ELEVATIONS

AG-2

PLOTTED BY: HOWARD SCHULIEN DATE/TIME: 1/31/2025 2:55 PM FILE: H:\RETAIL\COSTCO\02\02-1700-16 COMMERCE TOWNSHIP, MI - FUEL FACILITY OSR\07 CAD\700 CONSTDOCS\02x1700x16-AG-2.DWG