# SUSTAINABLE DESIGN REVIEW COMMITTEE

500 W. Big Beaver
Troy, MI 48084
(248) 524-3364
www.troymi.gov
planning@troymi.gov

## MEETING AGENDA (REVISED)

Committee Members: Building Official, City Engineer
Planning Commissioners (2), Zoning Administrator

**September 11, 2015** **2:00 P.M.** **Conference Room C**

1. ROLL CALL

2. APPROVAL OF MINUTES – April 15, 2015

3. BUSINESS AGENDA

A. Extreme Granite, located on south side of Maple Road, west of John R (1890 Maple Road), Section 35 – Zoned IB

- Seeking SDP status to exceed 20% minimum open space requirement and park in front yard

B. CIOT Granite Showroom, 2854, 2870 and 2904 Industrial Row, Located on the north side of Industrial Row, east of Coolidge, Section 26 – Zoned IB

- Seeking SDP status to exceed 20% minimum open space requirement and park in front yard

4. OTHER BUSINESS

ADJOURN

***NOTICE:*** *People with disabilities needing accommodations for effective participation in this meeting should contact the City Clerk by e-mail at clerk@troymi.gov or by calling (248) 524-3317 at least two working days in advance of the meeting. An attempt will be made to make reasonable accommodations.*

R. Brent Savidant called the meeting of the Sustainable Design Review Committee to order at 2:06 p.m. on April 15, 2015 in Conference Room C of Troy City Hall.

1. ROLL CALL

Present:
Michael W. Hutson, Planning Commission Representative
Thomas Strat, Planning Commission Representative
Scott Finlay, Civil Engineer (acting as the City Engineer)
Mitch Grusnick, Building Official
R. Brent Savidant, Planning Director (acting as the Zoning Administrator)

Also Present:
Ryan McEnhill, PE, ENG Engineering and Surveying
Paul Evans, Zoning Compliance Specialist

2. APPROVAL OF MINUTES

***Resolution # SDRC-2015-04-003***
Moved by: Strat
Seconded by: Hutson

***RESOLVED***, To approve the minutes of the March 25, 2015 Sustainable Design Review Committee, as printed.

Yes: All present (5)

**MOTION CARRIED**

3. BUSINESS AGENDA

**Discount Tire. Located on north side of 14 Mile East of John R, between Executive and Minnesota. Section 36 – Zoned IB**

- **Seeking SDP status to exceed 20% minimum open space requirement and park in front yard**

Chairman Savidant summarized the application.

Applicant Ryan McEnhill described the project and answered questions about the application.

There was general discussion on the item.

***Resolution # SDRC-2015-04-004***
Moved by: Strat
Seconded by: Hutson

***RESOLVED***, The application shall be granted Prequalified SDP status.

Yes: All present (5)

**MOTION CARRIED**

4. OTHER BUSINESS

There was no one present who wished to speak.

ADJOURN

The meeting of the Sustainable Design Review Committee adjourned at 2:32 p.m.

Respectfully submitted,

R. Brent Savidant, Planning Director

G:\Sustainable Development Option\SDRC Meetings\Minutes\Draft\04-15-15 SDRC Meeting_Draft.doc

DATE: September 2, 2015

TO: Sustainable Design Review Committee

FROM: R. Brent Savidant, Planning Director
Benjamin Carlisle, Planning Consultant

SUBJECT: PREQUALIFIED SDP STATUS – Extreme Granite, located on south side of Maple Road, west of John R (1890 Maple Road), Section 35 – Zoned IB

The petitioner, Pierre Jarbo of Extreme Granite, proposes a new parking lot layout for the existing Extreme Granite facility on Maple Road. The site is zoned IB Integrated Industrial and Business. Because the project is zoned IB and surrounded by similarly zoned properties, it qualifies for administrative site plan approval. The applicant seeks Prequalified Sustainable Development Project status to increase the amount of impervious surface and provide parking in the front yard.

The applicant proposes a number of sustainable design features, which are listed in the site plan documents. These sustainable features include:

- Rain garden in front yard
- Native, drought tolerant plants and grasses in front yard and side yard
- LED lighting

The following is a summary of internal comments related to this application:

DPW Comments:

- Sanitary manhole and Water gatewell must be to grade and cement structure intact at completion of landscaping

Fire Department Comments:

- Landscaping at northeast corner of building must not obstruct or impede access to hydrant.

Engineering Comments:

- New cross access with 1900 Maple is needed, this should be provided before any approval is issued.
- The rain garden details on the two sheets do not agree with each other, one has 6 inches of water the other shows 2 feet; neither shows any edge drain or overflow.
- SDP committee can decide if this minimal rain garden meets the criteria for front parking.

Building Official Comments:

1. The proposed work encroaches onto the property to the east (1900).
2. The sustainable design measures here are minimal, I guess the SDP committee will need to decide if the proposal warrants the trade for the front parking area.

Traffic Engineer Comments:

1. What are the SDP measures? Singular Rain Garden out front, lighting and water efficient landscaping? Is that enough?
2. Eight (8) foot sidewalk required along property frontage in Maple ROW.
3. Maple is an RCOC road and any work in the ROW requires an RCOC permit.
4. The last parking space in the NE corner of the new parking lot is directly adjacent to the property line and would require a driver to back out into the drive approach which is not preferred and not recommended due to the potential for conflicts with entering traffic from Maple to the new drive on the east side.

The Sustainable Design Review Committee must determine if the applicant provides the following:

- Four (4) Prerequisite Measures for Lot Coverage (Stormwater Quality, Stormwater Quantity, Heat Islands and Water Efficient Landscaping)
- Three (3) Prerequisite Measures for Parking in a front yard (Stormwater Quality and Stormwater Quantity, and Light Pollution).
- One (1) Qualifying Measure.

Attachments:

1. Maps
2. Site plan

cc: Applicant
File/SDP

City of Troy GIS Online

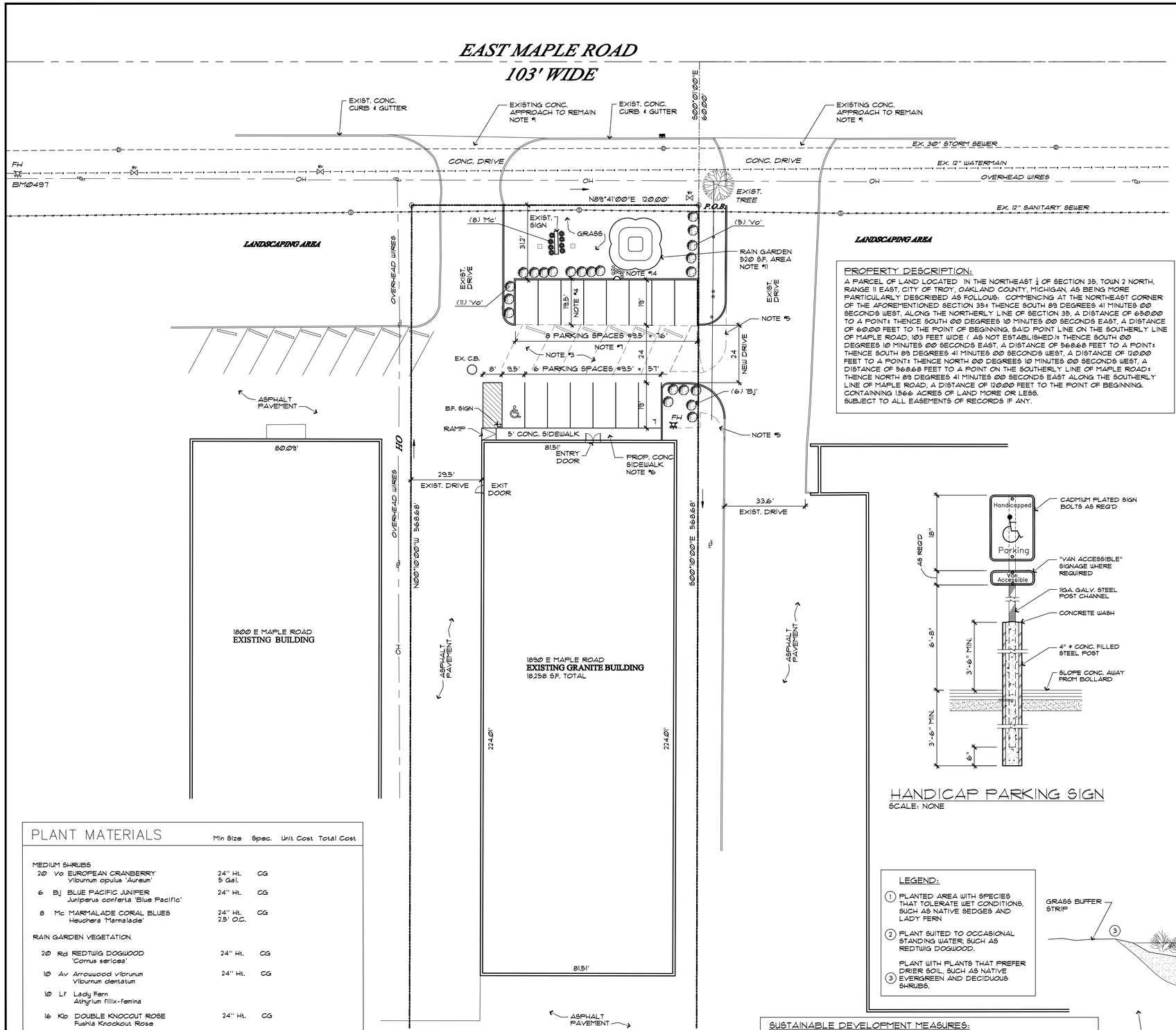
311 0 156 311 Feet

Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.

City of Troy GIS Online

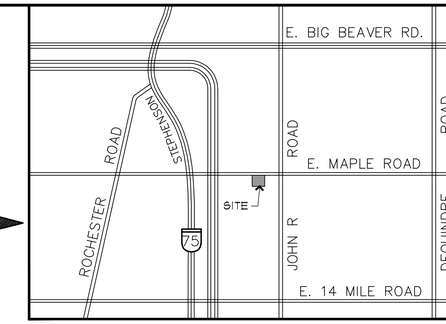
311 0 156 311 Feet

Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.




## SITE PLAN / LANDSCAPE PLAN

SCALE 1" = 20'




## LOCATION MAP

SCALE: NONE

### PROPERTY DESCRIPTION:

A PARCEL OF LAND LOCATED IN THE NORTHEAST ¼ OF SECTION 35, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, MICHIGAN, AS BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF THE AFOREMENTIONED SECTION 35± THENCE SOUTH 89 DEGREES 41 MINUTES 00 SECONDS WEST, ALONG THE NORTHERLY LINE OF SECTION 35, A DISTANCE OF 650.00 TO A POINT± THENCE SOUTH 00 DEGREES 10 MINUTES 00 SECONDS EAST, A DISTANCE OF 60.00 FEET TO THE POINT OF BEGINNING, SAID POINT LINE ON THE SOUTHERLY LINE OF MAPLE ROAD, 103 FEET WIDE ( AS NOT ESTABLISHED)± THENCE SOUTH 00 DEGREES 10 MINUTES 00 SECONDS EAST, A DISTANCE OF 568.68 FEET TO A POINT± THENCE SOUTH 89 DEGREES 41 MINUTES 00 SECONDS WEST, A DISTANCE OF 120.00 FEET TO A POINT± THENCE NORTH 00 DEGREES 10 MINUTES 00 SECONDS WEST, A DISTANCE OF 568.68 FEET TO A POINT ON THE SOUTHERLY LINE OF MAPLE ROAD± THENCE NORTH 89 DEGREES 41 MINUTES 00 SECONDS EAST ALONG THE SOUTHERLY LINE OF MAPLE ROAD, A DISTANCE OF 120.00 FEET TO THE POINT OF BEGINNING. CONTAINNING 1.566 ACRES OF LAND MORE OR LESS. SUBJECT TO ALL EASEMENTS OF RECORDS IF ANY.

### SITE DATA :

EXISTING ZONING: IB (INTEGRATED INDUSTRIAL BUSINESS DISTRICT)

SITE AREA: 68,241 S.F. = 1.566 ACRES

EXISTING USE: EXTREME GRANITE & MARBLE (MERCANTILE)

PROPOSED USE: SAME

EXISTING BUILDING FLOOR AREA: 18,258 S.F.

EXISTING BUILDING HEIGHT 20'-0"

LOT COVERAGE: 16.9%

### PARKING REQUIREMENTS:

LIGHT INDUSTRIAL: GRANITE MANUFACTURING AREA: ONE (1) PARKING SPACE FOR EACH 550 SQUARE FEET OF GROSS FLOOR AREA.

WAREHOUSING: GRANITE WAREHOUSE AND SHOW AREA: ONE (1) PARKING SPACE FOR EACH 1500 SQUARE FEET OF NET FLOOR AREA PLUS (1) PARKING SPACE FOR EACH EMPLOYEE ON LARGEST TYPICAL SHIFT.

TOTAL BUILDING AREA = 18,258 S.F.
GRANITE MANUFACTURING FLOOR AREA =4,000 S.F.
GRANITE WAREHOUSE AREA =10,000 S.F.
SHOWROOM AND RECEPTION: 2,000 S.F.
NO. OF EMPLOYEES = 4

TOTAL PARKING SPACES REQUIRED: 4,000 / 550 + 10,000 / 1500 + 4 = 18 SPACES
TOTAL PARKING SPACES PROVIDED: 7 SPACES
INCLUDING (1) ONE BARRIER FREE (VAN ACCESSIBLE) PARKING SPACE

LOADING ZONE REQUIRED = 1
LOADING ZONE PROVIDED: 10'x40' SPACE

### SITE PLAN GENERAL NOTES

1. EXISTING MAIN APPROACH ON MAPLE ROAD TO REMAIN.
2. PROPOSED SITE IMPROVEMENT IS INDICATED ON SITE PLAN, THIS SHEET.
3. SAWCUT AND REMOVE ENTIRE ASPHALT PAVEMENT IN THIS AREA. NEW ASPHALT PAVEMENT IS PROPOSED.
4. DEMOLISH AND REMOVE FROM JOBSITE REMOVE EXISTING CURB AND BUMPER BLOCKS AS INDICATED. REMOVE LANDSCAPING IN THIS AREA FOR NEW PARKING SPACES AND ASPHALT PAVEMENT. EXTEND PARKING BY APPROXIMATELY 19.5' TO THE NORTH TOWARDS MAPLE ROAD.
5. SAWCUT AND REMOVE EXISTING DRIVE CURB (SHOWN DASHED). REPLACE WITH NEW CURB AS INDICATED IN PROPOSED SITE PLAN, THIS SHEET. REPAIR ASPHALT PAVEMENT AS REQUIRED PER CITY OF TROY STANDARD DETAILS.
6. SAWCUT AND REMOVE EXISTING CONCRETE SIDEWALK AS INDICATED, REPLACE WITH NEW 6" CONCRETE CURB. PROVIDE ADA RAMP AS INDICATED. REFER TO DETAIL, ON THIS SHEET.
7. STRIPE PARKING SPACES AS SHOWN ON PROPOSED SITE PLAN PER CITY OF TROY ZONING ORDINANCE. PROVIDE BARRIER FREE VAN ACCESSIBLE PARKING SPACE AS INDICATED. INSTALL BARRIER FREE SIGN.
8. EXISTING ASPHALT PAVEMENT TO REMAIN. REPAIR AS REQUIRED.
9. ALL EXISTING AND NEW LANDSCAPE MATERIALS TO BE MAINTAINED BY OWNER OF PROPERTY. REFER TO LANDSCAPE PLAN, SHEET LP01.
10. ALL EXISTING AND PROPOSED EXTERIOR BUILDING LIGHTING SHALL NOT SHINE ON THE RIGHT OF WAY. EXTERIOR BUILDING LIGHTING WILL SHINE DOWNWARDS.
11. PROVIDE RAIN GARDEN AS INDICATED. REFER TO RAIN GARDEN VEGETATION DETAIL AND SPECIFICATIONS, THIS SHEET.
12. ALL STORM SEWER & DRAIN SYSTEM ON SITE ARE EXISTING AND TO BE MAINTAINED BY OWNER. FOR NEW DRAINAGE, REFER TO ENGINEERING PLAN, SHEET C01.
13. EACH SUBCONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE CLEANUP OF DEBRIS AND CUTTING MATERIALS DAILY.
14. PLACE RIP RAP (TYP.) PER CITY OF TROY ADOPTED STANDARDS




## HANDICAP PARKING SIGN

SCALE: NONE

### PLANT MATERIALS

| | | Min Size | Spec. | Unit Cost | Total Cost |
|---|---|---|---|---|---|
| MEDIUM SHRUBS | | | | | |
| 20 | Vo EUROPEAN CRANBERRY Viburnum opulus 'Aureum' | 24" Ht. 5 Gal. | CG | | |
| 6 | BJ BLUE PACIFIC JUNIPER Juniperus conferta 'Blue Pacific' | 24" Ht. | CG | | |
| 8 | Mc MARMALADE CORAL BLUES Heuchera 'Marmalade' | 24" Ht. 2.5' O.C. | CG | | |
| RAIN GARDEN VEGETATION | | | | | |
| 20 | Rd REDTWIG DOGWOOD 'Cornus sericea' | 24" Ht. | CG | | |
| 10 | Av Arrowwood Viburnum Viburnum dentatum | 24" Ht. | CG | | |
| 10 | Lf Lady Fern Atnyrium filix-femina | | | | |
| 16 | Kb DOUBLE KNOCOUT ROSE Fushia Knockout Rose | 24" Ht. | CG | | |
| GROUND COVER | | | | | |
| -- | cy Mulch | | | | |
| -- | sy Seeding | | | | |
| -- | sy Sod | | | | |

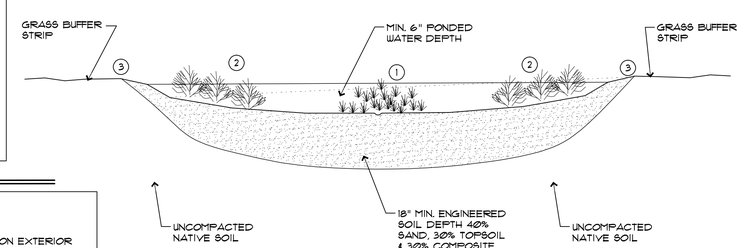
B&B =Balled & Burlapped
CG =Container Grown

### LEGEND:

1. PLANTED AREA WITH SPECIES THAT TOLERATE WET CONDITIONS, SUCH AS NATIVE SEDGES AND LADY FERN
2. PLANT SUITED TO OCCASIONAL STANDING WATER, SUCH AS REDTWIG DOGWOOD.
3. PLANT WITH PLANTS THAT PREFER DRIER SOIL, SUCH AS NATIVE EVERGREEN AND DECIDUOUS SHRUBS.

### SUSTAINABLE DEVELOPMENT MEASURES:

1. STORM WATER QUANTITY AND QUALITY: RAIN GARDENS.
2. LIGHT POLLUTION: CONTROLLED GLARE LIGHTS WILL BE INSTALLED ON EXTERIOR OF BUILDING. ALL EXTERIOR LIGHTS AND SIGN LIGHT TO BE TURNED OFF AUTOMATICALLY BEFORE 11:30 PM FOR ENERGY REDUCTION.
3. WATER EFFICIENT LANDSCAPING: REFER TO PLANT MATERIAL ON THIS SHEET.




## RAIN GARDEN VEGETATION

SCALE: NONE


FUTURISTIC DESIGN CONSULTANT
520 E. 12 MILE ROAD, SUITE A
MADISON HEIGHTS, MI 48071
PH: (586) 707-0080
FAX: (248) 398-3822
E-mail: imad_potres@yahoo.com
DESIGNED BY:
Imad Potres


REVISIONS:

| | | |
|---|---|---|
| 1- | SITE PLAN | 07/08/15 |
| 2- | REVISION 1 | 08/26/15 |
| 3- | | |
| 4- | | |
| 5- | | |
| 6- | | |
| 7- | | |

# PARKING EXPANSION TO EXISTING EXTREME GRANITE

1890 E MAPLE ROAD
TROY, MI 48083

SEAL / SIGNATURE

DATE

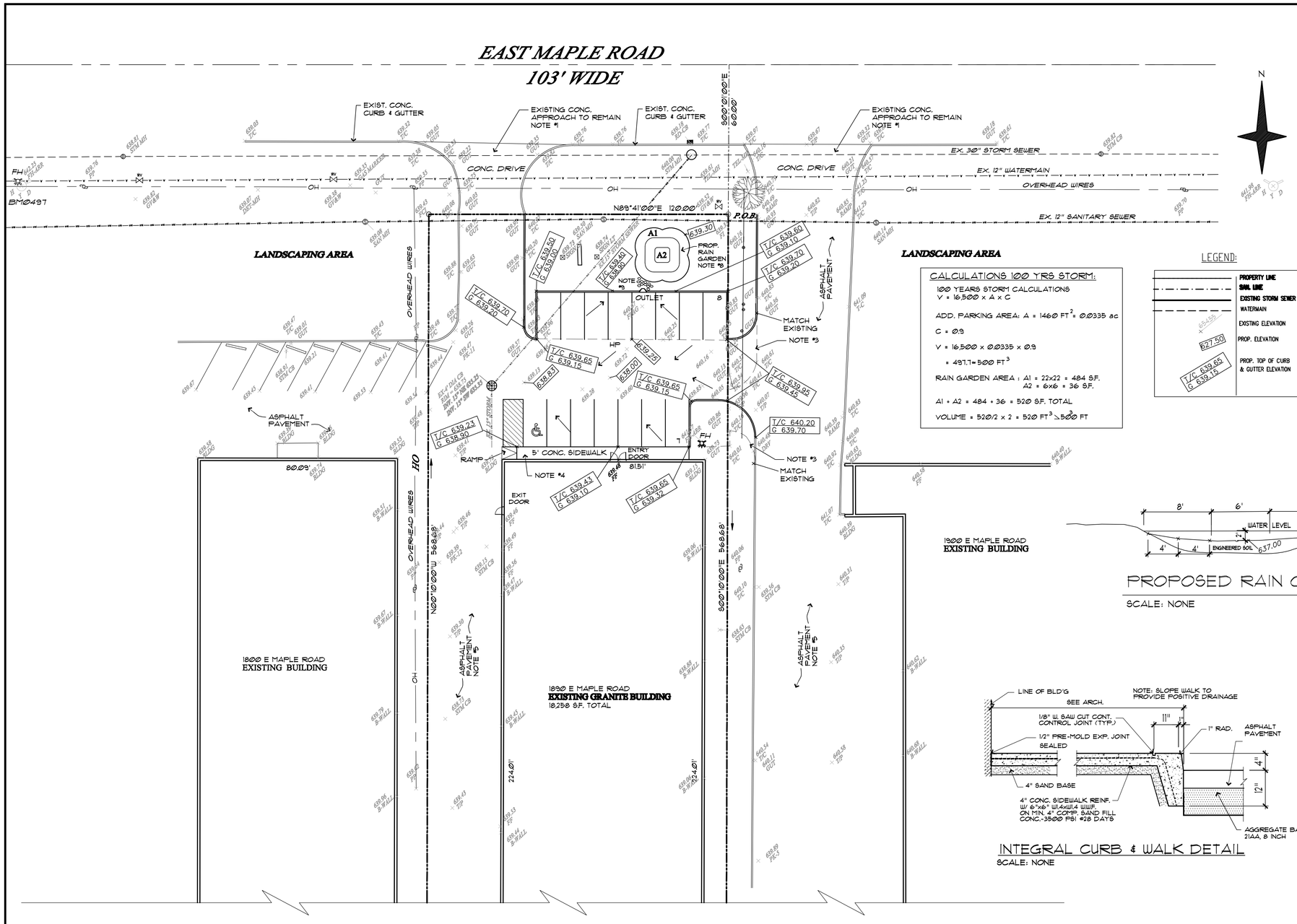
DRAWING TITLE: SITE PLAN

FILE NAME: Jackson

PROJECT NO.: 015-01

DRAWN BY: IMAD
CHECKED BY: IMAD
DATE: 01/12/2015

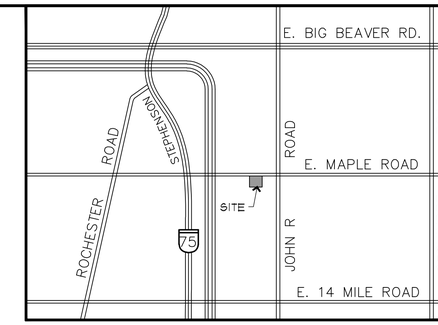
SHEET NO:
SP01




## SITE ENGINEERING PLAN

SCALE 1" = 20'

NORTH




## LOCATION MAP

NO SCALE

### CALCULATIONS 100 YRS STORM:

100 YEARS STORM CALCULATIONS
V = 16,500 x A x C

ADD. PARKING AREA: A = 1460 FT$^2$ = 0.0335 ac

C = 0.9

V = 16,500 x 0.0335 x 0.9

= 497.7= 500 FT$^3$

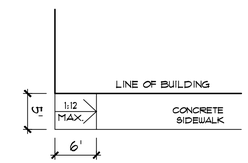
RAIN GARDEN AREA : A1 = 22x22 = 484 S.F.
A2 = 6x6 = 36 S.F.

A1 + A2 = 484 + 36 = 520 S.F. TOTAL

VOLUME = 520/2 x 2 = 520 FT$^3$ ≥ 500 FT

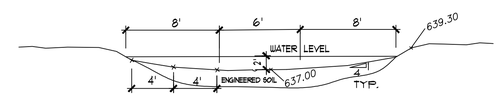
### LEGEND:

- PROPERTY LINE
- SAWL LINE
- EXISTING STORM SEWER LINE
- WATERMAIN
- 624.522 — EXISTING ELEVATION
- 627.50 — PROP. ELEVATION
- T/C 639.65 G 639.15 — PROP. TOP OF CURB & GUTTER ELEVATION




## RAMP DETAIL

NO SCALE



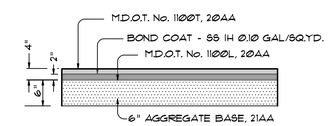

## PROPOSED RAIN GARDEN

SCALE: NONE



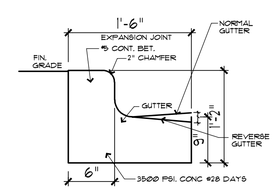

## INTEGRAL CURB & WALK DETAIL

SCALE: NONE




## 4" ASPHALT PAVING DETAIL

SCALE: NONE




## CURB & GUTTER DETAIL

SCALE: NONE

### SITE PLAN GENERAL NOTES

1. EXISTING MAIN APPROACH ON MAPLE ROAD TO REMAIN.
2. SAWCUT AND REMOVE ENTIRE ASPHALT PAVEMENT IN THIS AREA. NEW ASPHALT PAVEMENT IS PROPOSED PER CITY OF TROY STANDARD DETAILS.
3. SAWCUT AND REMOVE EXISTING DRIVE CURB (SHOWN DASHED). REPLACE WITH NEW CURB AS INDICATED IN PROPOSED SITE PLAN, THIS SHEET. REPAIR ASPHALT PAVEMENT AS REQUIRED PER CITY OF TROY STANDARD DETAILS.
4. SAWCUT AND REMOVE EXISTING CONCRETE SIDEWALK AS INDICATED, REPLACE WITH NEW 4" CONCRETE CURB. PROVIDE ADA RAMP AS INDICATED. REFER TO RAMP DETAIL, SHEET SP01.
5. EXISTING ASPHALT PAVEMENT TO REMAIN. REPAIR AS REQUIRED.
6. ALL STORM SEWER & DRAIN SYSTEM ON SITE ARE EXISTING AND TO BE MAINTAINED BY OWNER. FOR NEW DRAINAGE, REFER TO ENGINEERING PLAN, THIS SHEET.
7. EACH SUBCONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE CLEANUP OF DEBRIS AND CUTTING MATERIALS DAILY.
8. PROVIDE RAIN GARDEN AS INDICATED. REFER TO SITE PLAN / LANDSCAPE PLAN, SHEET SP01.
9. PLACE RIP RAP (TYP.) PER CITY OF TROY ADOPTED STANDARDS


FUTURISTIC DESIGN CONSULTANT
520 E. 12 MILE ROAD, SUITE A
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PH: (586) 707-4080
FAX: (248) 398-3822
E-mail: imad_potres@yahoo.com

DESIGNED BY:
Imad Potres


| REVISIONS: | | |
|---|---|---|
| 1- | SITE PLAN | 06/08/15 |
| 2- | REVISION 1 | 08/26/15 |
| 3- | | |
| 4- | | |
| 5- | | |
| 6- | | |
| 7- | | |

# PARKING EXPANSION TO EXISTING EXTREME GRANITE

1890 E MAPLE ROAD
TROY, MI 48083

SEAL / SIGNATURE

DATE

DRAWING TITLE: SITE ENGINEERING PLAN

FILE NAME: Jackson

PROJECT NO.: 015-01

DRAWN BY: IMAD
CHECKED BY: IMAD
DATE: 01/12/2015

SHEET NO:
C01

DATE: September 10, 2015

TO: Sustainable Design Review Committee

FROM: R. Brent Savidant, Planning Director

SUBJECT: PREQUALIFIED SDP STATUS – CIOT Granite Showroom, 2854, 2870 and 2904 Industrial Row, Located on the north side of Industrial Row, east of Coolidge, Section 26 – Zoned IB

The petitioner, Benny Spielman of SP Industrial 4 proposes a new CIOT Granite Showroom on his site on Industrial Row. The site is zoned IB Integrated Industrial and Business. Because the project is zoned IB and surrounded by similarly zoned properties, it qualifies for administrative site plan approval. The applicant seeks Prequalified Sustainable Development Project status to provide less than the required 20% open space and provide parking in the front yard.

The applicant proposes a number of sustainable design features, which are listed in the site plan documents. These sustainable features include:

- Bio-swale in front yard
- PVC roof
- Native vegetation species
- Exterior lighting on tmers

The applicant went before the SDRC on March 25, 2015. The Committee granted Prequalified SDP status, subject to the applicant demonstrating "that the rain garden system functions as per the intent of the SDP provisions, prior to Final Engineering approval, as verified by the Engineering Department". Engineering has reviewed the revised application and supports the project.

Attachments:

1. Maps
2. Site plan

cc: Applicant
File/SDP

G:\Sustainable Development Option\Projects\2900 Industrial Row\SDP 2900 Industrial Row 09 11 15.docx

City of Troy GIS Online

176 0 88 176 Feet

Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.

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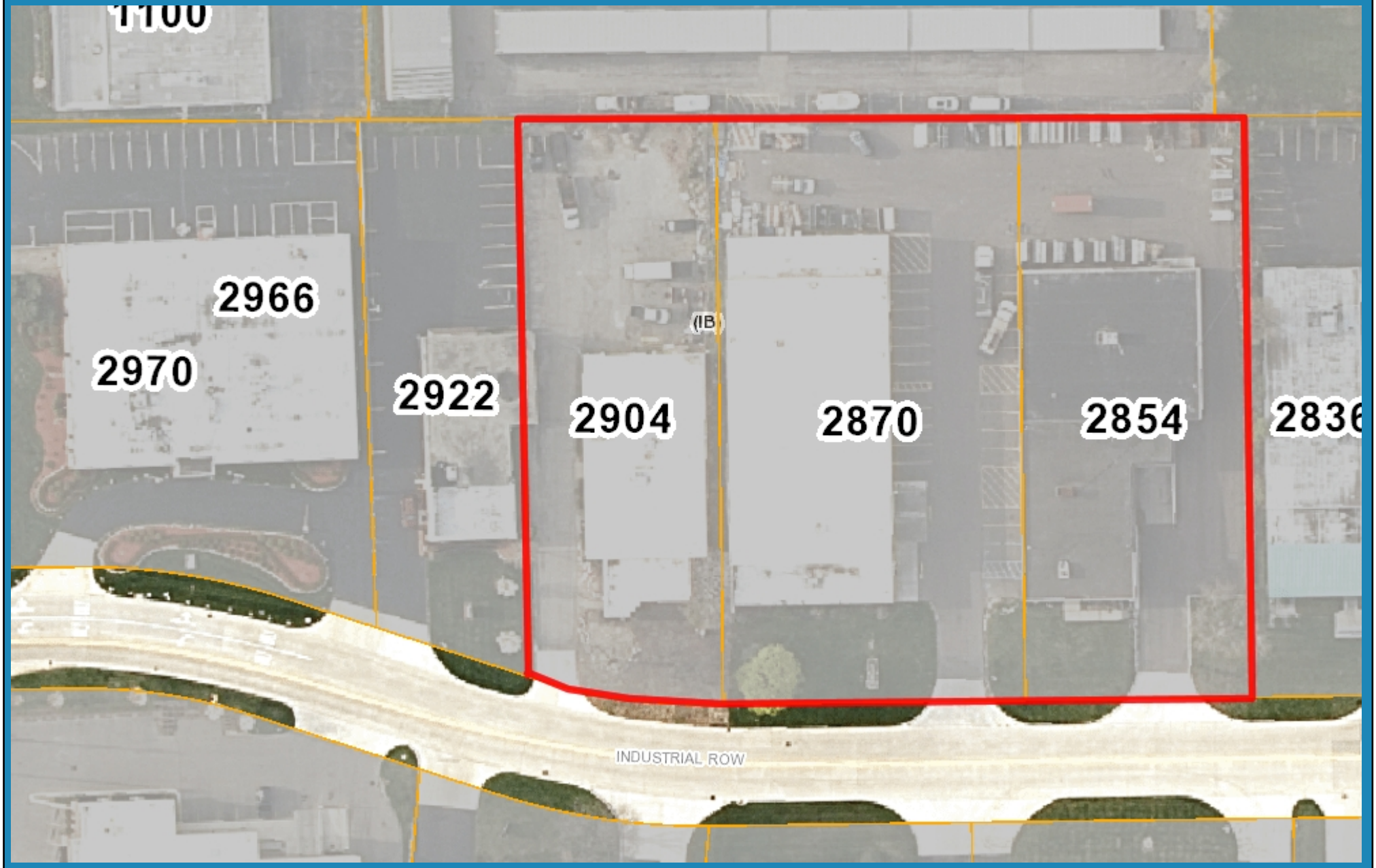


176 0 88 176 Feet

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## Sustainable Development Regulations

| CATEGORY | DESCRIPTION | LOCATION | REQUIREMENT |
|---|---|---|---|
| A-1 | STORMWATER - QUALITY<br>PROVIDING RAIN GARDENS, SWALES, GREEN ROOFS, OR PERMIABLE PAVING AS DIRECTED IN THE "TROY SUSTAINABLE DEVELOPMENT PROCESS AND REGULATIONS" UNDER THE STORMWATER CATEGORY | RAIN GARDENS - SOUTH LINE AND AS DIRECTED BY LANDSCAPE ARCHITECT<br>BIO-SWALE - SOUTH PROPERTY LINE | P - PREREQUISITE |
| A-2 | STORMWATER - QUANTITY<br>PROVIDING RAIN GARDENS, SWALES, GREEN ROOFS, OR PERMIABLE PAVING AS DIRECTED IN THE "TROY SUSTAINABLE DEVELOPMENT PROCESS AND REGULATIONS" UNDER THE STORMWATER CATEGORY | RAIN GARDENS - SOUTH LINE AND AS DIRECTED BY LANDSCAPE ARCHITECT<br>BIO-SWALES - SOUTH PROPERTY LINE | P - PREREQUISITE |
| D-1 | LIGHT POLLUTION<br>REDUCE PROVIDED LIGHTING BY USING AUTOMATIC DEVICES FOR ALL NON-EMERGENCY LIGHTING BY AT LEAST 50% BETWEEN 11PM TO 5AM AND HAVE FULL CUTOFF SHIELDING ON ALL FIXTURES TO PREVENT LIGHT TRESPASS | LIGHTING - AS DIRECTED BY ARCHITECT | P - PREREQUISITE |
| E-1 | HEAT ISLANDS<br>USE ROOFING MATERIALS WITH AN SRI OF AT LEAST 29 (FOR ROOFS WITH STEEP SLOPE - GREATER THAN 2:12) OR AT LEAST 78 (FOR ROOFS WITH LOW SLOPE - LESS THAN 2:12) FOR AT LEAST 75% OF THE ROOF SURFACE | TPO ROOFING SYSTEM - PROVIDE TPO ROOFING SYSTEM ON NEW ROOF | Q - QUALIFYING |
| F-1 | WATER RESOURCES - WATER EFFICIENT LANDSCAPING<br>REDUCE WATER CONSUMPTION DEMANDS FOR IRRIGATION BY MORE THAN 50% USING NATIVE SPECIES OVER CONVENTIONAL LANDSCAPING | VEGETATION SPECIES - PROVIDE NATIVE SPECIES OF VEGETATION AS DIRECTED BY LANDSCAPE ARCHITECT | P - PREREQUISITE |

# Landscape Requirements:

**Lot Screening (Tbl. 13.02-B):**

N/A (Non-Continguous Uses) Tbl. 13.02-B

**Parking Lot (13.02.C)**

(1) tree / (8) spaces
(57) spaces / 8 = 8 Trees
*Trees moved to perim. per 13.02.C.2.d

**Greenbelts (13.02.D)**

10'-0" wide
(1) tree / (30) linear feet
242'-6" / 30 = 8.08 = 9 Trees

**Site Landscaping (13.02.E)**

20% of site shall be landscaped

| | |
|---|---|
| Lot Area: | 102,721.28 Sq. Ft. |
| Landscaped Req'd: | 20,544.25 Sq. Ft. |
| Landscaped Area: | |
| Along Industrial Row: | 7,829 Sq. Ft. |
| Western Parking Lot: | 612 Sq. Ft. |
| At Entrances: | 561 Sq. Ft. |
| Total: | 9,002 Sq. Ft. |
| Deficiency: | 11,542.25 Sq. Ft. |

## Landscape Legend

| KEY | QTY. | BOTANICAL NAME | COMMON NAME | SIZE |
|---|---|---|---|---|
| CB | 1 | *Carpinus betulus 'Columnaris'* | Upright European Hornbeam | 2 1/2" cal. |
| ARF | 14 | *Acer rubrum 'Franksred'* | Red Sunset Maple | 2 1/2" cal. |
| | | | | |
| TOP | | *Asclepias tuberosa* | Butterflyweed | |
| TOP | | *Liatris spicata* | Dense Blazingstar | |
| | | | | |
| BAS | | *Allium cernuum* | Nodding Pink Onion | |
| BAS | | *Baptisia bracteata* | Cream False Indigo | |
| BAS | | *Geum triflorum* | Prairie Smoke | |
| BAS | | *Iris versicolor* | Blue Flag | |
| BAS | | *Liatris pycnostachya* | Prairie Blazingstar | |
| BAS | | *Lobelia siphilicata* | Great Blue Lobelia | |
| BAS | | *Lupinus perennis* | Lupine | |
| BAS | | *Mimulus ringens* | Monkeyflower | |
| BAS | | *Penstemon ovatus* | Broad-leaved Penstemon | |
| BAS | | *Zizea aurea* | GoldenAlexanders | |

NOTES:

1. ALL TREES ARE TO COMPLY WITH TREE PROTECTION DETAILS AS SPECIFIED PER ORDINANCE

2. Lawn Sod Mix:
   30% PERENNIAL RYGRASS
   20 % PARK KENTUCKY BLUEGRASS
   45% CREEPING RED FESCUE
   5% ANNUAL RYEGRASS

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Client:
Ciot Tile
2900, 2870 & 2854 Industrial Row, Rd.
Troy, MI

Project:
Building Addition/ Renovation

Issued:

| | |
|---|---|
| 11.6.2013 | Client Review |
| 1.17.2014 | Client Review |
| 2.13.2014 | Client Review |
| 1.19.2015 | SDP |
| 2.03.2015 | SDP |
| 3.17.2015 | SDP Revisions |
| 9.4.2015 | SDP Submittal |

Seal:

Note:
Do not scale drawings. Use calculated dimensions only. Verify existing conditions in field.

North Arrow:
NORTH

Sheet Title:
Landscape Plan

Scale:
1" = 20'-0"

Project Number:
14-007

Sheet Number:
L.100

# JM TPO – 60 mil

## Thermoplastic Polyolefin Membrane

**Meets or exceeds the requirements of ASTM D 6878**

Component
M
Membrane
Single Ply

## Features

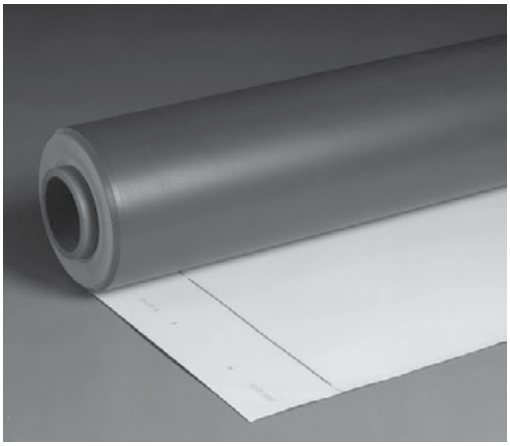
**Thickness Over Scrim:** Optimized and tested on a continual basis with a state-of-the-art thickness gauge to verify that the thickness valued by our customers is incorporated into the sheet.

**One of the Widest Melt Windows:** Promotes better welds over a wider variety of speeds and temperatures, and leads to a softer, more flexible and workable sheet.

**Reinforced fabric scrim layer and top-ply thickness:** Lends to durable physical properties including:

- Long-term weathering, UV resistance and heat-aging properties
- High breaking and tearing strength

**Optimized TPO formulation:** delivers high-performance ozone resistance, cool roof reflectivity and overall weather resistance.



## Colors White, Grey* and Tan*

**Grey and Tan lead times are subject to availability and may require an upcharge for smaller projects.*

## System Compatibility *Please refer to the specific JM Specification sheets for details.*

| Multi-Ply | BUR | | APP | | SBS | | | |
|---|---|---|---|---|---|---|---|---|
| | HA | CA | CA | HW | HA | CA | HW | SA |
| | *Do not use with Multi-Ply systems* | | | | | | | |

| Single Ply | TPO | | PVC | | EPDM | | |
|---|---|---|---|---|---|---|---|
| | MF | FA | MF | FA | MF | FA | BA |
| | *Compatible with the selected Single Ply systems above* | | | | | | |

**Key:** **HA** = Hot Applied **CA** = Cold Applied **HW** = Heat Weldable **SA** = Self Adhered **MF** = Mechanically Fastened **FA** = Fully Adhered **BA** = Ballasted

## Energy and the Environment

| | | | |
|---|---|---|---|
| CRRC® | Initial | Reflectivity: 0.77 | Emissivity: 0.87 |
| CA Title 24 | Pass | Reflectivity: 0.77 | Emissivity: 0.87 |
| ENERGY STAR® | Initial | Reflectivity: 0.78 | |
| | 3 Yr. Aged | Reflectivity: 0.68 | |
| | Cleaned 3 Yr. | No | |
| LEED® | SRI of 101 as tested by ASTM E 1980.<br>Recycled Content: Post-consumer: 0% Post-industrial: 5% | | |

Results shown are for the initial reflectivity and emittance for white membranes unless otherwise indicated; emissivity values for California Title 24 are tested per ASTM C 1371; LEED emissivity values are tested per ASTM E 408.

## Peak Advantage® Guarantee Information

| Product | Guarantee Term |
|---|---|
| JM TPO 60 | 5, 10, 15, or 20 years |

## Codes and Approvals

CLASSIFIED UL C US

FM APPROVED

MIAMI-DADE COUNTY APPROVED
Miami-Dade County Product Control Approved

## Installation/Application

Fully Adhered | Mechanically Fastened | Hot Air Weld

Refer to JM TPO application guides and detail drawings for instructions.

## Packaging and Dimensions

| | | | |
|---|---|---|---|
| Roll Widths | 5' (1.52 m) | 8' (2.44 m) | 10' (3.05 m) |
| Roll Lengths | 100' (30.48 m) | | |
| Roll Coverage | 500 ft² (46.33 m²) | 800 ft² (74.37 m²) | 1000 ft² (92.66 m²) |
| Rolls per Pallet | 8 | | |
| Pallet Weight | 1384 lb (627.8 kg) | 2200 lb (997.9 kg) | 2760 lb (1251.9 kg) |
| Pallets per Truck* | 36 | 24 | 16 |
| Producing Location | Scottsboro, AL | | |

*Assumes 48' flatbed truck and does not reflect pallets of accessories or impact of mixed sizes.

# JM TPO – 60 mil

## Thermoplastic Polyolefin Membrane

**Meets or exceeds the requirements of ASTM D 6878**

## Tested Physical Properties

| | Physical Properties | ASTM Test Method | Standard for ASTM D 6878 (Min.) | JM TPO – 60 mil | |
|---|---|---|---|---|---|
| | | | | MD* | XMD** |
| Strength | Tearing Strength | D 751 | >55 lbf (245 N) | 91 lbf (408 N) | 178 lbf (792 N) |
| Strength | Breaking Strength | D 751 | >220 lbf (978 N) | 411 lbf (1,832 N) | 388 lbf (1,729 N) |
| Longevity | Overall Sheet Thickness | D 6878 | +15%, -10% | 0.057 in. (1.45 mm) | |
| Longevity | Thickness of Coating Over Fabric Weather Side | D 6878 | >0.015 in. (.381 mm) | 0.027 in. (0.686 mm) | |
| Longevity | Elongation at Reinforcement Break | D 751 | >15% | 27% | 27% |
| Longevity | Ozone Resistance | D 1149 | No Cracks | Pass | |
| Longevity | Heat Aging (Pass/Fail) | D 573 | Pass | Pass | |
| Longevity | Water Absorption | D 471 | ±3.0% max. | 2.20% | |
| Longevity | Post Xenon Visual Inspection | D 6878 | Pass | Pass | |
| Aged Performance | Post Heat Aged Breaking Strength | D 751 | >90% retained values | Pass, 411 lbf (1,830 N) | Pass, 493 lbf (2,194 N) |
| Aged Performance | Post Heat Aged Elongation at Reinforcement Break | D 751 | >90% retained values | Pass, 30% | Pass, 28% |
| Aged Performance | Post Heat Aged Tearing Strength | D 751 | >60% retained values | Pass, 69 lbf (307 N) | Pass, 154 lbf (685 N) |
| Aged Performance | Post Heat Aged Weight Change | D 1204 | ±1% max. | <0.1% | |
| Aged Performance | Post Heat Aged Linear Dimension Change | D 6878 | ±1% max. | <0.1% | |
| Installation | Brittleness Point | D 2137 | -40°C (-40°F) | Pass @ -40°C (-40°F) | |
| Installation | Factory Seam Strength | D 751 | >66 (294) | 112 lbf (499 N) | |
| Installation | Weight | NA | NA | ~0.29 lb-ft$^2$ (~0.012 kg-m$^2$) | |

*MD = Machine Direction
**XMD = Cross-Machine Direction

Note: All data represents tested values.

## Supplemental Testing

| Physical Properties | ASTM Test Method | Standard for ASTM D 6878 (Min.) | JM TPO – 60 mil Result |
|---|---|---|---|
| Dynamic Puncture | D 5635 | N/A | 27.5 Joules |
| Static Puncture | D 5602 | N/A | Pass @ 44 lb (20 kg) |
| Reflectance | C 1549 | N/A | 78% |
| Emittance | C 1371 | N/A | 0.87 |
| Resistance of Synthetic Polymer Material to Fungi | G 21 | N/A | 0 rating |
| Puncture Resistance (FTM 101C, Method 2031) | N/A | N/A | 371 lb (168 kg) |
| Moisture Vapor Transmission | E 96 | N/A | 0 g/m$^2$ per 24 hours |
| Hydrostatic Resistance, Mullen | D 751 | N/A | 540 PSI (3723 kPa) |

Refer to the Material Safety Data Sheet and product label prior to using this product.

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# CIOT Granite Showroom

2900, 2870, 2854 Industrial Row
Sustainable Development Project (SDP)

## Area of Modification – Landscaping Flexibility

**Area within the Ordinance for which benefits are being sought out:**

**Section 13.02 Landscaping**

**E. Site Landscaping**

**1. Site landscaping Standards**

**a. A minimum of twenty percent (20%) of the site area shall be comprised of landscape material**

- Storm Water Quality – Prerequisite Measure
  - Rain Gardens
  - Swales – **A bio-swale is proposed along Industrial Row (see Landscape Plan and Civil documents)**
  - Green Roofs
  - Permeable Paving

- Storm Water Quantity – Prerequisite Measure
  - Rain Gardens
  - Swales – **A bio-swale is proposed along Industrial Row (see Landscape Plan and Civil documents)**
  - Green Roofs
  - Permeable Paving

- Heat Islands – Qualifying Measure
  - Using roofing materials with an SRI rating of at least 78 (for roofs with a low slope – equal to or less than 2:12) for at least 75% of the roof area.
    - **A PVC roof will be specified (See specification sheet provided for TPO roofing with a SRI rating of 101)**

- Water Efficient Landscaping – Prerequisite Measure
  - Reduce water consumption demands for irrigation by more than 50% using native species over conventional landscaping. –
    - **Native vegetation species will be planted (See landscape plan for plantings list)**

**Area of Modification –Lot coverage**

**Area within the Ordinance for which benefits are being sought out:**
**Section 4.15 Integrated industrial and Business Disctrict**
**Maximum % of Lot Area Covered by Buildings: 40%**

- Storm Water Quality – Prerequisite Measure
  - Rain Gardens
  - Swales – **A bio-swale is proposed along Industrial Row (see Landscape Plan and Civil documents)**
  - Green Roofs
  - Permeable Paving

- Storm Water Quantity – Prerequisite Measure
  - Rain Gardens
  - Swales – **A bio-swale is proposed along Industrial Row (see Landscape Plan and Civil documents)**
  - Green Roofs
  - Permeable Paving

- Heat Islands – Prerequisite Measure
  - Using roofing materials with an SRI rating of at least 78 (for roofs with a low slope – equal to or less than 2:12) for at least 75% of the roof area.
    - **A PVC roof will be specified (See specification sheet provided for TPO roofing with a SRI rating of 101)**

- Water Efficient Landscaping – Prerequisite Measure
  - Reduce water consumption demands for irrigation by more than 50% using native species over conventional landscaping. –
    - **Native vegetation species will be planted (See landscape plan for plantings list)**

- Light Pollution – Qualifying Measure
  - Reduce provided lighting by using automatic devices for all non-emergency lighting by at least 50% between 11 pm – 5 am and have full cutoff shielding on all fixtures to prevent light trespass

- **Exterior lighting will use automatic devices per the time frame specified and the exterior lighting will have full cut-off (see lighting specifications in submittal)**

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# CIOT Granite Showroom

2900, 2870, 2854 Industrial Row
Sustainable Development Project (SDP)

## Sustainable Measure Maintenance Summary

### PVC Roofing

The owner is to inspect the roof semi-annually during the spring and fall seasons for any tears, leaks, or other deficiencies to the roofing system. Roof will also be examined after severe weather conditions.

The following is to be completed during roof inspection:

Removal of any debris such as leaves, small branches, dirt, rocks, etc.

Gutters are to be inspected for proper drainage. Clean as required.

All flashings and valleys are to be examined for rust and are to be verified that they are well attached and sealed.

Examine areas abutting the roofing system for loose caulking, bad mortar joints, etc.

Examine the edges for material that may have been lifted from severe weather.

Check the building exterior for settlement, movement, and cracking

Examine protective coatings for cracked, flaking, or blistered areas.

Owner will review the conditions of the maintenance program for the PVC roof. All maintenance is to comply with the program to ensure roof warranty.

### Landscaping

All landscaping materials being used are to comply with the provisions of the local ordinance and shall be nursery grown, free of pests and diseases, hardy in Oakland county, in conformance with the standards of the American Association of Nurserymen, and shall have padded inspections required under state regulations. In addition, plant materials shall conform to the standards of the county cooperative extension service. The items listed below are guidelines

to proper landscape maintenance. The landscape contractor is to provide a maintenance program to the owner after landscape completion.

**Groundcover:**

Groundcover shall be maintained in a healthy, vigorous growing condition.

Groundcover is to be trimmed to edge of sidewalks, curbs, and paved areas on a monthly basis. Edges are to be cut at an angle. **DO NOT** fertilize plantings within the rain garden.

Mow weekly during active growth periods (April – October).

Leaves are to be removed on a weekly basis during fall months.

**Mulch:**

Additional mulch may need to be added to maintain no less than 2" deep at beds and tree wells. Any mulch found outside planter areas shall be returned to the planter on a weekly basis.

Mulch will be uniform in color and appearance, and free of sticks or trash. When replacing mulch, use a mulch product that is similar in appearance to current mulch onsite.

**Trees:**

Trees shall be maintained in a healthy, vigorous growing condition, free from disease and large concentration of pests.

Prune trees only to remove dead, diseased, broken, dangerous, or crossing branches. Prune in accordance with generally accepted standards for proper pruning.

Any tree found to be dead or missing shall be replaced with plant material of identical species. Replacement trees shall be approved for size and appearance prior to installation.

Any tree stakes are to be removed after (2) growing seasons. Check tree ties to adjust and loosen as needed after the first growing season.

Once a year, prune all trees to encourage a high-branching structure. Remove all non-structural branches between the ground and a point half the tree's total height except tree planted for screening purposes.

All sucker growth from trunk and base of trees shall be removed monthly or as required up to (12) feet from the ground to maintain a clean appearance.

**Shrubs:**

Shrubs shall be maintained in a healthy, vigorous growing condition, free from disease and large concentration of pests.

Shrubs shall be pruned monthly only as needed to remove branches that are dead, broken, extending beyond the face of curbs or sidewalks, or are climbing building walls. Formal hedges shall be regularly pruned to maintain a uniform height and width.

Shrubs uniformly planted around the perimeter of tree pits shall be pruned so as to encourage a continuous planting where individual plants are not identifiable. Prune to encourage a dense, continuous planting, with natural shape and branched reaching fully to the ground.

All other shrubs shall be pruned only as required for safety, visibility, and plat health, and allowed to develop into the natural shapes expected of the plant variety.

Allow shrubs (2) months to rejuvenate following hard frost prior to pruning or replacing.

Any shrub found to be dead or missing shall be replaced with plant material of identical species. Replacement shrubs shall be approved for size and appearance prior to installation.

When pruning shrubs known or suspected to be diseased, the cutting blades shall be sterilized after each cut.

**Weed Control Methods – General Guidelines:**

Crowd out weeds with dense healthy plantings, ground covers and shade canopies.

Accept a few weeds – target the problem ones.

Mulch beds in fall, winter, or early spring.

Control weeds before they go to seed.

Hoe, pull, mow, or till (mulch makes hoeing easier).

Use flame or radiant heat weeders over pavement, cracks, fencelines, and building edges, or over mulch on rainy days (use fire precautions as per equipment labeling).
Use barriers: newspaper or cardboard covered with mulch, root barriers for spreading plants. Landscape fabric can create problems as weeds grow through it – paper or cardboard is better.

Don't over-fertilize – it promotes weeds and pests.

Spot apply the least-toxic chemical (e.g. soap and vinegar-based weed killers, or cut-and-paint stems with systemic herbicides) to minimize non-weed impacts.

If a pesticide must be used, post signs for at least 24 hours stating: area affected; date/time applied; specific pesticide used; re-entry cautions (from label); and phone number to call with questions. Always follow label for application and

protection. Professional appliers (including users of "weed & feed," or even low risk herbicides like vinegar)

**Irrigation:**

**All Areas**

Monitor the moisture levels around all ornamental plants including, but not limited to trees, lawn, shrubs, perennials, groundcovers and annuals. Report problems (including brown spots or saturated areas) to on-site management during normal maintenance visits.

Fix irrigation system leaks and broken or misdirected heads as needed on every site visit.

Hand watering of any ornamental plants not under irrigation is not assumed.

**Spring start-up**

Open the main valve(s), inspect and adjust all sprinkler heads, re-program and check battery backup in controller, and troubleshoot the entire system.

Test sensors (rain, soil moisture, weather) and zone coverage while running. Set ET-based, seasonal, or weather–based manual or automatic programs. Post spring/summer/fall schedules (runtimes x days / zone) and train staff as needed to monitor through season.

**Checks and repairs**

Once per month inspect entire irrigation system. Irrigation inspections shall include the following:

Activation of each zone to inspect for valve function, lateral breaks, damaged heads, coverage or anything else that would indicate any malfunction of the irrigation system.

Adjust irrigation heads for proper coverage.

Adjust automatic controller to establish frequency and length of watering periods for seasonal requirements and water restrictions.

Runoff of water from irrigation systems into or onto streets, sidewalks, stairs, or gutters is not permitted. Immediately shut down the irrigation system and make adjustments, repairs, or replacements as soon as possible to correct the source of the runoff.

Do not over-water plantings. Use multiple-start times and short run times to prevent runoff. Drip systems should be left on for sufficient time to allow for saturation of the root zone. Shorter runs with drip irrigation do not provide sufficient water penetration for healthy root development. Avoid multiple-start times with drip systems if possible. Do not allow run-off from any irrigation.

Rain sensors/weather sensor/soil moisture sensors: Install rain shut-off devices where possible. If no rain shut-off device, building manager shuts off irrigation at first sign of rain.

Maintain the irrigation system, including cleaning of filter screens yearly or more often as needed, and flushing pipes.

Drip irrigation systems need periodic flushing to remove sediment. Systems shall be flushed at least once a year. Open ends of drip lines and run for at least 15 minutes at full flow to flush. It may be necessary to install flush outlets in order to

flush the drip system.

The landscape contractor is to program and periodically adjust the irrigation system as required to insure delivery of proper and adequate water supply to all plant materials, and sodded lawn areas to insure the establishment of health plant materials and lawns for their first year of growth. The landscape contractor shall provide the owner' with a suggested "irrigation main tenant schedule for the use.

**Bio-Swale Plant Maintenance:**

After planting/seeding, may use a thin layer of weed-free mulch, such as straw of humus

For first two months after planting, water approx. once a week with a slow soaking of the soil, unless adequate rainfall occurs

Once the plant materials are established, water during extended periods of drought, or if plant materials begin to wilt.

Owner will be provided training related to rain garden maintenance

# City of Troy

## Sustainable Development Checklist
## Established by Section 12.01 of the City of Troy Zoning Ordinance

Adopted by the Troy City Council on September 26, 2011

**TROY Sustainable Development Project Checklist**

**1.Summary**

The purpose of the Sustainable Development Project (SDP) option is to encourage development and redevelopment in the City of Troy to incorporate features designed to minimize adverse impacts on the natural and built environment. The SDP option is established by Section 12.01 of the Zoning Ordinance. SDP status will empower applicants to seek a modification from certain elements of the Zoning Ordinance and receive benefits directly related to the sustainable features proposed for their project.

This SDP application includes a variety of areas within which a project can provide sustainable measures in exchange for regulatory flexibility. Once it has been determined that a project design has included measures which are directly related to and which mitigate for the modification sought by the applicant, Prequalified SDP status can be awarded by the Sustainable Development Review Committee (SDRC). There are 7 groups of potential measures provided which can be applied to a variety of areas within the Zoning Ordinance.

**2. Zoning Ordinance Sections for which SDP status may be granted**

The SDP process is voluntary, and may be applied to any application requiring site plan review under Section 8.02 of the Zoning Ordinance. This includes conventional projects requiring site plan review or special use approval. SDP projects may receive modifications from the Zoning Ordinance in the following six areas:

A. Lot Coverage: For projects having SDP status, maximum lot coverage may be reduced in the R1-A through R1-C Districts, RT, MF, UR, CF, IB, OM, and RC Districts (Sections 4.06.D.5, 4.07.D.5, 4.08.D.6, 4.09.D.6, 4.11.D.3, 4.15.D.4, 4.17.D.5, 4.18.D.6,).

B. IB Front Yard Parking: For projects having SDP status, Front yard parking may be permitted in the IB District (Section 4.15.D.3.a).

C. One Family Cluster Density Bonus: SDP Status may be used as a qualifying factor for a dwelling unit density bonus in projects utilizing the One-Family Cluster Option (Section 10.04.D.2.a).

D. One Family Cluster Dimensional Modifications: SDP Status may be used as a qualifying factor for dimensional requirement flexibility in projects utilizing the One-Family Cluster Option (Section 10.04.E.2).

E. Landscaping Flexibility: All landscaping requirements within Section 13.02, Landscaping, may be modified for projects having SDP status. This includes greenbelt landscaping, screening, parking lot landscaping, and general

landscaping requirements (Section 13.02).

F. Parking Requirement Deviations: Projects with SDP status are automatically eligible for a parking deviation if the measures proposed and the Prequalified SDP status is granted for measures directly related to the requested change in parking (Section 13.06.F).

## 3. Application Requirements and Administration

**Figure 1: SDP Process Summary**

| Steps | |
|---|---|
| 1 | Applicant files an application seeking Prequalified SDP status for one of the purposes identified herein. |
| 2 | Zoning Administrator reviews the application to ensure that measures intended to satisfy the Prerequisites are proposed for the area of relief being sought, and that at least one qualifying measure is proposed for the area of relief being sought (Table 1) |
| 3 | The Sustainable Design Review Committee meets and considers the application within 30 days of the Zoning Administrator's formal determination that the application is complete. |
| 4 | The Committee takes action on the request. If the Committee finds that the proposed measures will adequately offset the requested modification, the Committee shall grant the applicant Prequalified SDP status. |
| 5 | The project goes through the site plan approval process. |
| 6 | The SDP status is ratified by final site plan approval |

Projects seeking SDP status shall meet the following criteria and prequalification:

A. Application: The application for SDP status shall contain the following information:

1. Applicant's name, address, and telephone number - professional seals are not required at the SDP application stage
2. Common description of the property and complete legal description
3. Dimensions of land, including width, length, acreage, and frontage
4. Existing zoning and current land use of the property under consideration and zoning and current land use of all adjacent properties
5. General location of all existing structures, roadways, and natural features
6. The general location of all proposed buildings, roadways, parking areas, and any other changes proposed to be made on the subject property
7. A specific list of sustainable design measures being proposed with the following supporting information:
   a. Any manufacturer information, such as specifications or cut sheets that detail the technology, attributes, and anticipated benefits of the features or equipment

b. Identification on the drawings providing information about the location, general design, and application of the sustainable design features being proposed
c. A specific list of the areas within the Ordinance for which benefits are being sought with the SDP application
d. A long-term maintenance plan documenting the proposed method of care for the measures being proposed

B. Prerequisites and Qualifying Measures: The application will first be reviewed by the Zoning Administrator to ensure that it specifically lists the benefits for which the application is being filed and demonstrates that the areas of the Ordinance for which an application is seeking or benefits are proportionally related to the SDP measures being proposed. *Every area of the Ordinance for which modification can be sought has at least one category of potential measures from which the applicant MUST select and incorporate sustainable design measures. These required sustainable design measure categories are Prerequisites.*

For instance, if an applicant wishes to provide less open space (exceeding lot coverage) than is required by the Ordinance, the categories of measures identified as Prerequisites include measures that would mitigate the negative consequences of providing insufficient open space. In this example, the applicant would be required to provide measures in each of the following areas of stormwater quantity control, stormwater quality control and reduction of heat island effect.

*Every area of modification also has measure categories identified as Qualifying. Every project must, in addition to the Prerequisites, provide a measure in one Qualifying category.* For instance, in the example above, in addition to providing measures in the Prerequisite categories (stormwater quantity control, stormwater quality control and reduction of heat island effect), they would also be required to provide a measure in one of the following Qualifying areas: redevelopment and reuse, brownfield redevelopment, light pollution reduction, or water recycling.

C. Sustainable Design Review Committee: Within 30 days of the Zoning Administrator's formal determination that the application is complete, the Committee shall review any application that has been determined to meet the minimum required criteria for application for SDP status and has met the prerequisite standard of proposing measures directly related to the area or areas from which the applicant is seeking modification. The Committee will review the proposal and each proposed measure and requested modification contained in the application. If the Committee finds that the proposed measures will adequately offset the requested modification, the Committee shall grant the application Prequalified SDP status.

D. Compliance: Throughout the course of site plan or special use approval, the SDP application and findings of the Sustainable Design Review Committee shall be contained in the application. These materials will be reviewed throughout the process by the Zoning Administrator or designee for compliance to Prequalified SDP status. The applicant shall enjoy SDP benefits or modification as outlined in the Prequalified SDP application approved by the Committee. Once a project is complete, the Zoning Administrator shall make a determination that the Committee's findings are confirmed. If a change to the project affects the conditions spelled out in the Prequalified SDP findings, the applicant shall lose the benefits provided by the SDP status or shall reappear before the Committee to request a revised prequalification.

E. Prequalified SDP status shall become permanent when the Zoning Administrator grants final site plan approval, at which time the project is determined to have achieved full SDP status. The measures and modifications approved as part of the full SDP status are, like any element contained within an approved site plan, a required element of that final site plan and must be adhered to.

**4. Sustainable Design Measures**

The SDP option provides for seven areas where an applicant can provide sustainable design measures to seek flexibility in the six areas noted in Section 2, above. It is incumbent upon the applicant to devise an application submission demonstrating that the measure is met. The measures may be applied to the area of regulatory flexibility as follows in Table 1.

**Table 1: Prerequisite and Qualifying Measures**

*P = Prerequisite. To obtain Prequalified SDP status, a project MUST include measures in the categories identified as a Prerequisite, below. (Example: Lot Coverage flexibility can only be granted if stormwater quality, stormwater quantity, heat island effect, and water efficient landscaping measures are proposed.)*

*Q = Qualifying. This measure will qualify as a supporting measure to achieve SDP status for the area under consideration for modification. These options help mitigate the potentially negative factors resulting from the requested modification. Every project qualifying for SDP status must provide at least one Qualifying measure in addition to the Prerequisites for the area of modification.*

*X = Indicates that this measure will not satisfy the requirements to achieve SDP status.*

| | A | | B | | C | | D | E | F | | | G | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | Stormwater | | Site Selection | | Transportation | | Light Pollution | Heat Islands | Water Resources | | | Renwables | | | |
| | Quality | Quantity | Redevelopment and Reuse | Brownfields | Alternative Fuel Vehicle Facilities | Commuter | | | Water Efficient Landscaping | Water Use Reduction | Water Recycling | Solar | Wind | Geothermal | Other |
| Lot Coverage | P | P | Q | Q | X | X | Q | P | P | X | Q | X | X | X | X |
| IB District Front Yard Parking | P | P | Q | Q | Q | Q | P | Q | Q | X | Q | X | X | X | X |
| One Family Cluster Density Bonus | P | P | X | X | Q | Q | P | Q | Q | Q | Q | Q | Q | Q | Q |
| One Family Cluster Dimensional Flexibility | P | P | X | X | Q | Q | P | Q | Q | Q | Q | Q | Q | Q | Q |
| Landscaping Flexibility | P | P | X | X | X | X | X | Q | P | Q | Q | X | X | X | X |
| Parking Requirement Deviations | Q | Q | Q | Q | P | P | P | Q | X | X | X | X | X | X | X |

## A. Stormwater

Urban development has complicated and, in many cases, impeded the natural cycle of our water resources. By introducing impervious surfaces on a large scale the recharging of groundwater, infiltration of stormwater into the landscape, and flow and volume of rivers and streams have been disrupted. Further, contaminants from automobiles, chemicals from industry, eroded soils, and other undesirable substances have become commonplace, and are frequently washed away with stormwater into the natural environment. By improving the way stormwater is managed on-site, development can mitigate these potentially negative consequences. Low Impact Design techniques reduce the quantity of stormwater leaving a site, and also improve the quality of that water.

*Stormwater Quantity*

To receive Prequalified SDP status for stormwater quantity measures, an applicant may propose to do the following, or additional measures not specifically listed here, provided that the applicant can demonstrate that similar benefits will be realized:

- RAIN GARDENS
- SWALES
- MANUFACTURED WETLANDS
- GREEN ROOF
- CISTERNS
- PERMEABLE PAVING
- PRESERVATION OF NATURAL AREAS BEYOND WHAT IS REQUIRED

*Stormwater Quality*

To receive Prequalified SDP status for stormwater quality measures, an applicant may propose to do the following, or additional measures not specifically listed here, provided that the applicant can demonstrate that similar benefits will be realized:

- RAIN GARDENS
- SWALES
- MANUFACTURED WETLANDS
- GREEN ROOF
- CISTERNS
- PERMEABLE PAVING
- PRESERVATION OF NATURAL AREAS BEYOND WHAT IS REQUIRED

## B. Site Selection

Renovation of an existing building or site is often more sustainable than new construction. The renovation of existing facilities reduces landfill waste and reduces the need for new materials. Also, the renovation of existing facilities often eliminates the need for changes to underground utilities, access and circulation, and open space, given that building footprints are often preserved. These advantages mean that redevelopment properties can often be revitalized more quickly, efficiently, and sustainably than new construction.

Brownfield projects are often situated in excellent, high-traffic or well developed areas, although in most brownfield cases, the site is environmentally contaminated. This is a disadvantage to the developer in that there is often costly mitigation that must occur in order to make the site useful. Using SDP, the City can incentivize brownfield redevelopment.

*Redevelopment and Reuse*

To receive Prequalified SDP status for redevelopment and reuse measures, an applicant may propose to do the following:

- USE A SITE THAT IS PREVIOUSLY DEVELOPED AND VACANT

*Brownfield Site*

To receive Prequalified SDP status for brownfield site measures, an applicant may propose to do the following:

- USE A SITE ON WHICH CONTAMINATION EXISTS AT CONCENTRATIONS IN EXCESS OF THE STATE OF MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY'S (MDEQ) REMEDIATION CRITERIA OF PART 201, ENVIRONMENTAL REMEDIATION, OF THE NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, 1994 PA 451, AS AMENDED - THIS DETERMINATION MUST BE MADE IN WRITING BY THE MDEQ

## C. Transportation

*Purpose:*

Natural gas, electric, hybrid, fuel cell, or other alternative fuel vehicles help reduce greenhouse gas emission and fuel demands. Supporting these vehicles also encourages innovation and job creation in the automotive industry, thereby supporting job growth in Troy and Southeast Michigan. The infrastructure for alternative fuel vehicles is in its infancy, although a few simple elements can be incorporated into new development and redevelopment to empower adopters of new automotive technology to function in Troy. This approach will also help Troy compete for residents and companies that are attracted to this aggressive approach to promoting new technology.

Beyond alternative fuel vehicles, the community realizes even more benefit from those who choose transit or non-motorized means to get to homes, jobs, and everyday activities. Successful regional transit will allow a wider range of people to choose Troy as a home or destination. Non-motorized transportation has both an environmental and overall community health benefit. Both options increase the number of pedestrians on the street, supporting the density in certain areas that are called for in the City of Troy Master Plan.

*Alternative Fuel Vehicle Facilities*

To receive Prequalified SDP status for alternative fuel vehicle measures, an applicant may propose to do the following:

- INSTALL RECHARGING STATIONS FOR NOT LESS THAN 2.5% OF THE PROVIDED PARKING SPACES
- INSTALL PRIORITY PARKING FOR HYBRID OR ALTERNATIVE FUEL VEHICLES FOR NOT LESS THAN 5% OF THE PROVIDED PARKING SPACES

*Commuter Accommodations*

To receive Prequalified SDP status for commuter measures, an applicant may propose to do the following:

- PROVIDE NON-MOTORIZED PATHWAYS AND BICYCLE AMENITIES THROUGHOUT THE PROJECT BEYOND THOSE REQUIRED BY THE ORDINANCE
- PROVIDE COMMUTER LOCKERS AND SHOWERS AND SECURE, COVERED BICYCLE PARKING FOR NOT LESS THAN 10% OF THE ESTIMATED STAFF OR RESIDENTS AND 5% OF THE ANTICIPTED CUSTOMERS
- PROVIDE COVERED SHELTER FOR TRANSIT PASSENGERS ON ESTABLISHED TRANSIT ROUTES

## D. Light Pollution

*Purpose:*

Light pollution takes many forms, and can have many negative consequences. Simple problems, like trespass of excess light from one property to another, can be a nuisance. Substantial light pollution can create glare that makes night visibility for drivers a challenge. Regional light pollution can limit the ability to see the night sky clearly, and inappropriate light levels have been shown to affect sleep behavior. Further, by reducing unnecessary lighting, there is an energy reduction benefit that, on a widespread scale, can significantly reduce energy demand.

*Light Pollution Reduction Measures*

To receive Prequalified SDP status for light pollution reduction measures, an applicant may propose to do the following:

- REDUCE PROVIDED LIGHTING BY USING AUTOMATIC DEVICES FOR ALL NON EMERGENCY LIGHTING BY AT LEAST 50% BETWEEN 11 PM AND 5 AM AND HAVE FULL CUTOFF SHIELDING ON ALL FIXTURES TO PREVENT LIGHT TRESPASS

## E. Heat Islands

*Purpose:*

Heat island effect is when atmospheric temperatures, indoors or outdoors, are artificially increased by elements of the built environment. For instance, a large expanse of asphalt absorbs and slowly releases heat throughout a parking area, where an expanse of grass would have remained cooler and avoided such an "island" of increased heat.

Techniques such as a high-reflectivity roof, sun shades, increased landscaping over a large parking area, or the use of a light, highly reflective pavement material can reduce the heat island effect and help maintain more comfortable temperatures that are closer to the natural condition on a site. These techniques reduce energy demands and naturally preserve comfort for the people who visit or reside in such places.

*Heat Island Effect Reduction*

To receive Prequalified SDP status for heat island effect measures, an applicant may propose to do the following:

- PLACE A MINIMUM OF 50% OF PARKING UNDERGROUND OR UNDER A STRUCTURE HAVING A ROOF SRI (SOLAR REFLECTANCE) OF AT LEAST 29 OR A STRUCTURE HAVING A GREEN ROOF
- SHADE 50% OR MORE OF THE SITE HARDSCAPE (PARKING, DRIVES, WALKS, COURTS, ETC., NOT INCLUDING BUILDINGS) WITH ANY OF THE FOLLOWING ALONE OR IN COMBINATION:
  - USE AN OPEN GRID PAVEMENT SYSTEM
  - LANDSCAPING CANOPY (WITHIN 5 YEARS OF PLANTING)
  - SOLAR ENERGY STRUCTURES
  - USING A STRUCTURE HAVING A ROOF SRI OF AT LEAST 29 OR A STRUCTURE HAVING A GREEN ROOF
  - USE HARDSCAPE MATERIALS WITH AN SRI OF AT LEAST 29
- USE ROOFING MATERIALS WITH AN SRI OF AT LEAST 29 (FOR ROOFS WITH A STEEP SLOPE – GREATER THAN 2:12) OR AT LEAST 78 (FOR ROOFS WITH A LOW SLOPE – EQUAL TO OR LESS THAN 2:12) FOR AT LEAST 75% OF THE ROOF SURFACE AREA
- USE A GREEN ROOF FOR AT LEAST 75% OF THE ROOF SURFACE AREA
- USE A COMBINATION OF THE MINIMUM SRI ROOF MATERIALS AND GREEN ROOF MATERIALS FOR AT LEAST 75% OF THE ROOF SURFACE AREA

## F. Water Resources

*Purpose:*

While the State of Michigan is surrounded by the Great Lakes, most communities obtain their water from groundwater sources. Given the effect of urban development on the

natural recharging of groundwater, there is a benefit in many communities to reduce the amount of water used for everyday activities. Even in Troy, the cost of bringing water in through the regional water network is considerable in terms of the long-term demands placed on the network of underground utilities. By reducing the amount of water wasted in everyday use, the community will extend the useful life of its water resources and the water infrastructure.

Using water efficient landscaping, such as drought tolerant native species, reduces the need for water and maintenance costs. Reducing water use inside a building at the point of consumption is easily achieved through water efficient fixtures. Water recycling is often more involved, but has the added benefit of reducing stormwater quantity, in keeping with other measures within the SDP process.

*Water Efficient Landscaping*

To receive Prequalified SDP status for water efficient landscaping measures, an applicant may propose to do the following:

- REDUCE WATER CONSUMPTION DEMANDS FOR IRRIGATION BY MORE THAN 50% USING NATIVE SPECIES OVER CONVENTIONAL LANDSCAPING
- INSTALL IRRIGATION SYSTEMS USING ONLY CAPTURED RAINWATER OR RECYCLED WASTEWATER

*Water Use Reduction*

To receive Prequalified SDP status for water use reduction measures, an applicant may propose to do the following:

- REDUCE WATER CONSUMPTION BY 20% OR MORE OVER CONVENTIONAL DESIGN BY USING WATER EFFICIENT TOILETS (DUAL FLUSH, WATERLESS, LOW FLOW, ETC.), LOW FLOW FAUCETS, LOW FLOW SHOWERS, HIGH-EFFICIENCY WASHING MACHINES OR DISHWASHERS, ETC.

*Water Recycling*

To receive Prequalified SDP status for water recycling measures, an applicant may propose to do the following:

- CAPTURE MORE THAN 50% OF THE SITE'S WASTEWATER FOR NON-POTABLE USES

## G. Renewables

*Purpose:*

Renewable sources of energy, such as wind, solar, or geothermal, represent cleaner, reliable sources of energy that do not place the same kind of long-term demands on the natural environment that are characteristic of fossil fuels. While not always ideally suited to the climate or condition present in every region or even specific property, renewable sources of energy do represent inexhaustible sources of energy. Solar power, for instance, can generate electricity or provide thermal energy to heat water or even to warm the air inside a building. Geothermal energy takes advantage of the reliable consistent temperatures within the soil beneath our feet. Wind power can enhance the electrical supply without any need for fuel. Other forms of renewable energy production may be proposed, subject to approval by the Committee.

Renewable energy represents a large potential growth area in the economy. By incentivizing the installation of renewable capacity, the City of Troy is also supporting job creation in manufacturing, research and development.

Solar

To receive Prequalified SDP status for solar energy measures, an applicant may propose to do the following:

- PROVIDE ON-SITE SOLAR ENERGY COLLECTORS OR SOLAR THERMAL SYSTEMS TO PRODUCE NOT LESS THAN 10% OF THE SITES ANTICIPATED ELECTRICITY USE AND/OR REDUCE THE LOAD FOR WATER HEATING BY NOT LESS THAN 50% FOR SOLAR THERMAL DEVICES

*Wind*

To receive Prequalified SDP status for wind energy measures, an applicant may propose to do the following:

- PROVIDE ON-SITE WIND ENERGY CONVERSION SYSTEMS TO PRODUCE NOT LESS THAN 10% OF THE ANTICIPATED ELECTRICITY USEAGE

*Geothermal*

To receive Prequalified SDP status for geothermal energy measures, an applicant may propose to do the following:

- PROVIDE ON-SITE GEOTHERMAL SYSTEM REDUCE THE LOAD FOR BUILDING HEATING AND COOLING BY NOT LESS THAN 50%

*Other*

To receive Prequalified SDP status for renewable energy measures not listed here, an applicant may propose to do the following:

- PROVIDE INSTALLED RENEWABLE ENERGY PRODUCTION CAPACITY NOT LESS THAN 10% OF THE ANTICIPATED ELECTRICTY USAGE OR TO REDUCE THE LOAD FOR BUILDING HEATING AND COOLING BY NOT LESS THAN 50%.

**4. Definitions**

- Alternative Fuel Vehicles - Motorized vehicles that use an energy source other than fossil fuels, or a combination of fossil fuels and another form of energy
- Bicycle Amenities - Services provided that make the use of bicycles more use friendly, such as covered storage, bike racks, pathways etc.
- Brownfield - Abandoned, idle, or under-used industrial and commercial properties where expansion or redevelopment is hindered or complicated by real or perceived environmental conditions (SEMCOG 2008)
- Captured Rainwater – Rainwater collected in rain barrels or cisterns for later use
- Cisterns - Containers that store large quantities of stormwater above or below ground (SEMCOG 2008)
- Contaminants - Pollutants which have negative effects the natural environment, sometimes being washed away by stormwater into the environment
- Drought Tolerant – Plants that do not normally require artificial irrigation
- Glare - An effect of light pollution which causes decreased visibility
- Greenhouse Gas - A gas which is trapped within the atmosphere creating a heating effect on the environment, called the Greenhouse Effect
- Green Roof - A rooftop system that may include vegetation, waterproofing, insulation, fabrics, growth media, and other synthetic components allowing the roof to slow the rate of stormwater runoff (SEMCOG 2008)
- Groundwater - Natural water bearing subsurface layers of porous stone, sand, gravel, silt or clay via infiltration (SEMCOG 2008)
- Full Cutoff Shielding - A buffer used to block light from an affected area
- Hardscape - Paved surfaces such as parking lots, driveways, sidewalks, courts etc. not including buildings
- Heat Island Effect - When atmospheric temperatures, indoors or outdoors, are artificially increased by elements of the built environment
- High-Reflectivity Roof - A type of roofing used to decrease the effects of the urban heat island, by reflecting heat that would otherwise be absorbed
- Hybrid Vehicle - An alternative fuel vehicle that uses a combination of fossil fuels and another form of energy
- Impervious Surfaces - A surface that prevents the infiltration of water into the ground such as roofs, streets, sidewalks, driveways, parking lots, and highly compacted soils (SEMCOG 2008)
- Light Pollution - Pollution caused by light, in the form of excess light or the causation

for a nuisance

- Low Impact Design - Site design and stormwater management techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source, and that result in maintaining a site's pre-settlement hydrology (Troy Zoning Ordinance, 2011)
- Manufactured Wetlands - A man-made wetland used to create more efficient systems of water run-off and retention
- Native Species - Plants that historically co-evolved with the local ecology, geology and climate (SEMCOG 2008)
- Permeable Paving – Paving that allows liquids to pass through (SEMCOG 2008).
- Prerequisites - The sustainable design measures that must be met before an application can be approved
- Qualifying Measures - Measures that need to be met in addition to the prerequisites in order for a sustainable design project to be considered
- Rain Gardens - Landscaping that provides on-site detention, filtering of rainwater, groundwater recharge, and helps reduce runoff volume (Troy Master Plan, 2008).
- Recharging Stations - A purpose built element of infrastructure that supplies electric energy for the recharging of alternative fuel vehicles, including plug-in electric hybrid vehicles, requiring electricity
- Renewable Energy Installations – Equipment or structures that are designed to capture energy generated from natural resources such as sunlight, wind, rain, tides, and geothermal heat, which are renewable (naturally replenished)
- SRI (Solar Reflectance Index) - The amount of solar energy reflected off of a surface measured by the Solar Reflectance Index http://eetd.lbl.gov/coolroof/ref_01.htm
- Stormwater - Water consisting of precipitation runoff or snowmelt (SEMCOG 2008)
- Stormwater Quantity - The amount of stormwater runoff
- Stormwater Quality - The condition of the stormwater, including the amount of contaminants
- Swales - A shallow stormwater channel that can be vegetated with some combination of grasses, shrubs, and/or trees designed to slow, filter, and often infiltrate stormwater runoff (SEMCOG 2008)
- Water Efficient Landscaping - Landscaping which effectively processes water in the most efficient manner possible, reducing negative effects of poor stormwater management
- Water Recycling – The reuse of water from common domestic applications
- Watershed - The geographic area that drains to a specific watercourse outlet. The watershed for a major river may encompass a number of smaller sub-watersheds that ultimately contribute to their common outlet (SEMCOG 2008)